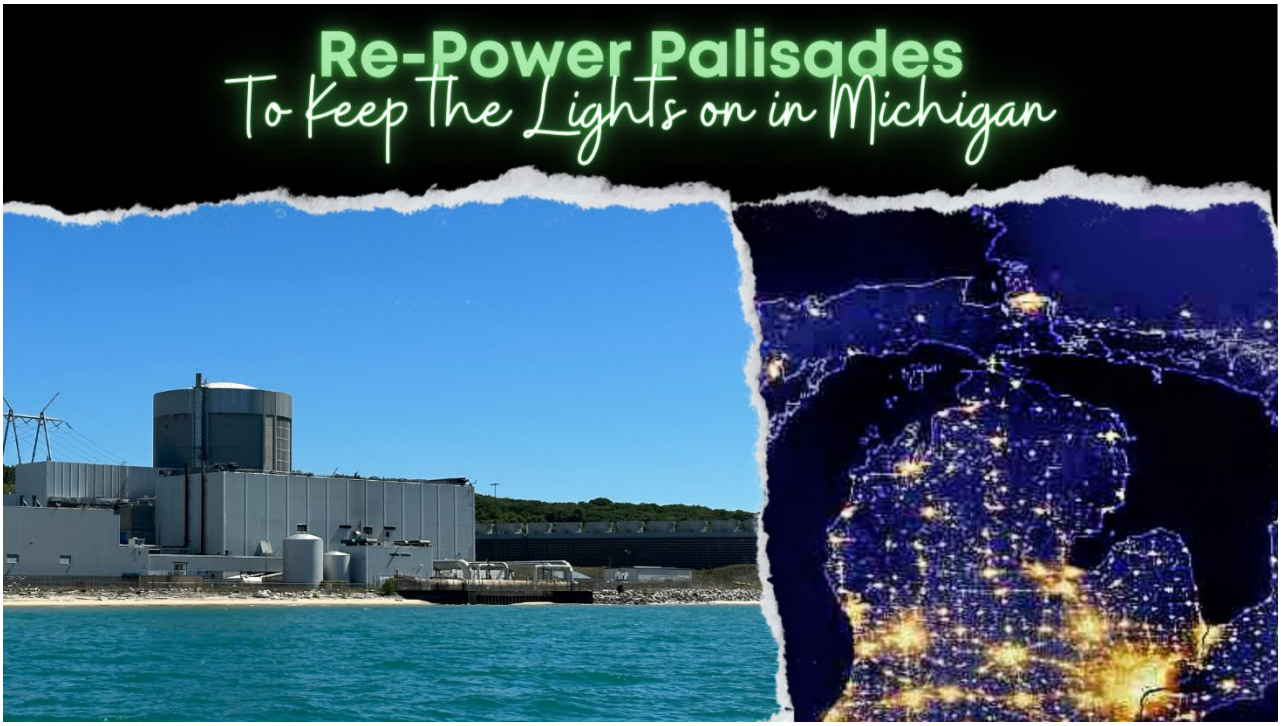

Making the Case to Re-Power Palisades Nuclear Plant: A Dive into Energy Dysfunction in the Great Lake State

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Will Michigan become the water, windless, watt-less land? The state is scheduled 🗓️ to shut down three massive coal plants 🏭 between now and 2032, evaporating nearly 6,000 megawatts of electrical ⚡ power (MWe). The Monroe Power Plant, the biggest in the US, weighing in at 3,400 MWe, is scheduled to close in 2032. The J.H. Campbell Plant (1,420 MWe) closes 2025. And the Belle River Plant (1,260 MWe) will close in 2026. We'll come back to Belle River below.

Let's put that 6,000 MWe void into perspective. The newest US nuclear reactor to come online is Plant Vogtle Unit III with 1,114 MWe. Vogtle will soon bring Unit IV online, joining two reactors put into service years ago for a combined four-reactor CO2-free power punch of 2,430 MWe. Those reactors will serve a vast swath of the southeastern US—with just 40 percent of the power that Michigan is about to make disappear.

Michigan's Blackout Bundle

Near the end of 2023, Michigan passed a series of energy laws along partisan lines (barely) that mandate a complete phaseout of coal. I call these laws "The Michigan Black Out Bundle." Introduced under a false flag of "clean energy," which (of course) the mainstream media applauded, the bills are S.B. 271, 273, 502, and 519. Coal power generation is still about 35 percent of Michigan's electrical generation. Michigan is mandating 100 percent carbon-free power by 2040, with 60 percent of Michigan's energy being carbon-free by 2035 as a benchmark. To accomplish just that benchmark with wind 🌬️ and solar 🌞, we'll have to quadruple the current amount of those available sources in Michigan. That will require 1.2 million to 1.5 million acres of surface area—equivalent to almost one-tenth the surface area of Lake Michigan.

