January __, 2023

Honorable Jennifer Granholm
Secretary of the U.S. Department of Energy
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Washington, D.C. 20585
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RE: Request for continued denial by DOE of certification of Holtec International's Palisades Nuclear Power Plant for receipt of payments under DOE Civil Nuclear Credit Program

Dear Madame Secretary Granholm:

The undersigned individuals and organizations, comprising thousands of citizens, write to request that the Palisades Nuclear Power Plant (Palisades), owned by Holtec International, be denied certification by the U.S. Department of Energy (DOE) for the purpose of receiving payments under DOE's Civil Nuclear Credit Program. For DOE to consider certifying Palisades as eligible at all flies in the face of the letter and spirit of the Infrastructure Investment and Jobs Act (IIJA), which authorized the Program. Congress intended the IIJA to support only currently operating commercial nuclear reactors that face termination of operations for economic reasons. Palisades permanently ended power generation activities on May 20, 2022. Its entire inventory of

nuclear fuel was unloaded from the reactor coreon June 10, 2022 by Entergy. Permission to operate the reactor has been formally terminated by the U.S Nuclear Regulatory Commission (NRC).

I. Why Was Palisades Denied Nuclear Credits When It Applied in July 2022?

Palisades was denied Nuclear Credits by DOE in November. What has changed that Holtec is permitted to request Nuclear Credits a second time? Beyond Nuclear and Don't Waste Michigan have, pursuant to the Freedom of Information Act, requested the DOE file on the first application. You, as Secretary of Energy, should be completely open with the public and explain why Holtec was denied funding a month ago and is re-applying now.

II. The Civil Nuclear Credit Program Statute Requires An Operating Reactor

Palisades remains shut down and inoperable. Attached hereto is June 13, 2022 correspondence entitled "Certifications of Permanent Cessation of Power Operations and Permanent Removal of Fuel from the Reactor Vessel" submitted to the NRC by Entergy, which owned Palisades immediately prior to Holtec International's subsidiaries taking over the license, power plant site and spent nuclear fuel inventory. When Entergy docketed these certifications, the Palisades Nuclear Plant (PNP) 10 CFR Part 50 license no longer authorized operation of the reactor, nor placement or retention of fuel in the reactor vessel.[1]

PNP has been authorized since December 13, 2021 to spend money from the Palisades Decommissioning Trust Fund[2] without notifying the NRC prior to drawing funds from the Trust Fund, according to the NRC.[3] Holtec International has been spending resources from the Decommissioning Trust Fund since at least late June 2022.[4]

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

[2] Palisades Site-Specific Decommissioning Cost Estimate, https://holtecinternational.com/wp-content/uploads/2022/06/HDI-Palisades-PSDAR.pdf at p. 46.

[3] NRC Exemption granted to Palisades, ADAMS No. ML21286A506 at p. 10, https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML21286A506

[4] 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).

The Infrastructure Investment and Jobs Act, H.R. 3684, was passed into law by Congress on December 2, 2021. The Civil Nuclear Credit Program, which appears at Section 40323 of the new law, is codified at 42 USC § 18753. The statute explicitly requires that in order for a nuclear power reactor to be certified, the applicant must be "a nuclear reactor that— (A) competes in a competitive electricity market. . . ." 42 USC § 18753(a)(1)(A). Palisades is competing nowhere because its fuel is completely unloaded and the operating permission that was part of its license has formally ended.

III. Palisades Cannot Meet Civil Nuclear Credit Program Operations Expectations

DOE's June 2022 Amended Guidance[5] recognizes that Congress contemplated the subsidy of *operating* reactors facing closure for economic reasons. We discuss below several parts of the Amended Guidance that underscore this limitation.

> **1. The Applicant cannot demonstrate "that, at the time of the submission of the Certification Application, the Nuclear Reactor is projected to cease operations due to economic factors . . . ."[6]**

Palisades is not "projected" to cease operations; it actually did so in May 2022.

> **2. The Applicant cannot demonstrate "that Air Pollutants would increase if the Nuclear Reactor were to cease operations and be replaced with other types of power generation . . . ."**

Whether or not air pollution has increased in the wake of Palisades' May 2022 closing is rhetorical at this point.

> **3. The NRC cannot provide the Secretary with "reasonable assurance that the Nuclear Reactor will continue to be operated in accordance with its current licensing basis (as defined in 10 C.F.R. § 54.3) . . . ."**

The NRC cannot provide this assurance since Palisades is closed and its current licensing basis does not contemplate generation of electricity. The Guidance requires that the plant will "continue" to be operated in accordance with its current licensing basis.[7] Palisades has no permission to conduct power generation operations.

