UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
Atomic Safety and Licensing Board

In the Matter of	)	
	)	
HOLTEC DECOMMISSIONING	)	Docket No. 50-255-ER
INTERNATIONAL, LLC, AND HOLTEC	)	
PALISADES, LLC	)	March 3, 2025
	)	
(Palisades Nuclear Plant October 7, 2024	)	
Request for Exemption and License	)	
Amendments)	)	

PETITIONING ORGANIZATIONS' AMENDED AND NEW CONTENTIONS BASED ON DRAFT ENVIRONMENTAL ASSESSMENT/FINDING OF NO SIGNIFICANT IMPACT FOR PALISADES NUCLEAR POWER PLANT

Now come Beyond Nuclear, Don't Waste Michigan, Michigan Safe Energy Future, Three Mile Island Alert and Nuclear Energy Information Service (Petitioning Organizations), by and through counsel, and set forth their Amended and Substituted Contentions and New Contentions.

AMENDED AND SUBSTITUTED CONTENTION 2

The decision to prepare an Environmental Assessment (EA) and a Finding of No Significant Impact (FONSI) is not supported by the facts and is arbitrary, capricious, unreasonable, and an abuse of discretion. An Environmental Impact Statement (EIS) is required. The NRC admits in the EA that the proposal to restart Palisades is a major licensing action. There are significant environmental impacts, such as the impacts of climate change, earthquake hazards, and the production of hundreds of tons of radioactive waste. Significant technical and structural repairs and replacements to the Palisades reactor complex will be necessary before Palisades could restart. Significant new physical facilities will be constructed as part of the restart. The restart is analogous in many respects to a subsequent license renewal, for which an EIS is required. The attempt to return a nuclear reactor to operational status from decommissioning status is an unprecedented action at least as significant, and clearly more so, than a license renewal.

Basis for Contention

The National Environmental Policy Act (NEPA) requires an EIS for any major federal action significantly affecting the environment. 42 U.S.C. § 4332. The NRC admits in the EA at

page 3-11 that the restart of Palisades is a major licensing action. Bringing a closed reactor back on line presents the same significant impacts on the environment as bringing a new reactor on line. NRC regulations require an EIS for a new reactor. 10 C.F.R. § 51.20(b)(2). Even the renewal of a reactor operation license requires an EIS. 10 C.F.R. §51.20(b)(2). Restarting a closed reactor presents significant impacts at least equal to, and clearly more than, the simple renewal of an existing license.

In addition, for the reasons stated in the next section, the EA does not support the decision to forego the preparation of an EIS.

Facts Upon Which Petitioners Intend to Rely In Support of This Contention

Regardless of whether the licensing event is classified as a new or renewed license, Holtec's objective is to obtain a full power or design capacity license under 10 CFR § 51.20(b)(2). Consequently, Holtec must file an application for a new operating license which includes an Environmental Impact Statement in order to avoid violating 10 CFR § 51.21:

> All licensing and regulatory actions subject to this subpart require an environmental assessment except those identified in § 51.20(b) as requiring an environmental impact statement, those identified in § 51.22(c) as categorical exclusions, and those identified in § 51.22(d) as other actions not requiring environmental review.

10 CFR § 51.21.

NRC regulations at 10 CFR § 51.20(b) list the circumstances where an EIS or SEIS is required, specifically, issuance or renewal of a full power or design capacity license to operate a nuclear power reactor,. There is no regulatory pathway articulated in Title 10 of the Code of Federal Regulations by means of which Holtec can reinstate an operating license that has been conditioned by the certification of removal of fuel from the reactor core, and permanent cessation of reactor operations, pursuant to 10 CFR § 50.82(a)(2). Holtec and the NRC cannot use this absence of authority to evade the intent of NEPA.

Soon after it terminated operations in May 2022, Entergy removed the fuel and certified that fact to the NRC, at which point Palisades was at a formal end of power operations. The shutdown and decommissioning steps set into motion provide no authority to return to operations. The decommissioning rule is 10 C.F.R. § 50.82. The title of the rule is "Termination of license," and it is clear from the rule that the purpose of the rule is to undertake decommissioning with the goal of terminating the license. The process set out in § 50.82 begins with a certification of permanent cessation of operations. Then the licensee must submit a post-shutdown decommissioning activities report (PSDAR) describing the decommissioning activities and the schedule for their completion. Finally, at the end of the decommissioning period, the licensee must submit an application for termination of the license, including a license termination plan. If the NRC approves the plan and decommissioning is finished, the license is terminated. The rule makes absolutely no indication that the decommissioning and license termination process can be reversed to allow a reactor license to be reauthorized to return to power operation.

Logic suggests that Holtec's only recourse is to submit an application for a new operating license pursuant to 10 CFR Part 50 and to provide an EIS to comply with NEPA.

Because the Palisades restart would reverse the physical mothballing of a permanently shutdown nuclear plant to restore power operations and the restart is being financed with some $1.52 billion through the U.S. Department of Energy, as well as another $1.3 billion through the U.S. Department of Agriculture, the restart is a "major federal action" under the National Environmental Policy Act. *See Scientists' Institute for Public Information, Inc. v. Atomic Energy Commission,* 481 F.2d 1079, 1088 (D.C. Cir. 1973), (there is "Federal action" within the meaning of the statute not only when an agency proposes to build a facility itself, but also whenever an

agency makes a decision which permits action by other parties which will affect the quality of the environment). Because restoration of Palisades to operations would again implicate negative environmental impacts, and because a federal license is required, the Palisades restart is "major"and "federal."

A review of the EA and FONSI clearly shows that there are significant environmental impacts that require the preparation of an EIS. The EA claims that the environmental impacts from the restart of Palisades will be the same as the impacts discussed in the 2006 EIS for the Palisades license renewal. That, alone, should suffice to force an EIS. But there were significant impacts in 2006 that were never acknowledged by the NRC or the owners of Palisades over the years, or impacts that were never adequately addressed.

A coalition of organizations and individuals submitted comments on the draft EIS in 2006, pointing out that relicensing Palisades for an additional 20 years would generate 290 tons of radioactive waste during those 20 years, and that the defective waste storage facility on the shore of Lake Michigan would pose an undue risk to the environment of Lake Michigan.[1] The comments described the sand dunes on the shore of Lake Michigan as follows:

> Lake Michigan dunes constitute a series of dynamic environmental settings, from bare beach shorelines, to "growing dunes" or lightly vegetated foredunes, fragile interdunal wetlands and ponds, and finally to mature, forested "oldest" dune hills. Vegetation -- grasses, bushes, and trees -- is an essential key to the stability of the dunes. When dune vegetation is disturbed by footpaths or other activities, high winds and storms can widen a small stretch of bare sand into an increasingly wide swath or "blowout." Blowouts, areas of blowing and unstable sands, in dunes in the vicinity of Palisades' dry cask storage system could threaten the integrity of the dry cask storage waste system, by clogging vents in the casks, and causing the wastes to overheat, which could lead to an explosion. Left unattended, large blowouts in the dunes surrounding the casks could possibly decrease the stability of the pads on which the casks are situated.

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[1]"Comments on NUREG-1437, Supplement 27 to the Generic Environmental Impact Statement for License Renewal of the Palisades Nuclear Power Plant," ("2006 Comments"), https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML061570042

> This issue must be addressed in the EIS. Palisades must, at minimum, be required to monitor the dunes for potential blowouts and ensure that the dunes are consistently vegetated and stable.[2]

Unfortunately, the NRC considered the issue of radioactive waste beyond the scope of the EIS. The EA, however, does mention the issue of radioactive waste, but inaccurately states that nothing has changed since the issuance of the 2006 EIS.[3] The problem with relying on the 2006 EIS is that the baseline for determining the environmental impact of restarting Palisades should be the status of Palisades when it went into decommissioning mode, not when it was in operation. If Palisades is restarted, it will produce tons of radioactive waste for another 6 years (assuming a wholly-new operating license is not required, but instead removal of conditions to the current license being removed), and an additional 20 years under a second renewal of that license, which Holtec has indicated it will seek. The EA makes no mention of the implications of that scenario. But the production of many tons of radioactive waste almost 30 years into the future stored on concrete pads which have been challenged as failing to meet NRC seismic standards as well as on a predicted new concrete storage pad[4] poses significant direct environmental impacts requiring identification as well as cumulative effects analysis.

