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pipes, pours over the three huge masses of corium and becomes highly contaminated with a mix of at least 62 radioactive materials. Tepco's installation of an expensive "ice wall" that was dug into the ground behind the wrecked reactors, was intended to divert the groundwater keeping it away from the foundations. This fix has also failed.

Tepco has slowed the direct flow of the contaminated water into the Pacific by filtering it and then collecting it in giant tanks. But the tank farm is plagued by leaks and by the discovery that the filter system has failed. In 2018, Tepco admitted that its "Advanced Liquid Processing System" or ALPS had not removed iodine-129, ruthenium-106 and technetium-99, as well as carbon-14, and 60 other long-lived poisons, putting the lie to its repeated assurances that ALPS would remove everything but tritium. The company then promised that it would re-treat the collected water, before dumping all 1.3 million tons of the waste water into the Pacific.

Alliances Unite in Fight Against Foreign Fossil Fuel Giant

By Kelly Lundeen

Canadian oil transport company Enbridge has a tough task ahead of it in Wisconsin and Michigan. Keeping their 69-year-old Line 5 pipeline flowing with tar sands requires the approval of two major projects: the reroute of the pipeline around the Bad River Reservation of the Lake Superior Chippewa (Ojibwe), in Wisconsin, and a tunnel under the Straits of Mackinac, the narrow strip of water connecting Lake Michigan and Lake Huron.

Opposition to pipelines has been fueled by growing awareness that climate chaos can be diminished by rejecting coal, oil, and gas projects. Furthermore, the Indigenous-led movement against fossil fuel infrastructure reminds US citizens that it is everyone's responsibility to uphold Article 6 of the Constitution, the supreme law of the land, which states that international law, such as treaties with native nations, takes priority over conflicting state laws.

Sherry Couture spoke at the Treaty People Convergence August 6, which her organization R.I.S.E. Coalition, Nukewatch, and several other groups helped organize through the Wisconsin Building Unity network. "I come from Fond du Lac, the 1854 Treaty territory [of the Lake Superior Chippewa] ... I'm known as a Treaty walker ... I'll do anything for the nibi ["water" in Ojibwe]. I'll live in a ditch. I'll walk to the Capitol. I'll sleep on the pipeline. [We] will chase Enbridge down and make sure that they leave our reservation," she said. The US government violates the Treaty signed with the Fond du Lac by allowing Enbridge's pipeline to run through the Treaty territory. At the Convergence, on the anniversary of Hiroshima day, Nukewatch linked the issues of the targeting of Indigenous populations and people of color both by nuclear weapons and environmental racism.

Nonviolent action against the Line 5 projects has been ongoing, and Enbridge also faces legal challenges by the Bad River Band and the State of Michigan. In 2013, the Bad River Band refused to renew pipeline easements across their reservation in northern Wisconsin, and in 2019 the Band sued

In July, Japan's nuclear regulator formally approved Tepco's plan to dump the water into the ocean beginning in spring 2023 and continuing for 30 years. (The reactors produce 140 cubic meters of contaminated water every day, a combination of ground- and rainwater that seeps into the wreckage, and cooling water mechanically poured over the three corium piles.) While independent scientists and environmental historians have charged that dumping would constitute the worst premeditated maritime pollution in recorded history, Tepco's ocean pollution solution has already been okayed by the government in Tokyo and by the International Atomic Energy Agency.

Ocean dumping would violate international law

In August, Tepco announced that it would begin constructing a tunnel to the sea for releasing the waste water. Complaints from scientists, environmental groups and Pacific rim countries, particularly South Korea and China, have not forced Japan to reconsider the plan.

to have the pipeline removed, forcing Enbridge to propose a reroute. On September 7, US District Judge William Conley found Enbridge to be trespassing on the Reservation for nearly a decade, yet didn't go as far as shutting down the pipeline. Enbridge is working to obtain permits for a reroute while a Final Environmental Impact Statement is being completed. In order to demonstrate union support, Enbridge has already secured project labor agreements with four labor unions and a construction company that was partially owned by Wisconsin gubernatorial candidate Tim Michels (when the contract was signed). Enbridge, a foreign company, is on track to spend as much as \$1.7 million on US lobbying for a second consecutive year.

A 2010 Enbridge oil spill into Michigan's Kalamazoo River, the largest inland oil spill in US history, called into question the Line 5 pipeline's safety, particularly where it runs under the Straits of Mackinac in the Great Lakes, which contain 20% of the world's freshwater. In 2018, a boat anchor was dragged across the pipeline, causing damage but not a rupture. Even those concerned about energy independence would wonder if putting the Great Lakes at peril is worth the 10% of oil from Line 5 reaching the US market, while 90% returns to Canada. Former Michigan governor Rick Snyder approved Enbridge's plan to pass the pipeline through a tunnel under the Straits. Enbridge is still hoping to acquire state and local permits.

