

12/1/20 Opponent Testimony by Connie Kline, past Chair of the Ohio Sierra Club Nuclear Committee
Sub. HB 104 "Advanced Nuclear Technology Helping Energize Mankind Act" "ANTHEM Act"
Senate Energy and Public Utilities Committee hearing

Despite its deceptively brief length of only 10 pages (an earlier iteration HB 771 in the 132nd General Assembly in 2018 was 56 pages long), HB 104 is an extreme, drastic, dangerous piece of legislation that seeks to significantly alter provisions of Ohio's agreement state status by completely "repealing Section 3748.03 of the Ohio Revised Code."

It is precisely the lack of specificity and detail and failure to address critical issues, including, but not limited to, potential government/taxpayer subsidies, public health and safety requirements; reactor construction, clean up and decommissioning costs; liability; spills, leaks, discharges, accidents and contamination during and post reactor operation; nuclear waste disposal; nuclear weapons proliferation safeguards etc. that make HB 104 totally unacceptable.

It was quite obvious from perusing the 2018 website of a company called eGeneration <https://egeneration.org/> that they were behind HR 518, HB 771, and undoubtedly are behind HB 104. Their website contained a petition to the Ohio House of Representatives which became HR 518 virtually verbatim. A version of their proposed nuclear authority was incorporated into HB 771 and appears in HB 104 as the Nuclear Development Authority (NDA).

According to their website, eGeneration envisions building state-sponsored (and potentially state-liable) thorium and molten-salt nuclear power reactors, but neither eGeneration or HB 104 divulges where these would be sited or what criteria/considerations would determine siting. Sec 4146.05 of HB 104 mentions the only "stakeholders groups" as being those within the nuclear industry. HB 104 has no provisions for community or public stakeholder involvement, but in Sec. 4146.01 and 4146.04, the bill calls for the creation of an NDA "within the Department of Commerce" to "address matters...for which public moneys may be spent and private property acquired (eminent domain)." Location of the NDA within the Ohio Department of Commerce would mean that nuclear promotion, not regulation of health and safety, would be the priority. The public would have no say in NDA matters, but could potentially be on the hook for billions of dollars under worst case scenarios.

There is an inherent conflict of interest in the NDA acting as both regulator and promoter of the nuclear industry. According to Sec. 4164.11(E), the NDA "(will have the power) to assume any regulatory powers delegated from the U.S. NRC, the U.S. DOE, (the U.S. DOD) or any branch of the military...governing the construction and operation of noncommercial-power-producing nuclear reactors and the handling of radioactive material" while in Sec. 4164.11(C), the NDA "(will) foster innovative partnerships and relationships...with private companies...to accomplish the purposes set forth in this chapter." This NDA has no restrictions regarding its relationship with companies designing/constructing/operating the reactors and/or handling the radioactive material. Nothing in HB 104 precludes such corporations from being members of the NDA.

This bill proposes that the "Authority" will be a "global leader in high-level waste reduction...and long-life fuel." Does this mean HB 104 authorizes importation and reprocessing of high-level radioactive waste from commercial and weapons reactors from around the world?

SERIOUS ISSUES OHIO COULD FACE IF HB 104 BECOMES LAW

Thorium and Molten Salt Reactors - Contamination, Waste, Proliferation Problems

- Contrary to industry promotion, unlike uranium, thorium is not a nuclear reactor fuel. It cannot power reactors because it does not contain enough fissionable/fissile material to cause a chain reaction. Uranium-235 or plutonium-239 are necessary to start the reaction until enough thorium is converted to U-233 to sustain the chain reaction.
- Uranium-233 is, itself, a nuclear bomb explosive material. Furthermore, as described above weapons-grade highly enriched uranium or plutonium must be used to get the thorium reactor going. Therefore, thorium reactors can contribute to nuclear weapons proliferation.

- Like larger reactors, thorium reactors produce high-level radioactive waste that remains dangerous and must be isolated for hundreds, thousands, or millions of years. For example, U-233 has a half-life of 160,000 years making its hazardous life (a factor of 10-20) millions of years.
- Molten salt reactors use thorium based liquid fuels containing a fluoride based salt and pose the same proliferation and waste problems as other thorium reactors. “The stabilization and disposal of the irradiated nuclear fuel at the very small Molten Salt Reactor Experiment that operated at the Oak Ridge National Laboratory in the 1960s has turned into the most challenging cleanup problem that Oak Ridge has faced, and the site has still not been cleaned up (as of 2019).”

References

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Reprocessing - Contamination, Waste, Proliferation Problems

- Reprocessing involves chemical processes to separate uranium and plutonium from highly radioactive irradiated reactor fuel. This uranium and plutonium can be used to fuel reactors but also to make nuclear weapons. A simple nuclear weapon can be made from less than 20 pounds of plutonium. Nuclear proliferation is the reason why the U.S. abandoned reprocessing in the 1970s and signed the Nuclear non-Proliferation Treaty.
- Reprocessing is extremely expensive.
- Reprocessing does NOT reduce the volume of radioactive waste. Depending on the reprocessing techniques used, the volume of highly radioactive waste can actually be increased which increases the need for waste storage and disposal.
- New York is the only state to ever set up its own nuclear development authority/agency which built the only nuclear waste reprocessing plant in the U.S. at West Valley, NY. The facility was a disaster and only operated for six years from 1966-1972 before permanently closing due to fires, high worker exposure and radioactive releases. Clean up has cost the state of New York and the federal government \$3 billion for partial remediation and is expected to take decades and billions of dollars more for cleanup to prevent contamination of the Great Lakes.

References

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Additional Small Modular Nuclear Reactor Reference Material

<https://www.nuclearconsult.com/wp/wp-content/uploads/2019/07/Prospects-for-SMRs-report-2.pdf>
10/21/20 Webinar “Debunking the Myths of SMRs”

<https://www.youtube.com/watch?v=d-lhV-gAEUc&feature=youtu.be>

Power Point Slides

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NRC Commissioner Dissent on SMR Lack of Evacuation Zones

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