The 2006 comments noted the failure of the 2006 EIS to discuss the impacts of earthquakes.[5] The comments referred to a declaration prepared by Dr. Ross Landsman, who had been a Dry Cask Storage Inspector for the NRC.[6] Dr. Landsman established that the calculations performed of the seismic potential at Palisades were incorrect, leading to an improperly minimized assessment of the risk from earthquakes. The EA does not contain the word "earthquake" and the word "seismic" appears twice but is not connected to any analysis.

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[2] *Id.* at p. 12/67 of pdf.
[3] EA, pp. 3-59 to 3-61.
[4] EA, pp. 3-19 and 3-34.
[5] 2006 comments at pp. 12-14.
[6] https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML070390220

However, 10 C.F.R. Part 50, App. S and 10 C.F.R § 72.103 both require assessment of earthquake potential. Certainly, the effects of an earthquake on a nuclear facility and its nearby irradiated fuel storage facilities would constitute significant impacts and therefore must be addressed within an EIS.

Another reason that an EIS, rather than an EA, must be prepared for the restart project is that there is significant construction planned at the Palisades complex that is barely mentioned and poorly detailed in the EA. There are plans for construction of a Digital Staging Testing Building, 40 X 80 feet in size,[7] and a "radioactive material storage building"[8] that will involve a land disturbance of 1 acre and for which there is no detail in the EA nor anywhere else in the public domain of the nature and types of radioactive wastes that will be stored in it.[9] There is no indication whether a license or permit of license amendment is required as to either. There further is mention of "two new Diverse and Flexible Coping Strategies storage buildings,"[10] without any supporting explanation anywhere in the EA, nor indication of their purpose, contents, anticipated usage and whether any special permits are required.

There is mention in the EA of the coming "replacement of both component cooling-water (CCW) heat exchangers and other equipment"[11] which will double the nominal cooling capacity over the present exchangers in the plant.[12] This comprises a change in an important cooling system component; the new heat exchangers will have double the capacity of the existing ones,

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[7] EA at p. 3-2.
[8] EA at p. 3-2.
[9] HDI submittal ML24278A027 (Response to Requests for Additional Information Regarding the Proposed Reauthorization of Power Operations of Palisades Nuclear Plant under Renewed Facility Operating License Number DPR-20), docketed 11/29/2024, https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML24319A123
[10] EA at p. 2-5.
[11] EA at p. 3-5.
[12] EA at p. 3-19.

apparently in response to gradual warming of Lake Michigan (source of Palisades' cooling water) because of anthropocene climate change.

Under the Atomic Energy Act, these engineered alterations must be subjected to some form of licensing action, such as an amendment, although there is no public intention of doing so stated in the EA. The Petitioning Organizations flagged this change in their original Petition for Leave to Intervene,[13] suggesting that the replacement of heat exchangers with higher-volume units evinces a response by Holtec to the long-term increase of average temperatures of Lake Michigan resulting from anthropocene climate change.

In Appendix F of the EA, the NRC Staff explains that it "has determined climate change may alter the affected environment . . . during the period of preparation for the resumption or power operations or resumption of power operations " at Palisades.[14] Reciting projections from the interagency U.S. Global Change Research Program's (USGCRP) latest (*i.e.*, fifth) National Climate Assessment report (NCA5) (USGCRP 2023-TN9762) and other supporting documents,[15] the NRC asserts that "climate change may create a new environment that could result in changed impacts from the ongoing operations or impose operational restrictions on the site's safety and performance."[16] Yet knowing this – and facing the unprecedented decision of whether to allow the restart of a half-century-old atomic reactor that may have not been properly laid up when it was permanently shut down in 2022, the NRC Staff actively opposes public demands for intensified technical scrutiny of the Palisades systems, structures and components.

Despite its dire prediction that there might be "changed impacts from the ongoing

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[13] See Petitioning Organizations' "Petition to Intervene and Request for a Hearing," pp. 58-61, https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML24284A364

[14] EA Apx. p. F-1.

[15] The NRC Staff draws upon the USGCRP's "very high" and "intermediate" carbon emissions scenarios for the mid-21st century (*i.e.,* 2036–2065) as the bounding climate scenario for the time period covering the resumption of power operations at Palisades until the end of the current operating license.

[16] *Id.*

operations" or the imposition of "operational restrictions on the site's safety and performance" the NRC Staff nonetheless has decided not to compile an Environmental Impact Statement, and that decision is arbitrary and capricious. *Cabinet Mountains Wilderness v. Peterson,* 685 F.2d 678, 681-82 (D.C. Cir. 1982); *Sierra Club v. United States Dept. of Transp.,* 753 F.2d 120, 127 (D.C. Cir. 1985) (despite knowledge of significant environmental impacts, agency did not convincingly establish that changes in the project sufficiently reduced them to a minimum).

Based on all of the foregoing facts, the decision by the NRC to prepare an EA and forego the preparation of an EIS violates NEPA and is arbitrary, capricious, unreasonable, and an abuse of discretion.

AMENDED CONTENTION 4[17]

Holtec and the NRC admit that there is no provision in law or regulation for the NRC to authorize the restart of Palisades as a closed reactor. They are cobbling together a "pathway" to restart, using a "creative" procedure based on existing regulations that they believe allows Holtec to bypass the requirement of compiling a new Updated Final Safety Analysis Report (UFSAR) in favor of returning the UFSAR Revision 35, which was in place when the Palisades reactor was closed. Since there is no dedicated regulatory procedure for restarting a closed reactor, the NRC has no authority to approve the license amendments requested by Holtec.

Basis for the Contention

Holtec has admitted that NRC regulations do not provide a regulatory procedure that is specially-created for restarting a closed reactor.[18] Holtec and the NRC admit that they have conjured up a "pathway" that is basically a house of cards, unjustifiably cobbling together several requests, including the exemption request discussed in the Petitioning Organizations' Contention 1 and the license amendments requested by Holtec in this proceeding. And the NRC admits that

[17] The Petitioning Organizations have reproduced the entirety of their original Contention 4 herein, taken from pp. 48-62 of their original Petition to Intervene, but have also inserted new supporting evidence from the NRC Staff's Environmental Assessment.

[18] Holtec letter to NRC, "Regulatory Path to Reauthorize Power Operations at the Palisades Nuclear Plant" dated March 13, 2023 (ADAMS Accession No. ML23072A404).

granting Holtec's requests would require a "creative" application of the regulations.[19] Notably, Chair Hanson's comments describe the NRC as an accomplice in Holtec's "creative" scheme. Why does the NRC believe it is obligated to approve the Palisades restart when there are no regulations authorizing it?

Furthermore, Holtec claims it can turn Palisades' Defueled Safety Analysis Report (DSAR) into an Updated Final Safety Analysis Report (UFSAR) through judicious usage of 10 C.F.R. § 50.59,[20] which governs changes, tests, and experiments of regulated portions of the plant. But Holtec is wrong: it is not possible in the case of Palisades to turn a DSAR into a UFSAR via reversion under 10 C.F.R. § 50.59. Subsection (c) (1) states:

> (c)(1) A licensee may make changes in the facility as described in the final safety analysis report (as updated), make changes in the procedures as described in the final safety analysis report (as updated), and conduct tests or experiments not described in the final safety analysis report (as updated) without obtaining a license amendment pursuant to Sec. 50.90 only if:
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> (i) An amendment to the technical specifications incorporated in the license is not required. . . . .

Holtec also cannot confine the forthcoming updates, upgrades and changes to Palisades to the minimums contemplated by 10 C.F.R. § 50.59(c)(2):

> (c)(2) A licensee shall obtain a license amendment pursuant to Sec. 50.90 prior to implementing a proposed change, test, or experiment if the change, test, or experiment would:
>
> (i) Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the final safety analysis report (as updated);
> (ii) Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the final safety analysis report (as updated);
> (iii) Result in more than a minimal increase in the consequences of an accident previously evaluated in the final safety analysis report (as updated);
> (iv) Result in more than a minimal increase in the consequences of a malfunction

[19] NRC Chair Christopher Hanson testimony to U.S. House Subcommittee of Energy and Commerce Committee on July 23, 2024 ("This is something we have never done before and requires some creativity by the staff as well as Holtec's part."), video at https://www.youtube.com/watch?v=TjVfV2tDomQ, starting at 1:41:00.
[20] Holtec LAR, § 2.2, p. 4.