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[5] https://www.energy.gov/sites/default/files/2022-06/US%20DOE%20CNC%20Guidance-Revision%201-June%202022.pdf

[6] This and all the other numbered headings appear at p. 12 of the Amended Guidance.

[7] 10 C.F.R. § 54.3: *Current licensing basis* (CLB) is the set of NRC requirements applicable to a specific plant and a licensee's written commitments for ensuring compliance with and operation within applicable NRC requirements and the plant-specific design basis (including all

Holtec cannot provide the required "written commitments for ensuring compliance with and operation within applicable NRC requirements."

4. The NRC cannot provide the Secretary with "reasonable assurance that the Nuclear Reactor poses no significant safety hazards; . . . ."

The NRC cannot provide the DOE Secretary with reasonable assurances that there are no significant safety hazards. To the contrary, Palisades poses significant safety hazards, whether or not Palisades can ever be restored to fission operations.

If Palisades were restored to operation, for example, there would have to be resolution of its 50-year plague of control rod drive mechanism (CRDM) seal leakage problems. The NRC allowed 10 gallons of radioactive water per minute to leak through all seals on the reactor vessel. Seal failures recurred throughout the 1970's at Palisades, then inexplicably disappeared and have repeatedly occurred since the early 2000s. The root cause(s) of the problem have never been established. (Nuclear engineer) David Lochbaum documented 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."[8] Noting that the CRDM seals are a key safety feature to protect the radioactive fuel core from damage, Lochbaum found that the "fundamental cause of the recurring control rod seal leak problems at Palisades has apparently eluded detection."[9] Indeed, Palisades was permanently closed on May 20, 2022, 11 days early, because of the latest control rod drive mechanism seal failure.[10]

If Palisades were restored to operations there would have to be a determination about what to do about the reactor vessel's severe embrittlement. In 2006, Consumers' Energy, the then-owner of Palisades, cited the Palisades reactor vessel's increasingly risky metallurgical embrittlement as a reason for its decision to sell the plant.[11] Palisades has perennially been ranked by the NRC as having one of the most embrittled reactor vessels in the industry, which could fail critically in the event of too-rapid heating or

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modifications and additions to such commitments over the life of the license) that are docketed and in effect.

[8] Lochbaum, "Headaches at Palisades: Broken Seals & Failed Heals," https://beyondnuclear.org/headaches-at-palisades-broken-seals-and-failed-heals/ p. 4.

[9] Lochbaum, *id.*

[10] Press Release, "Entergy's Palisades Team Finishes Strong As Facility Shuts Down," https://www.entergynewsroom.com/news/entergy-s-palisades-team-finishes-strong-as-facility-shuts-down/ (May 20, 2022).

[11] http://archives.nirs.us/reactorwatch/licensing/kampsconsbrifeinf051806.htm Also, see http://archives.nirs.us/reactorwatch/licensing/pg2.jpg

cooling.[12] As a result of final fuel unloading in June 2022, Holtec now has access to at least one metal "coupon" which was placed inside the reactor in the 1960s to provide metallurgical evidence of the vessel's changing condition. There has been no meaningful physical scientific assessment of the Palisades reactor vessel for more than 20 years. Absent accurate physical analysis of embrittlement at Palisades, there will be nothing done to cure this major safety concern.

Restoration of Palisades to operation would also implicate the decades-long need to replace the reactor pressure vessel head.[13] The project was deferred indefinitely in 2006[14] and has never been performed. In the same 2006 document, Consumers Energy also cited the need for replacing the steam generators for the second time in Palisades' history.[15] Entergy did not do so between 2007 and 2022 and there is no indication Holtec will do so going forward.

Even in its inoperable state, there are significant safety concerns at Palisades regarding the onsite storage of spent nuclear fuel (SNF). In 1994, an NRC safety inspector turned federal whistleblower, 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 geology literally of "shifting sand."[16] 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, somewhat inland, violates amplification standards, according to 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 returning the thermally hot inner canister which contains the thermally hot SNF, into the 100 degree F. indoor wet 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

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[12] 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?"
[13] See fn. 11, *supra*.
[14] http://www.nrc.gov/docs/ML0630/ML063060176.pdf
[15] See fn. 11, *supra.*
[16] http://www.nirs.org/reactorwatch/licensing/landsmandec.pdf

radiation doses, while the thermal shock could degrade the canister and fuel, making physical conditions even worse than they already are. They also 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). Cask No. 4 has been left on the storage pad at Palisades in defective condition for the ensuing 28 years. Whenever it takes place, remediation will be dangerous and expensive.