In a letter to the Editor of the Detroit Free Press 📰, before the vote, I explained, "The Michigan Blackout Bundle comes with predictable results as it follows Germany's and California's 'clean' energy policies. California residents pay 33 percent more 🤑 for electricity 🔌 than the rest of the United States. And by 2025, Germany will have spent $580 billion on wind, solar, and biomass to make electricity at twice the expense and six times more carbon intensive than the rest of Europe." You may have read my editorial. Oh, wait, maybe not. They passed these laws so fast that there was no time for public comment 😷, let alone getting a slot on a newspaper editorial page.

Note: We're only talking about electrical generation. I have no idea how Michigan industry is supposed to make anything that requires process heat 🔥 after 2040. If you know, please share.

Natural Gas Backdoor Slammed

As many informed people in the energy space know, natural gas peaker plants back up intermittent wind and solar. And one might reasonably think Michigan will just unwittingly become overdependent on just-in-time natural gas, as in Germany and California. But Michigan legislators are aware of this natural gas backdoor 🚪 and are also slamming that shut.

One of those Michigan coal 🪨 plants scheduled to close, the Belle River Power Plant producing 1,260 MWe, was to be repurposed to natural gas by 2026. But that may be complicated now because owners will need plans for carbon capture to operate. All natural gas and coal plants in Michigan will have to submit plans for CO_2 capture. As intended, that requirement will kill natural gas investment in Michigan.

Nuclear Finally Got the Nod

As of September 2023, nuclear energy in Michigan looked like it would not qualify as a clean energy source. I wrote a guest commentary about that issue in The Michigan Bridge. I quoted Robert Bryce of the Power Hungry Podcast fame, "If you are anti-

carbon and anti-nuclear, you are pro-blackout." That must have scared the pants 👖 off some people because Michigan somewhat reluctantly included nuclear energy as a clean energy contributor in Michigan. That concession is also a result of nuclear energy's surge in bipartisan support since Putin's war in Ukraine. Nuclear is now the bipartisan issue of our times. Checkout Bryce's five-part FREE YouTube 🎬 docuseries, Juice: Power, Politics & The Gird.

Germany's nuclear fleet once provided 25 percent of the country's electricity with 17 nuclear reactors. However, the Greens 🤢 took control of Germany in the early 2000s; and by 2023, they managed to shut down all their nuclear power production. Nuclear bad. Wind and solar good. Energy dependence on Russia required. Consequences? Germany is firing up at least 20 coal plants (not the cleanest kind) again today as that country spends billions building natural gas import terminals as fast as possible. That's what hitting a green wall 🟩🧱 looks like. Ironically, if Germany had kept operating their nuclear plants and invested in additional nuclear instead of wind and solar, their entire electrical and transportation grid would be carbon-free today.

Isuru Seneviratne recently reposted, "Germany is Being Served Up on a Platter to the Far Right," on the unintended consequences of anti-nuclear zealotry. Here's a quotation from that article, "Generation is now down 19% since its peak in 2017. Bragging about falling emissions when you're in an electricity generation freefall is like bragging that you've lost weight after an amputation." The lesson for Michigan is energy consumption and economic growth 📈 go together. But somebody must produce that energy.

Michigan Influenced by the Same Forces Now Starving Africa of Energy

I follow Hügo Krüger on LinkedIn and Substack. His deep knowledge about the economic and social challenges South Africa and the African continent face due to energy shortages should inform us in Michigan. In a recent Substack co-post with Dr. Lars Schernikau, they said, "Supporting coal is often viewed as a heretical form of 'denial' of climate changes and in 'ignorance' of the 'toxic' poisons spewing from coal plants. However, the reality is that (a) modern coal is not what it used to be, (b) coal releases FEWER greenhouse gas emissions than LNG imports over the entire supply chain, and c) economic trade-offs and not ideological purism should be what drives the decision making in developing nations such as South Africa." That is good advice for Michigan as well.

Every day, South Africa posts the electricity available to residents for the coming day. Stage one means electricity will not be available for one hour ⏳. Stage eight means eight hours ⏳. Princess Mthombeni, founder of Nuclear4Africa, reports stage eight outages are becoming more routine. Why? Because South Africa is shutting down coal plants and trying to replace them with wind and solar. That is precisely what is happening in Michigan right now.

Wind Turbines and Solar Panels Only Please

No applications are pending with the Nuclear Regulatory Commission (NRC) to build more gigawatt-scale nuclear reactors after Vogtle IV. The re-powering of Palisades is a good thing. And it appears Holtec and its partners, under NRC scrutiny, can safely re-power the plant in a reasonable time ⏱️—optimistically, by the end of 2025. The federal and state governments and a bipartisan mix of Michigan's legislature have given a collective thumbs up 👍🏽 and money 💰 so Palisades can re-power. Palisades even has customers for the power lined up. Kumbaya, we are the world 🌎; we are the children 👶🏻 ...