> of an SSC important to safety previously evaluated in the final safety analysis report (as updated);
> (v) Create a possibility for an accident of a different type than any previously evaluated in the final safety analysis report (as updated);
> (vi) Create a possibility for a malfunction of an SSC important to safety with a different result than any previously evaluated in the final safety analysis report (as updated);
> (vii) Result in a design basis limit for a fission product barrier as described in the FSAR (as updated) being exceeded or altered; or
> (viii) Result in a departure from a method of evaluation described in the FSAR (as updated) used in establishing the design bases or in the safety analyses.

As detailed below, many changes in specifications and operating characteristics of components of Palisades will exceed the minimal change limitations of 10 C.F.R. § 50.59 because of Holtec's acknowledgment that climate change will affect some operations of the plant.[21] Moreover, there are engineered modifications Holtec is making to components at the plant that will also compel production of a new Safety Analysis Report, whether it is a new UFSAR revision, or a new Safety Analysis Report. Holtec may not revert to UFSAR Revision 35, but must move ahead to a new, largely different perspective of Palisades, to be documented in UFSAR Revision 37 (currently the plant is under the aegis of UFSAR Revision 36, a Defueled SAR). There are significant safety issues that warrant compilation of a completely different SAR than is presently in place. Holtec may not elide into a UFSAR revision that is simply a return to UFSAR Revision 35.

The Issue Raised Is Within the Scope of the Proceeding

In the Federal Register notice for this proceeding,[22] the NRC states, "The scope of this notice is limited to comments, requests for a hearing, and petitions for leave to intervene related

[21] Holtec press release, "Palisades Cooling System Upgraded to Counter the Continuing Threat of Global Warming," (August 15, 2024), https://holtecinternational.com/wp-content/uploads/2024/08/39.14-1.pdf (last checked October 7, 2024).
[22] Palisades Nuclear Plant, "Applications for Amendments to Renewed Facility Operating License," 89 Fed. Reg. 64486 (Aug. 7, 2024).

to the four proposed license amendment requests. . . ." In its "Evaluation of the Proposed Changes" document, Holtec asserts:

> The Updated Final Safety Analysis Report (UFSAR), now titled the Defueled Safety Analysis Report (DSAR), will be updated, via the 10 CFR 50.59, Changes, tests and experiments, process to reflect the docketed version that was in effective prior to the 10 CFR 50.82(a)(1) certifications, PNP UFSAR Revision 35 (Reference 6). Any DSAR retained changes to UFSAR Revision 35 have been or will be evaluated via the 50.59 process against UFSAR Revision 35 to determine if NRC approval is required prior to exiting the period of decommissioning.

This contention contradicts Holtec's belief, expressed above, which means that it is well within the scope of this proceeding.

The Contention Is Material to the Findings the NRC Must Make

If, and only if, the exemption sought by Holtec is granted, the company's four proposed license amendments can then be considered. Whether Holtec's claim that only like-for-like changes will be made to systems and components can be sustained is challenged by this contention; its resolution is material to the necessary findings the NRC will be making.

Facts Upon Which Petitioners Intend to Rely In Support of This Contention

A. *The reversal of the formal shutdown of operations is a major question lacking clear Congressional authority*

Because there is no set procedure in the NRC regulations for restarting a closed reactor, the NRC has no regulatory authority to grant the license amendments requested by Holtec. The NRC appears to be more than happy to cobble together a Rube Goldberg combination exemption with license amendments. Holtec, and apparently the NRC, are basing their ability to do this on a passing comment in a decision denying a petition for rulemaking.[23] But the decision was not a

[23] Denial of Petition for Rulemaking on Criteria to Return Retired Nuclear Power Reactors to Operations, SECY-20-0110, Dec. 7, 2020 (ML20205L305), https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML20205L305

Commission decision. It was a staff memo to the Commission by the Executive Director for Operations and actually said:

> While the idea of creating a regulatory framework was generally supported in the written public comments received on the petition, the key insight from the public meeting related to this PRM was that there was minimal explicit interest from nuclear industry representatives in using any such framework for an existing facility. This insight led the staff to conclude that while such a framework could be useful, the resources needed to develop it would be unlikely to be cost-justified, since the NRC may address such requests under the existing regulatory framework —including granting exemptions, where needed—on a case-by-case basis.[24]

While the memo says the NRC "may address" requests to restart a closed reactor, it does not say that such requests actually can be addressed under current regulations. Moreover, the memo does not say how the existing regulations might do that, other than mentioning exemptions. Nor is there identification of any specific provision of the Atomic Energy Act that would authorize the NRC to resurrect an operating license in order to allow a closed reactor to return to power operations.

Petitioners' expert, Arnold Gundersen, maintains that the overall design of the Palisades reactor is not licensable to 21st century standards. Palisades was allowed to continue operations by the NRC between 1971 and 2031 due to the approval of its original Atomic Energy Commission (AEC) license. And, had the terms of its original AEC license been maintained by Entergy, the nuclear reactor might have continued its operational standing as a grandfathered reactor. "The original AEC Operating License had been granted. But in 2022," Mr. Gundersen asserts, "Entergy renounced the ongoing operation of the old grandfathered design. Holtec seeks to recreate the old grandfathered conditions in the expired license because it is evident that Palisades cannot meet the current licensing criteria."[25]

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[24] *Id.* at p. 3.
[25] Gundersen Declaration, *supra* fn. 28, p. 22.

All parties agree that Holtec's attempt to restart the closed Palisades nuclear reactor is unprecedented. It has national implications in that there are at least two other reactors, Duane Arnold in Iowa and Three Mile Island in Pennsylvania, where restart of a shutdown reactor is also being considered.[26] But there is no clear statutory authority for NRC to restore a valid operating license for Palisades, and the NRC may not conjure up a procedure that does not exist in statute or in the NRC's own rules.

In its LAR, Holtec claims that its scheme to restart Palisades can proceed because there's no statutory provision to stop it. That claim gets the current state of the law backwards.[27] In *West Virginia v. EPA*, 142 S.Ct. 2587 (2022), the U.S. Supreme Court held that in cases addressing issues of economic and political significance an agency cannot act in the absence of clear Congressional authority. As the court put it:

> Thus, in certain extraordinary cases, both separation of powers principles and a practical understanding of legislative intent make us "reluctant to read into ambiguous statutory text" the delegation claimed to be lurking there. Utility Air , 573 U.S. at 324, 134 S.Ct. 2427. To convince us otherwise, something more than a merely plausible textual basis for the agency action is necessary. The agency instead must point to "clear congressional authorization" for the power it claims. *Ibid.*

Id. at 2609. The Fifth Circuit has applied *West Virginia's* "major questions" doctrine to conclude that "Disposal of nuclear waste is an issue of great 'economic and political significance.'" *Texas v. Nuclear Regulatory Commission*, Case No. 21-60743, ___ F.3d ___(Fifth Circuit, August 25, 2023). The circuit court noted Congress' acknowledgment that "high-level radioactive waste and spent nuclear fuel have become major subjects of public concern," citing 42 U.S.C. § 10131(a)(7) (findings section of the Nuclear Waste Policy Act). The Fifth Circuit then noted that "A decision of such magnitude and consequence rests with Congress itself, or an agency acting pursuant to

[26] https://www.nytimes.com/2024/09/20/climate/three-mile-island-reopening.html
[27] Holtec LAR, § 4.2, p. 91

clear delegation from that representative body," citing *West Virginia*, 142 S. Ct. at 2616 (emphasis added). *Texas v. Nuclear Regulatory Commision, id.*

The absence of "clear congressional authorization" for cobbling together an array of NRC regulations to allow the unprecedented reversal of a downgraded operating license should be seen as fatal to Holtec's and the NRC Staff's positions. In *West Virginia,* the Supreme Court made clear that *it is the NRC's burden to show that it has clear congressional authority to allow the restart of Palisades, not the Petitioners' burden to show that it does not have that authority.*

Not only is there no established regulatory path to return Palisades to operational status, but NRC regulations indicate just the opposite. 10 C.F.R. § 50.82 sets out the procedure for placing a reactor into decommissioning status, leading to license termination. The process begins with the reactor operator submitting a certification to cease operations and removing the fuel from the reactor. The regulation then requires that the decommissioning will be completed within 60 years, unless an extension is granted by the NRC. A post-shutdown decommissioning activities report (PSDAR) is compulsory, which describes the planned decommissioning activities, a schedule for completing them, a discussion of the environmental impacts of decommissioning, and a site-specific decommissioning cost estimate. Next, § 50.82 lays out the decommissioning procedure, including a financial assurance status report. Finally, the process is completed by the owner's submission of an application for termination of the license and its termination by the NRC. Throughout this lengthy, long-established and written regulatory continuum, there is no indication -- not even a hint – that the decommissioning process leading to license termination can be reversed.