IV. Reopening Palisades Would Necessitate an Completely New Atomic Energy Act License and Supplemental Environmental Impact Statement under NEPA

As noted above, Palisades is a 51-year old atomic reactor that for more than a decade was rated by the NRC as the worst embrittled reactor pressure vessel in the U.S. and at increasing risk of catastrophic failure due to pressurized thermal shock. To accommodate Palisades' operation, the Nuclear Regulatory Commission (NRC) simply weakened and rolled back the safety standards multiple times over the years. Palisades also has a severely degraded reactor lid, and worn out steam generators that for at least 15 years have needed replacement for the second time in the reactor's history. The plant was actually shut down permanently 11 days ahead of schedule in May 2022, because of the recurrence of control rod drive seal leakage, which has happened dozens of times over the past half-century.

Reopening Palisades would be an unprecedented and complex process. The entire workforce has dissipated since the plant shutdown and would have to be almost completely restored. The time it would take to restaff to operations level, including training new workers such as reactor operators, will be lengthy. It is unclear whether Holtec Decommissioning International (HDI), which has no experience in operating nuclear power reactors, would undertake to operate the plant or develop a contract with another firm to do it. Resort to a contractor may not shorten the restart time nor reduce the cost. It will be difficult to arrange for a new staff complement in the highly competitive market of the nuclear industry, and it may cost a lot to hold people under contract while the time-consuming unpredictable aspects of restart are addressed.

If there is no fresh nuclear fuel onsite, it may take a year or longer for delivery, an expense of $50 million or more. Holtec would have to establish a quality assurance program for reactor operations at Palisades, which is currently lacking. There will be considerable expense incurred to re-establish emergency preparedness and response planning and capabilities, which have been terminated since the permanent shutdown. There is further the question of overall cost: how much would it cost, and who would pay, for retained staff to remain onsite while the reactor is unable to operate and generate electricity; to obtain fresh fuel; develop sufficient numbers of trained workers; to establish a quality assurance/control program; and to put in place needed major

safety significant repairs and replacements? Ratepayers – most of whom are also taxpayers – would pay.

In order to reopen Palisades for operations, a new operating license proceeding would have to be conducted. The old license's termination simply cannot be reversed. According to 10 CFR § 50.51(b),

> Each license for a facility that has permanently ceased operations, continues in effect beyond the expiration date to authorize ownership and possession of the production or utilization facility, until the Commission notifies the licensee in writing that the license is terminated. During such period of continued effectiveness the licensee *shall*--
>
> *(1) Take actions necessary to decommission and decontaminate the facility and continue to maintain the facility, including, where applicable, the storage, control and maintenance of the spent fuel, in a safe condition;* and
>
> (2) Conduct activities in accordance with all other restrictions applicable to the facility in accordance with the NRC regulations and the provisions of the specific 10 CFR Part 50 license for the facility.

(Emphasis added). The currently terminated license for Palisades simply cannot be reversed. An entirely new proceeding is obligatory. This could take years, along with likely retooling, repair and replacement of safety-significant reactor and plant systems, structures, and components, given the age and deteriorated state of the reactor.

The fresh licensing proceeding would trigger extensive regulatory involvement by the NRC. Reopening of Palisades to generate power would constitute a "major federal action" under the National Environmental Policy Act (NEPA) as it comprises important Federal regulation in the form of licensing. 40 CFR §1508.1(q)(2). See also 40 CFR §1508.1(q)(3)(iv) ("Major federal action" includes actions approved by permit or other regulatory decision). The NRC would be obligated to undertake supplemental NEPA analysis of the original Palisades EIS because of the "substantial changes in the proposed action that are relevant to environmental concerns" or "new and significant circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." 10 C.F.R. § 51.92(a)(1)-(2); see also 10 C.F.R. § 51.72(a)(1)-(2). "New and significant" information presents "a seriously different picture of the environmental impact of the proposed project from what was previously envisioned." *Hydro Res., Inc.*, 50 N.R.C. 3, 14 (1999); *Blue Ridge Environmental Defense League v. Nuclear Regulatory Com'n*, 716 F.3d 183, 197 (D.C. Cir. 2013).

Furthermore, under the Atomic Energy Act (AEA), the NRC has a legal and non-discretionary duty to consider whether when granting a license, such an action could be inimical to the common defense and security of the United States or the health and safety of the public. See, *e.g.*, 42 U.S.C. § 2077(c)(2)8 or § 2099.9. And the Commission's NEPA analysis must consider the full range of risks to the common defense and security potentially arising from its licensing decision, and must consider all

reasonable alternatives that could eliminate or mitigate those risks. See, *San Luis Obispo Mothers for Peace v. NRC*, 449 F.3d 1016 (9th Cir. 2006).