But Palisades is only 811 MWe (by the way, 11 in the 800 is a rounding number in nuclear energy but would require 11, 1 MWe wind turbines (each over 200 feet tall) to produce the same output, and only on the days the wind was blowing. We would have to pop up nuclear reactors as if they were Starbucks stores to replace the energy coming offline from shuttered coal and natural gas plants. So, the plan is to industrialize the Michigan countryside and maybe the Great Lakes with endless wind turbines and solar panels.

Rural Industrialization?

Since 2015, 59 Michigan communities have rejected wind and solar farms—26 of those in the last five years. The state now plans to Big Foot 🦶🏽 local communities and override their objections to wind and solar farms being sited near their homes and businesses. In the nuclear community, we have a new thing called Consent-Based Siting. Big Footing is the opposite of consent. It doesn't seem like it will go well.

Here's an interesting tidbit: Palisades sits on 432 acres just south of beautiful Van Buren State Park. The area is pristine. If you ever visit the park, I am the guy riding by on the bike 🚴🏻.

And About that MISO Grid

The US has six primary regional grid operators—MISO, CAISO, SPP, ERCOT, PJM, NYISO, and ISO-NE. Those, of course, are acronyms. Acronyms are things that run everything in government, military, and bureaucracies. They stand for something—nobody remembers what. MISO serves the Midwest, including Michigan.

All the new nuclear energy in the world doesn't help if the nuclear plant is not allowed to operate at full blast nearly 95 percent of the time as designed. Michigan elected officials are legislating energy production to be more decentralized rather than centralized, and there are legal prescriptions on what type of energy the grid can accept or not based on renewable generation metrics. This environment doesn't bode well for winning economies of scale. We don't have enough space to discuss redundancy, but that's a factor, too.

Add in the fact there are enough other regulations in the Michigan Blackout Bundle to fill Sleeping Bear Dunes. How much storage must we develop, who can sell energy, who must buy it, when does a producer get penalized, what communities get the millions in subsidies for adding renewable energy in their backyards, and so on? All this nonsense is making the Michigan grid as frail as thin glass. The experts from our acronym grid organizations are now sounding the alarm bells 🚨 for any policymaker or regulator who will listen. Caution: Blackouts Ahead! The US Grid is at high or extreme risk. Everywhere. The Midwest Reliability Organization (MRO) just published its 2024 Regional Risk Assessment. The grid needs to work otherwise, how shall energy-starved Michigan get energy from nuclear-powered Illinois in a pinch?

The Michigan Blackout Bundle is a breathtaking maze of micromanaging—which Lansing office workers manage instead of field engineers. It's going to be a non-starter from complexity alone. The lawsuits beckon.

Here are Seven Takeaways Surrounding the Palisades Re-Powering Initiative

1. The NRC should (and I anticipate will) approve Holtec's application to re-power Palisades and offer some semblance of reliability and stability to the MISO grid. Let Holtec add two copies of its Small Modular Reactor, SMR-300s, to the same site in the near future, too. Why not? The benefits of doing so are immense. Palisades could be a national model on how to do something right.
2. Rani Franovich (Nuclear Rose) posted the report "Enabling High Volume Licensing of Advanced Nuclear Energy." The NRC needed to get to this point yesterday. Approve applicants' advanced reactor designs, then let them build lots of them in factories. In essence, start building airplanes ✈️ instead of airports.
3. Reverse laws heading us into a green wall 🟩🧱. Only retire coal or natural gas plants after their useful lives are up. And when that happens, put advanced reactors at those sites. The lack of power generation is now much riskier than climate change. This statement is especially true in Michigan, which still produces bone-chilling winters ❄️. Cold kills fast.
4. This adage is appropriate, "We should not rebuild one more Vogtle nuclear plant. We should build 💯 of them." We must if we're not to follow Germany or share in the difficulties South Africa now faces. We need to build multiple gigawatt-size nuclear plants STAT. We'll get good at making them again once we commit.
5. Fossil fuels are not 😈 evil. They make our comfortable, modern existence possible. But over the decades to come, we shall transition away from fossil fuels as we naturally pursue the density of uranium and thorium. Let's not destroy our economic foundations by rushing the process. The word transition needs a rest.
6. Enough with micromanaging our grids. Read Meredith Angwin's "Shorting the Grid, The Hidden Fragility of Our Electric Grid." Let's pay baseline energy producers a guaranteed fee for their reliability and stop allowing subsidized intermittent energy sources to undercut baseline power prices as the weather determines. Let's let the engineers run our grids again.

7. Next time your officials ask you to cut back ✂️ your energy use, or you find yourself in the queue on a rolling blackout, or you gasp 😮 at your utility bill, or you start checking to see how many hours per day ⏱️ your electricity will not be available, remember it does not have to be this way. We know how to produce abundant, clean, inexpensive energy. Get involved. Many people doing a little bit all the time makes a difference. 🏆

Shawn Connors is a former small business owner from Kalamazoo, Michigan, and the author of the non-fiction *Quick Read Nuclear Energy Guide*, available as a free PDF and the novel *Chain Reaction, A Story About Power in the Age of Climate Change*.