The NRC Executive Director for Operations made a statement in passing that there may be a pathway to restart using existing regulations. That statement may be accorded no deference.

She did not specify what regulations would allow such a pathway to restart, nor how the process would actually work. According to the U.S. Supreme court decision in *Loper Bright v. Raimondo*, 603 U.S. ___ (2024), an agency's interpretation of its statutory authority may not be accorded deference, which overrules the longtime *Chevron* doctrine. Consequently, the Executive Director's hypothetical scenario cannot be treated as providing a substantial basis for Holtec's restart scheme.

A pertinent comparison that highlights the radical nature of Holtec's proposal to restart Palisades is found in the attempt by the Tennessee Valley Authority to relicense the incomplete Bellefonte Nuclear Generating Station in Alabama. As Petitioners' expert, Arnold Gundersen, lays out in his declaration,[28] Bellefonte was drastically different from Palisades. Bellenfonte had only a construction license pursuant to 10 CFR Part 50. TVA never held an operating license for it. The construction license was terminated and then reissued a few years later and the reissued construction license was later terminated again, this time permanently. Bellenfonte had never had fuel loaded into it nor ever produced power. Holtec, on the other hand, is attempting to return a closed reactor in decommissioning status back to operations after it has traveled along the continuum of licensed operations for more than 50 years. The Gundersen declaration discusses this in more detail.[29] In sum, Holtec and the NRC have no justifiable basis for authorizing the restart of Palisades.

B. 10 C.F.R. § 50.59 cannot transform significant changes into minimal exchanges

Holtec also believes that the Defueled Safety Analysis Report (DSAR) can be converted into an Updated Final Safety Analysis Report (UFSAR) which allows operations through the

[28] Gundersen Declaration, Ex. A, to the Petitioning Organizations' October 7, 2024 Petition to Intervene, https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML24284A364
[29] *Id.*

magical application of 10 C.F.R. § 50.59 to reinstate UFSAR Revision 35.[30] 10 CFR § 50.59 addresses changes, tests, and experiments. But turning a DSAR into a UFSAR cannot be attained within the narrow and minimal allowed changes under 10 C.F.R. § 50.59. A "change" according to § 50.59 means:

> A modification or addition to, or removal from, the facility or procedures that affects a design function, method of performing or controlling the function, or an evaluation that demonstrates that intended functions will be accomplished.

Rather than implementing a "change" according to the definition, which would involve adding, modifying or removing new types of functions to a closed reactor, Holtec proposes to reverse the Palisades Defueled Safety Analysis Report, or DSAR (also known as UFSAR Revision 36) back into UFSAR Revision 35, supposedly without changing any of the aspects of the facility as described in the above definition. The Defueled Safety Analysis Report is the collective repository of operational knowledge governing the management of the closed Palisades reactor, as a closed, inoperable reactor. The UFSAR envisioned by Holtec, by contrast, is the restoration of this core management document and its operational contents as they were on the day before the reactor was defueled.

Holtec takes the tack that Palisades has been suspended in operating condition with minimal movement toward decommissioning and that Palisades will simply be returned to the state it was in before Holtec acquired the plant. But it is not that simple; 10 C.F.R. § 50.59 cannot be used as the vehicle by which Holtec restores Palisades to operations. 10 C.F.R. § 50.59(c)(1) states:

> (c)(1) A licensee may make changes in the facility as described in the final safety analysis report (as updated), make changes in the procedures as described in the final safety analysis report (as updated), and conduct tests or experiments not described in the final safety analysis report (as updated) without obtaining a license amendment pursuant to Sec. 50.90 only if:

[30] Holtec LAR, § 2.2, p. 4.

> (i) An amendment to the technical specifications incorporated in the license is not required. . . . .

The defueled technical specifications for Holtec differ significantly from the technical specifications for a return to operations of Palisades. See Holtec's December 14, 2023 "License Amendment Request to Revise Renewed Facility Operating License and Permanently Defueled Technical Specifications to Support Resumption of Power Operations,"[31] Attachment 2, technical specification changes that Holtec asserts in the cover letter "are in accordance with 10 CFR 50.36, Technical specifications, 10 CFR 50.36(c)(1) through 10 CFR 50.36(c)(5)." Holtec believes it can backflip over UFSAR Revision 36 to the good old days of UFSAR Revision 35 which pertained until the fuel was permanently withdrawn from the Palisades reactor core. Instead, Holtec must amend and supplement UFSAR Revision 36, which will mean voluminous additions to the current roster of safety-related specifications and components. Holtec may not merely return to the *status quo ante* of UFSAR Revision 35 but must prepare a successor document to UFSAR Revision 36.

Moreover, some changes in specifications and operating characteristics of components of Palisades will pronouncedly exceed the minimum change thresholds of 10 C.F.R. § 50.59(c)(2) as a result of climate change, and will have to be addressed in a Final Safety Analysis Report. The regulation pertinently states:

> (c)(2) A licensee shall obtain a license amendment pursuant to Sec. 50.90 prior to implementing a proposed change, test, or experiment if the change, test, or experiment would:
>
> (i) Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the final safety analysis report (as updated);
> (ii) Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the final safety analysis report (as updated);
> (iii) Result in more than a minimal increase in the consequences of an accident previously evaluated in the final safety analysis report (as updated);

[31] ADAMS ML.No. 23348A148.

> (iv) Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the final safety analysis report (as updated);
> (v) Create a possibility for an accident of a different type than any previously evaluated in the final safety analysis report (as updated);
> (vi) Create a possibility for a malfunction of an SSC important to safety with a different result than any previously evaluated in the final safety analysis report (as updated);
> (vii) Result in a design basis limit for a fission product barrier as described in the FSAR (as updated) being exceeded or altered; or
> (viii) Result in a departure from a method of evaluation described in the FSAR (as updated) used in establishing the design bases or in the safety analyses.

Petitioners' expert, Arnold Gundersen, points out that there are several SAR-covered safety components and systems at Palisades which in a restarted reactor will result in more than minimal increases in likelihood of malfunction, accident consequences, etc., as a result of climate change. Holtec admits that it must replace the heat exchanger because of the effects of climate change on Lake Michigan, which provides the cooling water supply for the plant. As Mr. Gundersen explains, changes requiring a license amendment apply to situations previously evaluated, and Holtec's attempted resurrection of Palisades has not been previously evaluated.

Holtec's press release dated August 15, 2024, by which it announces that it is fabricating a new heat exchanger system for Palisades, is a significant admission that Palisades is being affected by changes in the temperature of the Lake Michigan water that is critical to functioning of several systems at the plant, including the Emergency Core Cooling System (ECCS). The press release is reproduced on the following page.[32]

[32] Holtec press release, "Palisades Cooling System Upgraded to Counter the Continuing Threat of Global Warming," (August 15, 2024), https://holtecinternational.com/wp-content/uploads/2024/08/39.14-1.pdf (last checked October 7, 2024).

HOLTEC INTERNATIONAL

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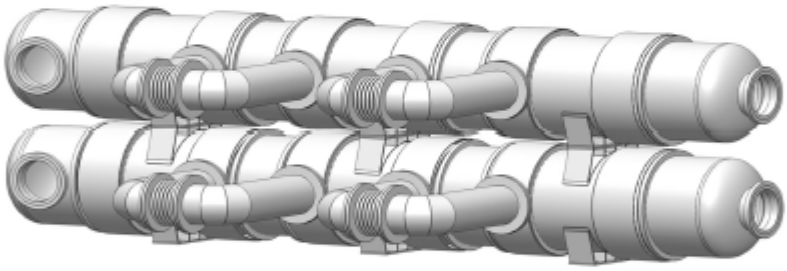
Palisades Cooling System Upgraded to Counter the Continuing Threat of Global Warming

The power output from power plants that rely on cooling water from proximate bodies of water, such as a lake, sea, or river, has been steadily eroding as their bulk temperature inches upwards because of global warming. The temperature of Lake Michigan, which supplies cooling water to Holtec Palisades nuclear plant currently undergoing refurbishment and upgrades, has been ticking up like the rest of the world's water reservoirs and is expected to continue rising in the coming decades during its projected service life.

