

BACKGROUND INFO. ON HOLTEC'S ZOMBIE REACTOR RESTART, AND "SMALL MODULAR REACTOR" NEW BUILD, SCHEMES ON THE LAKE MICHIGAN SHORE

ZOMBIE REACTOR RESTART

Unprecedented -- although the precedent Holtec is attempting to set at Palisades is already being emulated by other companies, at other closed nuclear power plants, such as Three Mile Island Unit 1 in Pennsylvania, and Duane Arnold in Iowa. (Diablo Canyon Units 1 and 2 in California were also scheduled to retire this year and next. But Governor Gavin Newsom did a 180: despite taking part, as then-lieutenant governor, in the 2016 company-initiated shutdown agreement, at about the same time as Whitmer on Palisades, he began strongly advocating for Diablo to continue operating indefinitely into the future.) This means Holtec's dangerous scheme is already significantly increasing radioactive risks not only in Michigan, but across the country. The risks of an unprecedented closed reactor restart are compounded by Holtec's inexperience -- it has never operated an atomic reactor before.

Extremely High-Risk -- previous owner Consumers Energy admitted to the Michigan Public Service Commission in spring 2006 ([see slide/page #2](#)) that Palisades had: an embrittled reactor pressure vessel (the worst in the country, as the U.S. Nuclear Regulatory Commission was forced to admit in 2013 -- [see point #4, on page 5 of 15 on the PDF counter](#)); steam generators, and a reactor vessel closure head (lid), urgently needing replacement; sump strainers that are too small to handle containment coatings that would form a thick goop during an emergency, potentially blocking coolant water flow to the overheating reactor core; and urgently needed fire protection upgrades. Each of these safety-significant systems, structures, and components is a pathway to reactor core meltdown, and its potential large-scale release of hazardous radioactivity into the environment.

Despite this, Palisades' previous owner, Entergy (2007 to 2022), fixed **none** of these problems. In fact, another potential pathway to reactor core meltdown -- leakage from

control rod drive mechanism (CRDM) seals, [ongoing at Palisades since 1972](#) -- uniquely bad operating experience! -- reared its ugly head repeatedly over Entergy's tenure at Palisades. But to this day, the root cause has apparently never been determined, nor comprehensive corrective action taken. In fact, the latest CRDM seal leak, on May 20, 2022, is what led Entergy to retire Palisades that very day, 11 days earlier than previously scheduled.

Since the reactor's permanent shutdown, and Holtec's takeover of the site on June 28, 2022, there is no indication that adequate -- or even any -- active maintenance on safety-significant systems, structures, and components has taken place. This could well be a reflection of Holtec's inexperience and incompetence -- the company has never operated an atomic reactor before. The steam generators have not been put into chemically preservative "wet layup," meaning already serious corrosion has accelerated for the past 25 months; the turbine-generator shaft has not been rotated regularly, meaning it is bending under its own immense weight, and could mechanically explode in the future, sending large chunks of shrapnel into the control room, killing operators and/or destroying safety and cooling systems; pumps and valves have not been checked for operability, so their future reliability is uncertain.

The *CRAC-II* report (*Calculation of Reactor Accident Consequences*), also known as the *1982 Sandia Siting Study* or as *NUREG/CR-2239*, estimated that a reactor core meltdown at Palisades could cause 1,000 peak early fatalities (acute radiation poisoning deaths), 7,000 peak (radiation) injuries, 10,000 latent cancer fatalities, and \$52.6 billion in property damage. [As AP reported in 2012](#), populations have soared around U.S. atomic reactors like Palisades in the past four decades, so casualties would now be worse -- more people would be in harm's way for **exposure to hazardous radioactivity**. [And adjusting those 1982 dollar figures for inflation alone](#), the property damages now, expressed in Year 2023 dollar figures, would surmount \$168 billion. AP also cited reactor pressure vessel embrittlement as a top example of NRC regulatory retreat, and Palisades has the worst in the country, and perhaps in the world.

These already high risks are compounded by Holtec's incompetence, corruption, and

even criminal behavior, repeatedly exhibited over a long period of time. (See comprehensive [Beyond Nuclear](#) and [Safe Energy Rights Group](#) documentation from the past, as well as but [the latest scandal](#) caused by Holtec!) And the safety risks are further compounded by the U.S. Nuclear Regulatory Commission, U.S. Department of Energy, and other government officials' (including Gov. Whitmer's, and, in 2023 when it approved the initial \$150 million bailout, a majority of the Michigan State Legislature's!) complicity and collusion. The Japanese Parliament concluded in 2012, after its independent investigation, that collusion between Tokyo Electric Power Company, the national nuclear power safety regulatory agency, as well as elected and appointed government officials, was the root cause of the 2011 Fukushima Daiichi nuclear catastrophe in Japan. Such complicity and collusion exists in spades at Palisades, which is why the restart scheme puts us at such extreme peril!