V. Demand that DOE Compile Programmatic Environmental Impact Statement and Site-Specific Environmental Impact Statements

Indeed, since a key driver of reopening Palisades is the lure of Federal corporate welfare through the Civil Nuclear Credit Program, ***the undersigned organizations demand that the Department of Energy undertake the compilation of a Programmatic Environmental Impact Statement and site-specific Environmental Impact Statements prior to deciding to subsidize the reopening of Palisades.***

The DOE is in the process of deciding how to expend $6 Billion to maintain or restore the generating capacity of multiple nuclear power reactors. The undertaking holds implications for regional power distribution systems, the timing of introduction of renewable energy resources into distribution areas, enhanced risks from prolonging the generating lives of reactors approaching (or already deeply into) obsolescence, additional environmental effects from the handling, storage and management of additional nuclear wastes generated from life-extended reactors, and other environmental impacts. Continuing or restoring power plant operations affects the transition to safer energy alternatives by congesting high-voltage transmission systems. 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 further prolongs the risks of a disaster at those plants. In the states where power plants are rescued with bailout money, DOE handouts will work to saddle ratepayers, who are also taxpayers, with the majority of the costs of propping up redundant and unsafe nuclear power plants. In sum, the Civil Nuclear Credit Program is a "major federal action" that will enable multiple geographically dispersed major actions where nuclear power operations are continued or restored.

Federal agencies are required to prepare an Environmental Impact Statement for every major federal action significantly affecting the quality of the human environment. NEPA § 102(2)(C); 42 U.S.C § 4332(2)(C). According to 40 CFR §1508.1(q)(2) and (3) of NEPA regulations, major federal actions may include: projects and programs "entirely or partly financed . . . by Federal agencies. . . ."

In *Kleppe v. Sierra Club*, the Supreme Court recognized that NEPA may mandate a comprehensive EIS "in certain situations where several proposed actions are pending at the same time." *Kleppe,* 427 U.S. 390, 409 (1976). The Court noted that "when several proposals . . . that will have cumulative or synergistic environmental impact upon a region are pending concurrently before an agency, their environmental impacts

must be considered together. Only through comprehensive consideration of pending proposals can the agency evaluate different courses of action." *Id*. at 410.

At the power plant level of NEPA analysis, the provision of a billion dollars or more of DOE aid surely triggers a serious inquest into the potential environmental impacts of resurrecting Palisades and a thorough analysis of alternatives. That NEPA review must include information on exemptions or waivers from maintenance activities that were stopped or relaxed in anticipation of closing Palisades. The number and nature of inspections and the amount of maintenance that was suspended at Palisades in the expectation of a 2022 shutdown must be taken into account. Additionally, the operating experience in the years leading up to plant closure may provide knowledge of the adequacy of the required monitoring of aging equipment during the license renewal term. Autopsies of any remaining metal coupons left inside the reactor for metallurgical analysis must occur to recognize the status of reactor embrittlement as part of safety evaluation under the Atomic Energy Act.

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.[17] Compliance with NEPA is not discretionary: the DOE must comply with NEPA "unless [compliance is] specifically excluded by statute or when existing law makes compliance with NEPA impossible."[18]

An award of DOE welfare to restore operations at Palisades is the *sine qua non* of Palisades' resurrection. If the Infrastructure Act authorizes subsidy of a closed plant, then NEPA must inform the final DOE arrangements.

VI. Conclusion: Either Certification Should Be Denied Because Palisades Is Being Decommissioned, or NEPA and the Atomic Energy Act Must Be Followed for Palisades to Be Resuscitated

Palisades does not qualify for the Civil Nuclear Credit Program because (1) it isn't an operating nuclear power generating reactor; (2) the plant poses longstanding safety hazards if allowed to commence operations again; and (3) it cannot meet the "current licensing basis" expectation that the plant will be prospectively operable. The below public organizations suggest that it is clear and unequivocal that the IIJA and

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[17] *Natural Resources Defense Council v. NRC*, 685 F.2d 459, 482-83 (D.C. Cir. 1980), r*ev'd on other grounds*, *Baltimore Gas & Electric Co. v. Natural Resources Defense Council,* 462 U.S. 87 (1983). See also *Robertson v. Methow Valley, supra* at 349.

[18] *Limerick Ecology Action v. NRC*, 869 F.2d 719, 729 (3rd Cir. 1989) (citing *Public Service Company of New Hampshire v. NRC*, 582 F.2d 77, 81 (1st Cir. 1978)). See also *San Luis Obispo Mothers for Peace v. NRC*, 449 F.3d 1016, 1034 (2006).

DOE's Amended Guidance envision subsidizing only operating reactors under the Civil Nuclear Credit Program, and therefore, DOE certification of Palisades to receive subsidies under the Program must be denied.

Alternatively, given the DOE's apparent consideration for yet a second time of Holtec's application for subsidies, the undersigned organizations insist that the requirements of the Atomic Energy Act and the National Environmental Policy Act must be strictly followed.

Thank you.

Sincerely,

/s/ Terry J. Lodge

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