We are pleased to report that, as a part of the ongoing melioration of the Palisades nuclear plant, Holtec has successfully developed an innovative embodiment of the plant's cooling water heat exchanger system that is being manufactured at Holtec's own fabrication plant (the Holtec Manufacturing Division) in Pittsburgh, PA.



Cooling Water Heat Exchangers

The main challenge in this system's development was the extremely congested space where the existing unit is located (typical of power plants). To meet the projected rising lake water temperature, the new unit needed to be more than twice as large in heat transfer surface area as the existing unit, but had to fit in the same space. "It was like asking to put two gallons of milk in a one-gallon carton," said Edward Bell, Director of Holtec's Heat Transfer Division. The upgraded heat exchanger set will be installed within the next 12 months to support the 2025 year-end repowering of Palisades. Thanks to its innovative design, this cooling system upgrade will require very little civil/structural work, which may reduce the project cost by over 50% compared to the initial projection.

"We are pleased to report this technical achievement to the industry to make other plant developers aware of what is possible to combat the adverse effect of global warming on nuclear and other power plants," said Joy Russell, Holtec's Chief Communications Officer.

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Holtec admits in the press release that "To meet the projected rising lake water temperature, the new unit needed to be more than twice as large in heat transfer surface area as

the existing unit, but had to fit in the same space." Holtec's acknowledgment of the need for climate resilience at the plant via swapping out heat exchangers, which are a safety feature, implies many things for an up-to-date, useful Safety Analysis Report in support of a Palisades restart.

Petitioners' expert, Arnold Gundersen discusses the extensive reworking that must be done on the Palisades Safety Analysis Report:

> 131. Climate Change
> 131.1. It is important to note that when the Palisades atomic reactor was designed almost 60 years ago, global climate conditions were entirely different from today's conditions. In prior correspondence, Holtec Palisades has acknowledged in writing the adverse impact of global climate change upon the original climate parameters the plant was designed to withstand. Holtec is already changing the plant design to accommodate just one of those impacts: the increasing water temperature in Lake Michigan.
>
> 131.2. However, global climate change has many other ramifications for the design of the Holtec Palisades reactor. The design basis of the Palisades facility is dramatically different in 2024 than in the mid-1960s. These climate change impacts on the Palisades licensing basis include and are not limited to lake temperature, air temperature, wet bulb temperature, rainfall/flooding, wind velocity, frequency and intensity of storms, snow loads, ultimate heat sink parameters, and many others.
>
> 131.3. Definition of design basis: "The regulatory body establishes the nuclear safety principles and issues regulations on design; it needs [to be able] to evaluate the safety of the proposed design by reviewing and assessing the safety documentation (e.g., design basis, the safety analysis reports) and verifying the compliance of the design with regulatory requirements. The design basis is the range of conditions and events explicitly taken into account [considered] in the design of the nuclear installation, according to established criteria, such that the nuclear installation, through the planned operation of safety systems, can operate under these conditions and events without exceeding authorized limits."
>
> 131.4. Without reviewing any design basis or calculational evaluations made for Palisades, Holtec Palisades has already arbitrarily chosen to uniquely modify only one aspect of the facility's design to accommodate Lake Michigan's considerably changing climate in 2024. Therefore, according to 10 CFR 50.59 and with regulatory and public oversight, Holtec must be compelled to revisit all of the design basis assumptions relied upon during the mid-1960s. Holtec Palisades then

must determine if any other climate-related factors can also reasonably be expected to have adversely affected the safety of Palisades in the future.

131.4.1. While the condenser heat exchanger is not a safety-related system or component, Holtec's admission of climate-induced changes, including and not limited to increased water temperature of the water drawn from Lake Michigan, has significance for compiling the Holtec Palisades Safety Analysis Report (SAR) assessments, procedures, and calculations.

131.4.2. Climate change assumptions impact dozens of safety-related systems, structures, and components. For instance, building wind loads, building snow loads, ultimate heat sink temperature and atmospheric dew point, peak rainfall, and flooding need new consideration for emergency cooling systems and the safety-related structures and components associated with them.

131.4.3. All these assumptions about climate impacts trickle into dozens of systems and thousands of calculations, which Holtec must revisit. As one recent example of the effect of climate change, the Duane Arnold reactor recently experienced a climate change-induced derecho wind.31 The derecho wind was so severe that it exceeded the facility's design basis, causing Duane Arnold to retire early. The derecho winds caused the secondary containment to fail, clogged the ultimate heat sink intake, and damaged a safety-related building where emergency response equipment was stored. At Palisades, Holtec will need to consider hundreds of similar scenarios.

131.5. After a thorough evaluation, Holtec Palisades will likely find that Global Climate Change creates unanticipated scenarios outside the reference bounds of the design basis, increases the frequency of occurrence, and increases the likelihood of occurrence. For those reasons, Holtec Palisades violates subsections (2)(i), (2)(ii), (2)(iii), (2)(iv), (2)(v), (2)(vi), (2)(vii), and (2)(viii) of 10 CFR 50.59.[33]

The NRC Staff's Environmental Assessment contains considerable evidence and scientific projections that buttress Arnold Gundersen's suggestion that unanticipated scenarios outside the reference bounds of the Palisades design basis lie ahead. At p. 3-35, the NRC Staff states:

> A 2021 study by NOAA revealed a warming trend in surface water temperatures based on a single location, which was hypothesized to be due to climate change (Anderson et al. 2021-TN10715). Using a 30-year dataset, NOAA found that the winter cooling season in the deep waters of the lake is shortening (less than 100 days) and the summer warming season is lengthening (greater than 200 days) which could lead to

[33] Gundersen Declaration, *supra* fn. 28, ¶ 131.

> permanent changes in the lake's seasonal mixing patterns and disrupt the food web (Anderson et al. 2021-TN10715).[34]

In Appendix F of the EA, the NRC Staff explains that it "has determined climate change may alter the affected environment . . . during the period of preparation for the resumption or power operations or resumption of power operations " at Palisades.[35] Apx. F-1. Reciting projections from the interagency U.S. Global Change Research Program's (USGCRP) latest (*i.e.*, fifth) National Climate Assessment report (NCA5) (USGCRP 2023-TN9762) and other supporting documents,[36] the NRC asserts that "climate change may create a new environment that could result in changed impacts from the ongoing operations or impose operational restrictions on the site's safety and performance."[37]

The NRC Staff extrapolated the USGCRP data for southwest Michigan and asserted in EA Appendix F that:

> . . . under a very high emission scenario, a projected global temperature increase of 2.7°F (1.5°C), 3.6°F (2°C), 5.4°F (3°C), and 7.2°F (4°C) may increase the southwest Michigan local temperature by 3-4°F (1.7-2.2°C), 5-6°F (2.8-3.3°C), 7–8°F (3.9–4.4°C) and 9–11°F (5.0–6.1°C). With these rising temperatures, hot days (≥ 95°F) are expected to increase by 5-10 days annually, cold days (≤ 32°F) to decrease by 15–25 days, and warm nights (≥ 70°F) to increase by 5-15 days in southwest Michigan as global temperatures reach 2°C above pre-industrial levels.
>
> Beyond atmospheric warming, Lake Michigan's summer surface water temperatures have also been rising. From 1980 to 2021, the July to September average surface temperature of Lake Michigan increased by about 0.1°F (0.05°C) per year (USGCRP 2023-TN9762), and further increases are anticipated. Other observed changes in the Great Lakes region include increased variability in lake levels, higher evaporation and water temperatures, more intense precipitation events (including lake-effect snow), and shorter durations of snow and ice cover.