Insanely Expensive (for the public) -- The \$300 million in giveaways from the State of Michigan, which Holtec first requested for the restart scheme on July 5, 2022 in [a secret bailout application and strategy document sent to the U.S. Department of Energy](#) (obtained via a Beyond Nuclear FOIA (Freedom of Information Act) request to the State of Michigan), is but the tip of the iceberg. More than \$8.3 billion for the zombie reactor restart scheme, and another \$7.4 billion for the "Small Modular Reactor" new build schemes at Palisades and Big Rock Point, amounts to \$15.7 billion in bailouts, and still counting, that Holtec has demanded from state and federal taxpayers, as well as ratepayers. (See the [breakdown of numerous proposed, and some already executed, bailouts, here.](#))

Dividing \$8.3 billion by the 280 restored jobs at Palisades associated with the restart scheme, means that each restored job will require a public subsidy investment of \$29.6 **million**. This is a thousand times more expensive than the average State of Michigan subsidized new job created last year, which cost just \$29,000.

In terms of climate mitigation, as shown by the likes of [Dr. Mark Jacobson at Stanford University](#), renewable sources of electricity such as wind power and solar power, combined with energy storage as well as maximized efficiency, are significantly more

cost effective, just as reliable (or more so), and certainly safer, more secure, and cleaner than new, or restored old, nuclear power. [Amory Lovins](#), also with Stanford, and formerly with Rocky Mountain Institute, as well as Friends of the Earth, has shown for many decades that nuclear power fails the market test, including for climate mitigation -- energy efficiency, for example, is an order of magnitude or more cost-effective than nuclear power at reducing greenhouse gas emissions.

"SMALL MODULAR REACTOR" (SMR) NEW BUILDS

Holtec has also never constructed an atomic reactor before. But, as mentioned above, Holtec has nonetheless also applied to the U.S. Department of Energy (DOE) for \$7.4 billion in zero-risk, no-interest nuclear loan guarantees (no interest will be charged, nor does the "loan guarantee" have to be paid back -- in which case, federal taxpayers are left holding the bag!), for the design certification, licensing, construction, and operation of two SMR-300s (each 300 Megawatts-electric -- MW-e -- in size). From [April 2022](#) to December 2023, Holtec had proposed four SMR-160s at Palisades, but then abruptly switched to the previously unannounced SMR-300 design. On June 28, 2022, the day it took over at Palisades and Big Rock Point, Holtec announced its targeting of the latter for SMR new build(s), as well.

But 300 MW-e atomic reactors are not small. 300 MW-e is 4.5 times larger than [the Big Rock Point atomic reactor](#), just 67 MW-e in size, that shockingly emitted more than 3 million curies of hazardous radioactivity during so-called "routine" operations from 1962 to 1997. 300 MW-e atomic reactors are also 4.5 times larger than the 67 MW-e Fermi Unit 1, located in Frenchtown Township, near Monroe, on the Lake Erie shore, which had a partial core meltdown on October 5, 1966, so that "[we almost lost Detroit](#)."

Constructing and operating SMR new builds immediately next to the zombie restarted reactor on the tiny 432-acre Palisades site will also concentrate a large amount of nuclear risk, both break-in phase risks at the SMR new builds, and breakdown phase risks at the zombie reactor. Examples of new-build atomic reactors having disasters or

even catastrophes include Three Mile Island Unit 2 in Pennsylvania in 1979, Chornobyl Unit 4 in Ukraine in 1986, and Fukushima Daiichi Units 1, 2, 3, and 4 in Japan in 2011. Multiple reactors on the same small site also risks domino-effect core meltdowns, as happened at Fukushima Daiichi, Japan in March 2011.

For yet more info. on Palisades (and Big Rock Point), see:

[THE NUCLEAR REACTOR NEXT DOOR podcast series](#), hosted by Roger Rapoport, featuring multiple guests, including Beyond Nuclear's Kevin Kamps, Dr. Mark Jacobson, and former Entergy engineering director at Palisades, Alan Blind.

[Beyond Nuclear website posts about Palisades \(and Big Rock Point\) since April 2022](#), when Holtec CEO Krishna Singh first floated the trial balloon for SMR new builds at Palisades, and Gov. Whitmer first floated the trial balloon for the unprecedented restart of the closed reactor.

(June 14, 2024)

--

Kevin Kamps

Radioactive Waste Specialist

Beyond Nuclear

7304 Carroll Avenue, #182

Takoma Park, Maryland 20912

Cell: (240) 462-3216

kevin@beyondnuclear.org

www.beyondnuclear.org

Beyond Nuclear aims to educate and activate the public about the connections between nuclear power and nuclear weapons and the need to abolish both to safeguard our future. Beyond Nuclear advocates for an energy future that is sustainable, benign and democratic.