Nukewatch has supported Indigenous-led objections to both regional Enbridge pipeline projects, Line 3 and Line 5, including Camp Makwa starting in 2017, and a walk supporting Treaty rights last year. This spring Nukewatch organized local events as part of the March Forth to Earth Day actions opposing Line 5, which took place throughout Wisconsin. Pushback against the pipelines will continue in order to protect the water, the Earth, and the people.

What you can do:

- The Army Corps of Engineers is taking comments through October 14 on the proposed tunnel under the Straits of Mackinac for the Environmental

Certain international treaties forbid such deliberate pollution of the global commons. The "Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter," or London Convention, prohibits any intentional release of radioactive wastes into the sea. Writing in *The Korea Times*, environmental attorney Duncan Currie and nuclear specialist Shaun Burnie of Greenpeace Germany noted that ocean dumping would also violate the UN Convention on the Law of the Sea by posing a direct threat to the marine environment and the jurisdictional waters of the Korean peninsula.

Tepco says the tritium concentration in the wastewater will be lowered before dumping by diluting it with seawater. However, dilution is basically a public relations scheme since the total amount of radioactive tritium will remain the same. Greenpeace's Burnie and Currie and others have warned about tritium's ability to form organically-bound tritium, and that if ingested with seafood the biological power of its beta radiation can damage human DNA.

Impact Statement scoping process. Participate in a public meeting on October 6, noon Central time, here: <https://us06web.zoom.us/j/82961743672>; or by phone (309) 205-3325 (zoom ID 829 6174 3672).

- Submit comments online with a sample letter here: oilandwaterdontmix.org/submit_army_corps_tunnel_comment.

- See updates at rise-coalition.com, and at communitiesunitedbywater.org.

— Wisconsin Public Radio, Sep. 8, June 8, & July 20, 2016; *GazetteXtra*, Apr. 13, 2022; Open Secrets, 2022



Treaty walker Sherry Couture, Fond du Lac Ojibwe, walks to protect water, honor treaties, and oppose Enbridge tar sands pipelines. Photo: Indigenous Environmental Network

Business Case for Nuclear Power Collapsed Forty Years Ago — Economist

By Amory Lovins

Nuclear reactor purchase orders collapsed to zero in [1978] the year before Three Mile Island because they cost too much. How do we know? The cover story of the last 1978 issue of *Business Week*, months before TMI, reported nuclear power's commercial collapse. TMI, Chernobyl, and Fukushima only emphasized the industry's slow-motion collapse caused not by public fears but by the lack of a business case.

Chancellor Angela Merkel didn't decide to phase out nuclear power only after Fukushima in 2011; Germany had already written the phaseout into its atomic law in 2002 after a national consensus process in 2001. Fukushima only reversed a delay (added months before) and [Germany] returned to the original 2022 phaseout date. Now the last three reactors may run briefly, probably a few months, into 2023 to help 1-2% with the Russian gas crisis.

California's legislature just voted to extend Diablo Canyon five years beyond its planned 2024/25 retirement at age 40 — if it meets a slew of conditions it's unlikely to meet, such as showing 1) the extension is needed, 2) won't cost too much, and 3) its gotten all required federal approvals and subsidies. In other words they voted to do the analyses no one had done when the Governor's office, a few weeks before adjournment, introduced this proposal that no state agency or utility had requested, reversing a thoroughly analyzed 2016 agreement that nearly all the legislators had approved just four years ago. Nothing significant changed since except the Governor's mind.

Renewables' [often claimed] "unreliability and relatively small contribution to overall power generation" is untrue. Renewables outproduce nuclear energy in the US and the world, and are growing rapidly while nuclear output is stagnant or falling. Solar cells and wind turbines do produce varying output, but those variations are more predictable than nuclear reactors'

bigger, longer, and more abrupt failures. Solar and wind power's unpredictable ("forced") outages are roughly one-tenth those of nuclear power, so they need less and cheaper backup to keep the grid reliable.

State-level data confirm that abrupt nuclear retirement (not with the 9-year notice provided in California) can briefly raise gas-fired generation, but only for a year or two; then renewables and efficiency can contest the market space and grid capacity that the nuclear reactor sat on, they win, and they get installed. Since they're cheaper than running the closed [reactor], they displace more fossil-fueled generation for the same cost, and for many times longer, so they protect the climate better than continuing to run the uneconomic nuclear unit.

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