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[34] EA p. 3-35.
[35] Apx. p. F-1.
[36] The NRC Staff draws upon the USGCRP's "very high" and "intermediate" carbon emissions scenarios for the mid-21st century (*i.e.,* 2036–2065) as the bounding climate scenario for the time period covering the resumption of power operations at Palisades until the end of the current operating license.
[37] *Id.*

> Precipitation patterns in southwest Michigan are evolving as well, with annual precipitation projected to increase by up to 20 percent by midcentury compared to the past five decades under the highest warming scenarios. Extreme precipitation events are also expected to intensify, with the heaviest 1 percent of precipitation days, 5-year maximum daily precipitation, and annual maximum precipitation projected to rise by 10–30 percent, 10–20 percent, and 5–15 percent, respectively. This projected increase in precipitation, by 1 to 2 in. (2.5 to 5.1 cm) annually by midcentury (2036–2065) relative to 1991–2020, could lead to significant seasonal shifts in water availability. Winter runoff could increase by 15–20 percent, spring runoff by 5–10 percent, while summer runoff may decrease by around 5 percent, with fall runoff remaining steady or slightly increased. Annual actual evapotranspiration and runoff are also expected to rise. . . .
>
> In addition to these precipitation changes, the region is expected to experience a reduction in maximum annual snow water equivalent and a decline in summer soil moisture (June–August). Lower summer moisture levels, combined with higher temperatures, could increase the risk of flash droughts during the summer, while elevated winter and spring runoff could heighten flooding risks. Current precipitation patterns show sub-annual variability, with rapid shifts between extreme wet and dry periods, which may further exacerbate these risks.
>
> Finally, the projected annual climatic water deficit, which measures the gap between available water and vegetation demand, is expected to rise by 0.5 to 1 in. (1.3 to 2.4 cm) by midcentury relative to 1991–2020. This suggests that, although winter and spring flooding may pose significant challenges, drier summer conditions are likely to persist, potentially affecting water availability in the region.[38]

The NRC Staff has identified several significant and permanent changes to the climate of southwest Michigan that must be analyzed for their effects at midcentury on the structures and components of Palisades. The Government Accountability Office[39] (GAO, Congress's investigative arm), and a Yale University scholar[40] have warned the NRC to include assessments for climate risks to the safe operation of nuclear power plants under NEPA. In its report, the GAO identified a “high” prospective flood hazard level at Palisades that would be attributable to unstable climate circumstances.[41]

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[38] Apx. F pp. F-1 to F-2.
[39] “NRC Should Take Actions to Fully Consider the Potential Effects of Climate Change,” GAO-24-106326 (Government Accountability Office, April 2024), https://www.gao.gov/assets/d241063 26.pdf
[40] James Dinneen, “Can Aging U.S. Nuclear Power Plants Withstand More Extreme Weather?” https://e360.yale.edu/digest/u.s.-nuclear-power-climate-change
[41] See fn. 2 *infra*, p. 63.

No less than the NRC Staff has detailed future probable climatological circumstances in the immediate region of the Palisades plant which amplify the significance of thorough technical scrutiny of all structures, plant, equipment and componentry and operating procedures in light of unprecedented climate alteration. While it's laudable that Holtec has admitted that changed climate circumstances have prompted it to swap out components of a plant cooling system, Holtec must not be allowed to bypass or ignore the hard work and expense of ensuring that a return to operations is not allowed unless there is a maximum inquiry into all safety-related parts, features and operations of this aged reactor.

The Petitioning Organizations are well aware that they are citing environmental evidence collected by the NRC Staff pursuant to NEPA to insist that measures under the Atomic Energy Act be taken to ensure safe operation of Palisades. But the Staff's climate change conclusions themselves implicate AEA considerations: that there might be "changed impacts from the ongoing operations" or the imposition of "operational restrictions on the site's *safety and performance*."[42]

The NRC Staff has detailed some daunting climate circumstances expected to appear within the coming quarter century, during which Holtec intends to operate the Palisades reactor. Having taken a hard look, the agency may not choose to ignore what it saw. *Audubon Society of Central Arkansas v. Dailey*, 977 F.2d 428, 436 (8th Cir. 1992). See also *Cabinet Mountains Wilderness v. Peterson,* 685 F.2d 678, 681-82 (D.C. Cir. 1982); *Sierra Club v. United States Dept. of Transp.,* 753 F.2d 120, 127 (D.C. Cir. 1985) (despite knowledge of significant environmental impacts, agency did not convincingly establish that changes in the project sufficiently reduced them to a minimum).

[42]EA, Appendix F at p. F-2.

C. Plugging and Unplugging steam generator tubes is a major engineered change

Petitioners' expert, Arnold Gundersen, states in his declaration that Holtec did not put the two steam generators at Palisades in wet layup status when the plant was shut down and evidently were not stabilized until a decision was made to try to restart the plant.[43] These are large components that at Palisades have been the subjects of considerable controversy over the years. He points out:

> First, Palisades' safety and reliability have been diminished because systems and components were never placed in a layup. There is no record acknowledging the proper protocols of wet layup to protect the integrity of Palisades' operating and safety equipment and systems. Restarting a reactor after such a lengthy shutdown requires a layup and an updated engineered design for the entire reactor facility to assure its integrity and operational safety.[44]

Mr. Gundersen further notes that steam generators "are the most critical components that can rapidly degrade when not correctly placed in a wet layup."[45] He continues:

> On October 1, 2024, a new report was issued by the Nuclear Regulatory Commission (NRC) that identifies severe damage in the two massive steam generators at the Michigan Holtec Palisades Nuclear Power Plant. If the plant were allowed to restart, it would put one of the oldest U.S. nukes at risk of a meltdown.[46]

Mr. Gundersen points out that there is very significant stress corrosion cracking in the steam generator tubes and that an unexpectedly high number, 700, had to be plugged due to corrosion.[47] He chides Holtec for its determination not to replace the steam generators, saying:

> Holtec Palisades informed the Department of Energy that the Holtec Palisades Steam Generators were degraded and must be replaced in 2022. Instead of addressing the underlying damage from decades of operation under previous owners and new stress corrosion cracking in the steam generators caused by an improper wet layup, Holtec Palisades said it would unplug the 600 tubes plugged about thirty years ago. Now, the firm claims the aged andrundown steam generators will last for 30 more years. During my

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[43] Gundersen Declaration, *supra* fn. 28, p. 39.
[44] *Id.* p. 40.
[45] *Id.* p. 41.
[46] *Id.* p. 42.
[47] *Id.* p. 42-43.

> 53 years of professional experience, I am unaware of any steam generator, with so many previously known and newly identified flaws, that have not been replaced.[48]

Mr. Gundersen warns that Holtec's proposal to unplug 600 steam generator tubes may cause additional unforeseen troubles:

> Now, Holtec Palisades has decided it would be appropriate to unplug the tubes that Consumers Power preemptively plugged two decades ago. Yet six other Combustion Engineering steam generators have already experienced the internal vibration problems that the plugged tubes were intended to prevent. Since the Holtec Palisades tubes are also experiencing stress corrosion cracking, unplugging additional tubes will create more unforeseen problems.[49]

D. Mass destruction of Quality Assurance records undermines continuity of operating procedures

Mr. Gundersen decries the 2022 destruction by Entergy of Palisades' QA (Quality Assurance) records and suggests that it will make restoration of operations very difficult or impossible. He notes that "the NRC and Entergy agreed that once the Palisades Operating License was terminated with the NRC, the Nuclear Regulatory Commission no longer had any regulatory control over safety systems."[50] Mr. Gundersen emphasizes that "It is dynamic and critically important to understand each nuclear plant's design basis adequately, as each plant is modified during its lifetime."[51] Without continuity of quality assurance history, that very important understanding of Palisades will pose risks that are difficult to quantify.

A Genuine Dispute Exists with the Applicant on a Material Issue

There are marked issues of fact and law raised by this contention. Holtec cannot merely reinstate the UFSAR 35 terms; a thorough safety analysis is warranted by the facts and is required by the regulations. The joint NRC Staff-Holtec foray to cobble together a creative pathway to restart founders on the reality that there is no regulatory procedure for restarting a

[48] *Id.* p. 44-45.
[49] *Id.* p. 46.
[50] *Id.* p. 48.
[51] *Id.* p. 47.

permanently closed reactor that makes sense. The NRC cannot approve the license amendments requested by Holtec.

AMENDED AND SUBSTITUTED CONTENTION 5

The purpose and need statement in the EA does not comply with the intent of NEPA. It is a self-serving statement accepting Holtec's unverified assertions of demand for baseload "clean" power within an undefined grid. As such, it unjustifiably limits the range of reasonable alternatives to the proposed restart of Palisades. The purpose and need statement also creates insufficient justifications for the restart of Palisades.

Basis for Contention

The purpose and need discussion, typically one or two paragraphs long, is the foundation of the environmental review process. It is important because it "necessarily dictates the range of 'reasonable' alternatives," *Carmel-by-the-Sea v. U.S. Dep't. of Transp.*, 123 F.3d 1142 (9th Cir. 1997). The definition of purpose and need must be reasonable. *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190 (D.C. Cir. 1991).

Facts Upon Which Petitioners Intend to Rely In Support of This Contention

The EA asserts two separate aspects of purpose and need, one for the NRC action and one for the Department of Energy (DOE) action. The purpose and need statement for the NRC action states:

> The purpose and need for approval of the proposed NRC Federal actions (identified in Table 1-1 above), collectively supporting the reauthorization of power operations and refueling of the reactor under the existing Palisades' RFOL, is to provide an option that allows for baseload clean energy power generation capability within the term of the Palisades' RFOL to meet current system generating needs (HDI 2024-TN10670: RAI-GEN-2).[52]

The purpose and need statement for the DOE action states:

> The purpose and need for DOE's proposed action (Federal financial assistance in the form of a loan guarantee), is to implement DOE's authority under Title XVII of Energy Policy Act of 2005, which was reauthorized, amended and revised by the Inflation

[52]EA p. 1-3.

> Reduction Act of 2022 to create the Energy Infrastructure Reinvestment Program (Section 1706). The purpose of the Energy Infrastructure Reinvestment Program is to finance projects and facilities in the United States that retool, repower, repurpose, or replace energy infrastructure that has ceased operations or enable operating energy infrastructure to avoid, reduce, utilize, or sequester air pollutants or anthropogenic emissions of greenhouse gases (GHGs) (42 U.S.C. 16517(a)(2)-TN10779).[53]

An agency must not accept out of hand the applicant's statement of purpose and need. But that is essentially what the NRC has done in the EA. The NRC claims that, although Holtec did not include a purpose and need statement in its environmental document, a response to an RAI suffices as Holtec's purpose and need statement.[54] That statement says:

> The purpose and need for the proposed action (for an exemption of 10 CFR 50.82(a)(2) by allowing a one-time rescission of the docketed 10 CFR 50.82(a)(1) certification and NRC approval of an order to transfer operational authority of Palisades and amendments necessary to reinstate the Palisades Renewed Facility Operating License, which will result in Palisades formally exiting the decommissioning process and entering a second period of power operation) is to provide an option that allows for clean energy baseload power generation capability within the term of the current nuclear power plant operating license to meet current (from restart through March 24, 2031) system generating needs.[55]

The purpose and need statement in the EA is virtually identical to the purpose and need statement in Holtec's RAI response. However, when it was stated by Holtec in the RAI response, it was not clear whether that purpose and need version would be published as the purpose and need statement in the NRC Staff's EA. As an RAI statement, it was Holtec's, not the NRC's, opinion of what the purpose and need statement would be. But then the NRC Staff adopted it all as the NRC's purpose and need statement for the restart.

In *ELPC v. NRC*, 470 F.3d 676, 683 (7th Cir. 2006), quoting *Simmons v. Corps of Engineers*, 120 F.3d 664, 666 (7th Cir. 1997), the court said:

> We have held that blindly adopting the applicant's goals is a "losing proposition" because it does not allow for the full consideration of alternatives required by NEPA.

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[53] *Id.,* p. 1-4.
[54] NRC Staff Answer p. 75.
[55] Holtec RAI response (ML24278A027). [9]EA, p. 1-7

> NEPA requires an agency to "exercise a degree of skepticism in dealing with self-serving statements from a prime beneficiary of the project" and to look at the general goal of the project rather than only those alternatives by which a particular applicant can reach its own specific goals.
>
> And as the court said in *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d at 196:
>
> > [A]n agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative from among the environmentally benign ones in the agency's power would accomplish the goals of the agency's action, and the EIS would become a foreordained formality. . . . Nor may an agency frame its goals in terms so unreasonably broad that an infinite number of alternatives would accomplish those goals and the project would collapse under the weight of the possibilities.

Analyzing the two purpose and need statements in the EA with these guardrails in mind, the fact that the purpose and need statement in the EA is virtually identical to Holtec's proposed statement in Holtec's RAI response directly violates the warning against "adopting the applicant's goals." Moreover, the purpose and need statement in the EA says the purpose and need is to provide energy "within the term of the Palisades' RFOL to meet current system generating needs." That clearly means that the purpose and need is to reauthorize the Palisades license for power operations. Of course, that leaves only one alternative to satisfy that alleged purpose and need. It leaves no possibility of reasonably examining any other alternative.

Plainly, the NRC Staff has produced no evidence of "need" to plug Palisades back into the regional grid. There have been no projections of regional demand load growth, nor forecasts of new sources of power generation coming into the grid. There are mentions of "data centers" and hints at spiking demand for electricity, but no data-based projections of future electricity need. This unscientific approach favors the pretense that 100% of the energy generated by Palisades would be immediately needed. It excludes consideration of incremental construction of alternative energy sources and implementation of industrial-scale conservation measures instead of reinstating a baseload nuclear power plant to the grid. There is no discussion whatsoever of energy conservation and timing need for implementation. Recently, the Chinese artificial

intelligence entity Deepseek revealed an AI model that requires only a fraction of the electrical power estimated by U.S. AI firms. Deepseek's presence signals that prospective data center power needs in the U.S. might be seriously overstated for AI.[56] The NEPA document should ascertain accurate, data-based information as to what the future industrial electricity market will be in Michigan and not unquestioningly accept Holtec's and the NRC Staff's mere representations to the contrary. Absent any authoritative forecasts of demand for power in the region of Palisades, the so-called purpose and need statement in the EA is baseless puffery..

The purpose and need statement in the EA isn't credible and is not fact-based. It is arbitrary, capricious, unreasonable, and an abuse of discretion.

AMENDED AND SUBSTITUTED CONTENTION 6

The discussion of alternatives in the EA is inadequate and unsupported by any facts or credible analysis. It therefore violates NEPA.

Basis for Contention

The discussion of alternatives in the EA rejects the no action alternative because it would not satisfy the alleged purpose and need for the restart of Palisades. As explained in Amended and Substituted Contention 5, the purpose and need statement in the EA does not comply with NEPA requirements. It is clear, therefore, that the NRC rejects any alternative that does not give Holtec what it wants.

Two other alternatives discussed are building a new reactor on the Palisades site or installing new system designs at the current Palisades reactor. These are not serious attempts at evaluating reasonable alternatives.

The last alternative discussed in the EA is replacing the Palisades reactor with other

[56] https://www.cnn.com/2025/01/27/tech/deepseek-ai-explainer/index.html

power generation technologies. The excuses presented for rejecting renewable energy sources are unreasonable and unsupported by any facts or evidence.

Facts Upon Which Petitioners Intend to Rely In Support of This Contention

The discussion and evaluation of alternatives is the "linchpin" of the NEPA requirement. *Monroe County Conservation Council, Inc. v. Volpe*, 472 F.2d 693 (2d Cir. 1972). See also, *Grazing Fields Farm v. Goldschmidt*, 626 F.2d 1068 (1st Cir. 1980) (NEPA's "primary" procedural mechanism is the discussion of alternatives.). This means that the discussion of alternatives must be a serious investigation and analysis of all reasonable alternatives, and not merely a justification for the proposed project.

The importance of a serious examination of alternatives was emphasized in the first landmark case on NEPA, *Calvert Cliffs' Coordinating Committee, Inc. v. Atomic Energy Commission*, 449 F.2d 1109, 1114 (D.C. Cir. 1971), where the court said the purpose of the alternatives analysis is:

> . . . to ensure that each agency decision maker has before him [or her] and takes into proper account all possible approaches to a particular project (including total abandonment of the project) which would alter the environmental impact and the cost-benefit analysis. Only in that fashion is it likely that the most intelligent, optimally beneficial decision will ultimately be made.

The no-action alternative must be given adequate discussion and cannot be rejected just because it does not satisfy the alleged purpose and need for the project. *Western Watersheds Project v. Abbey*, 719 F.3d 1035 (9th Cir. 2013); *North Carolina Wildlife Federation v. North Carolina Dep't. of Transp.*, 677 F.3d 596 (4th Cir. 2012); *Southeast Alaska Conservation Council v. Fed. Highway Admin.*, 649 F.3d 1050 (9th Cir. 2011).

The discussion of the no-action alternative in the EA does not explain or supply any evidence as to why Michigan could not satisfy its energy needs if Palisades is not restarted. In fact, the EA says, "Holtec has not indicated how the energy demand underlying the purpose and

need would be met for the power that would have otherwise been generated by resuming operations at Palisades."[57] Completely missing from any of the alternatives discussion is recognition of the reality that when Palisades was permanently shuttered in 2022, there had been careful plans made by the regional grid operator to ensure coverage and continuous electricity availability to all customers. There is no mention of whether the regional grid is presently burdened and needs additional baseload power, nor what the prospective electricity demand situation is. Without a significant portrayal of the energy picture, the restriction of alternatives under consideration must be skeptically perceived. Although the environmental review mandated by NEPA need not include all theoretically possible environmental effects arising out of an action, the NRC is obliged to make reasonable forecasts of the future. *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 & 2), ALAB-455, 7 NRC 41, 48, 49 (1978); *Hydro Res., Inc.*, LBP-04-23, 60 NRC 441, 447 (2004), *review declined*, CLI-04-39, 60 NRC 657 (2004). The burden is on Holtec and the NRC to justify rejecting the no-action alternative. They have not carried that burden.

The discussion of replacing Palisades with other forms of energy production is a mix of red herrings, mischaracterizations of nuclear power, and unsupported assumptions. First, the red herring. The EA dismisses alternate energy sources because there would be insufficient room on the Palisades site for additional structures. But no one is suggesting that an alternate energy source would be located on the Palisades site or that it would have to be. The argument that there is no room at the Palisades site for additional power generation facilities is also disingenuous because Holtec is proposing to construct two 300 megawatt nuclear reactors at the Palisades site, as confirmed by a recent Holtec press release.[58]

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[57]EA p. 2-6.
[58] https://mailchi.mp/e26eed3016ef/highlights-5669958?e=a2ff4470a7

Next, the mischaracterization. The EA says the purpose and need for the project is to promote clean energy. But nuclear power, contrary to the political decision made by Michigan legislators, is neither clean nor renewable. This is confirmed by the declaration and attachments of Dr. Mark Z. Jacobson.[59] For example:

> Nor is Nuclear power clean power, as some have argued. Not only does building a reactor requires a lot of energy and result in significant emissions, but mined uranium does not show up in perfect form. It must be refined, which takes a lot of energy and causes pollution. Nuclear reactors are belching huge amounts of water vapor and heat, contributing to local and global warming. Evaporated water from the giant steam generators is a greenhouse gas.
>
> There is also the problem of radioactive waste. As Dr. Jacobson put it:
>
> Last but not least, consumed fuel rods from nuclear reactors are radioactive waste. Most fuel rods are stored at the same location as the reactor that consumed them. This has given rise to hundreds of radioactive waste sites in many countries that must be maintained and funded for at least 200,000 years, far beyond the lifetime of any nuclear reactor. The more nuclear waste that accumulates, the greater the risk of radioactive leaks, which can damage water supply, crops, animals, and humans.

Finally, the unsupported assumptions. The EA claims that constructing alternate energy sources on sites other than the Palisades site might not have sufficient transmission infrastructure or might cause environmental impacts. But the EA does not support these assumptions with any facts and summarily rejects any further analysis of this alternative.

Agencies must, to the fullest extent possible, "[s]tudy, develop, and describe appropriate alternatives to recommended courses of action in any proposal. . . " 42 U.S.C. § 4322(2)(E); *Idaho Conservation League v. Mumma,* 956 F.2d 1508, 1519-20 (9th Cir. 1992). There must be examination of every alternative within the "nature and scope of the proposed action," *California v. Block*, 690 F.2d 753, 761 (9th Cir. 1982), "sufficient to permit a reasoned choice."

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[59] Dr. Jacobson's declaration appears as Exhibit C to the Petitioning Organizations' Petition to Intervene, https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML24284A364

It is evident that the NRC's discussion of alternatives in the EA defines the objectives of the Palisades restart "in terms so unreasonably narrow that only one alternative from among the environmentally benign ones would accomplish the benighted purpose and need, making the NEPA scrutiny "a foreordained formality." *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d at 196. The alternatives "analysis" in the EA clearly does not satisfy the requirement for a rigorous discussion of alternatives required by NEPA, and is therefore arbitrary, capricious, unreasonable, and an abuse of discretion.

NEW CONTENTION 8

The EA specifically incorporates previous Palisades-related documents and more general environmental documents by reference in the EA. The EA specifically states that the incorporation of other documents is based on CEQ regulations authorizing such incorporation. Recent court decisions have held that the CEQ regulations were propounded without legal authority and are therefore invalid. So the incorporation of other documents into the Palisades EA is invalid and invalidates the EA. Therefore, the EA must be completely redone.

Basis for the Contention

The EA specifically says that much of its analysis is based on incorporation of prior documents, specifically regarding Palisades and environmental issues generally.[9] The EA further explains that the basis for relying on incorporation of other documents is a provision in the CEQ regulations allowing for such incorporation. Recent court decisions have held that the CEQ regulations were adopted without legal authority so they are invalid. Therefore, the reliance on CEQ regulations in the EA is invalid and the EA must be completely redone.

Facts Upon Which Petitioners Intend to Rely In Support of This Contention

Section 1.3.5 of the EA states that it is relying on CEQ regulation 40 C.F.R. § 1502.21 (although the EA incorrectly cites it as § 1501.12). That regulation says, "Agencies shall incorporate material into an environmental impact statement by reference when the effect will be to cut down on bulk without impeding agency and public review of the action." In section 1.3.5,

the EA includes a table listing 14 documents that the EA includes by reference, including the 2006 EIS for the renewal of the Palisades operating license. That 2006 EIS is relied on extensively in the EA.

Obviously, the EA's reliance on incorporating other documents depends on the validity of the CEQ regulation. However, two recent court decisions have invalidated the CEQ regulations.

In *Marin Audubon Society v. FAA*, 121 F.4th 902 (D.C. Cir. 2024), the court held that the CEQ regulations were adopted pursuant to the assumed authority of a Presidential executive order, not an act of Congress. Therefore, the court held that the CEQ regulations were invalid and agencies cannot rely on them as authority for agency actions. The *Marin* court pointed out that this is especially true for independent agencies like the NRC, to which Presidential executive orders do not apply.

The *Marin* case was followed by a decision of the United States District Court for the District of North Dakota. *Iowa v. CEQ*, Docket No. 1:24-cv-00089 (ECF 145) (February 3, 2025). The North Dakota court cited *Marin*, but went into a deeper analysis of why the adoption of the CEQ regulations was beyond the authority of the CEQ and therefore invalid.

What this means for the Palisades EA is that the foundation of the discussions in the EA is invalid, to the extent that discussion is based on incorporation of other documents. A review of the EA reveals that incorporation of other documents is a substantial basis for the discussions and conclusions in the EA. Following is a list of the sections of the EA discussing the environmental impacts and the documents incorporated to support the discussion:

- 3.1.1 – Affected Environment – 2006 SEIS for license renewal of Palisades
- 3.1.3 – Impacts From Resumption of Power Operation – 2006 SEIS
- 3.2 – Land Use and Visual Resources – 2006 SEIS and 2024 GEIS for license renewal

- 3.3 – Meteorology and Air Quality – 2006 SEIS and 2024 GEIS

- 3.4 – Surface Water Resources – 2006 SEIS and 2024 GEIS

- 3.5 – Geology and Groundwater – 2006 SEIS and Holtec UFSAR Rev. 25 (2021)

- 3.6 – Terrestrial Ecology – 2006 SEIS

- 3.7 – Aquatic Ecology – 2006 SEIS and 1972 Final Environmental Statement (FES) for initial Palisades operating license

- 3.8 – Historical and Cultural Resources – 2006 SEIS

- 3.9 – Socioeconomics – 2006 SEIS

- 3.10 – Environmental Justice – 2006 SEIS

- 3.11 – Human Health – 2006 SEIS

- 3.12 – Waste Management – 2006 SEIS

- 3.13 – Uranium Life Cycle and Transportation – 2006 SEIS and Continued Storage GEIS

- 3.14 – Postulated Accidents – 2006 SEIS and 2024 GEIS

- 3.15 – Decommissioning – 2006 SEIS, 2013 GEIS on license renewal, and 2002 decommissioning GEIS

The EA is seriously flawed because of these impermissible incorporations by reference. Hence the issuance of the EA in its current form is arbitrary, capricious, unreasonable, and an abuse of discretion.

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CERTIFICATE OF SERVICE

Pursuant to 10 CFR § 2.305, I hereby certify that a copy of the foregoing ""PETITIONING ORGANIZATIONS' AMENDED AND NEW CONTENTIONS" was served upon the Electronic Information Exchange (NRC Filing System) in the captioned proceeding this 3rd day of March, 2025 and that according to the protocols of the EIE they were served upon all parties registered with the system.

Respectfully submitted,

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