

Chair Stephens, Vice chair Stewart, Ranking member Weinstein and members of the committee,

Ohio House Bill is 14 pages long and unprecedented in scope.

Section 4164.04 defines this bill as an essential governmental function and claims it addresses *matters of public necessity*. An essential governmental function? Like providing water and sewer? Like a fire department? This is not the usual pro nuclear hyperbole. This is specific language that confers sovereign immunity to the state of Ohio and to the Nuclear Development Authority (NDA.) Sovereign immunity means that these entities cannot be sued for damages from accidents, injury, property damage or radioactive contamination.

Section 4164.20 repeals section 3748.03 of the Ohio Revised Code. And what is being repealed? It is the Ohio Department of Health's authorization to regulate and oversee entities dealing with radioactivity. Specifically, the Ohio Department of Health is the agency authorized to pursue Agreement State Status. Agreement State Status exists when the Nuclear Regulatory Commission relinquishes to states its regulatory authority to license and regulate byproduct materials (radioisotopes); source materials (uranium and thorium); and more. **HB 434 would create a de-facto regulatory agency**, one that would not be under executive control.

Subsequent legislation will be enacted to implement this bill. New rules and regulations would be created for the operation of the NDA. Funding would be channeled into it, largely or entirely out of public view. Funding could be tacked onto the state budget, perhaps as a last-minute addition. Would the economic operations of the NDA be outside Ohio's Open Records law?

Is this a state constitutional violation? Giving away financial ability? With increased tax bills and pollution for the public to deal with?

I am not a lawyer. I recommend that legislators read the testimony of attorney Terry Lodge. I recommend that before voting for this bill, legislators consult a lawyer who can answer questions on these matters of critical concern.

Two further main points.

The cost is undefined and potentially uncontrollable.

The benefits are geared specifically to one company.

1. **This is the third General Assembly into which versions of this bill have been introduced.** The [original version of HB 104](#) in 2019 and its predecessor [HB 771](#) tell a more complete story of the actors behind this bill. A single small private entity, [eGeneration of Cleveland](#), had a heavy hand in writing the bill and is its major beneficiary. Language in HB 771 and the original version of HB 104 were almost identical to the eGeneration website. HB 771 had a different title, "*Establish Medical-Isotope Economic Development Authority.*"
2. **One company, eGeneration, benefits from HB 434.** HB 434 is specifically designed to benefit eGeneration, whose focus is on Molten Salt Reactors (MSRs). HB 434 would create an **Ohio Nuclear Development Authority (NDA)** that would oversee work performed under the bill. Through a complex sequence of appointments that would keep the public out of the NDA, a **Nominating Council** would be formed to choose a specifically-designed list of appointees to the NDA. Narrowing the scope of appointees even more, the Nominating Council would consist of 7 members, 5 of whom would be from the Ohio State University's Nuclear Engineering External Advisory Board.
 - David Amerine, a project consultant for eGeneration Foundation, testified in favor of HB 434 before the House Energy and Natural Resources Committee on Dec. 8, 2021. Amerine is also a member of the Ohio State University's Nuclear Engineering External Advisory Board, **making him eligible to sit on the NDA's Nominating Council.**

- Five of the 7 testifying in favor of HB 434 on Dec. 8 have direct ties to eGeneration. Besides Amerine, there were two eGeneration representatives testifying – William Thisling and Jon Morrow. The 2 latter also testified 4 times in favor of HB 104. Eugenio Villaseca is listed by eGeneration as a professor and academic advisor. Edward Pheil is co-founder of Elysium Industries, a company seeking to develop and commercialize the Elysium Fast Chloride Molten Salt Reactor. Elysium coordinates with eGeneration.
- If a few of Morrow’s 10 points on “*Why Ohio Legislators should support new nuclear development*” were a reality, dozens of new reactors would be under construction and financed by private capital.

3. **LACK OF PUBLIC OVERSIGHT.** The convoluted process described above for filling positions in the NDA and the Nominating Council circumvents public involvement and oversight.
4. **WALL STREET WON’T FUND IT.**
5. **NO OTHER STATE FUNDS NUCLEAR POWER.** Spreading nuclear research and development from federal to state entities is unprecedented, removing public oversight for cost and safety while retaining public liability as well as losing regulatory control over radioactive materials and waste.
6. **HOW LONG will Ohioans pay? HOW MUCH will we end up paying?** HB 434 specifies neither length of time nor how deep it will dive into the Ohio treasury.
7. **None of the so called “advanced” reactors will be researched, developed or built without public funding.** This is the reason that the industry is reaching out to Ohio. New reactors are still in the design phase – if they have gotten that far. It would take over a decade for even the first one to be sited, licensed, and built. And if the process dies out somewhere along the way, the industries will have profited from public handouts all along the way. What do they have to lose?
8. **OHIOANS WOULD PAY for radioactive “cleanup”.** Since the proposed Nuclear Development Authority will be a public entity, Ohio would be responsible for all costs associated with the NDA, including reactor decommissioning, dismantling and disposal of waste and damages resulting from spills and accidents.
9. **MAJOR CONCERNS ARE UNADDRESSED: HB 434 lacks basic parameters and fails to address major concerns** such as public health and safety; reactor siting requirements; reactor construction; decommissioning and site cleanup; the inevitable spills, leaks, discharges or accidents causing radioactive contamination; liability caps; nuclear waste disposal and nuclear weapons proliferation safeguards.
10. **USE OF EMINENT DOMAIN (aka public necessity) while the public funds the purchase:** Sec. 4164.04 says the Nuclear Development Authority can preside over “*matters of public necessity for which public moneys may be spent and private property acquired.*”
11. **eGeneration and Energy from Thorium Foundation** were two organizations made up of the same few individuals. The Energy from Thorium Foundation became eGeneration Foundation in 2015. In a convoluted process that Wall Street won’t fund, thorium has been proposed as an element that would be bombarded with neutrons in a complicated radioactive process to make fuel for Molten Salt Reactors. Predecessors of HB 434 specifically mention thorium and Molten Salt Reactors.
12. **A DYING INDUSTRY offers pie-in-the sky ideas to stay afloat.** The nuclear industry is trying to rebrand itself as new and innovative using terms like “advanced.” Engineering students see outdated technology from the past century and the similarity of new proposals to the old designs. Molten salt reactors were attempted in the 1960s and none has been built for 40 years. The **longest-lived U.S. molten salt reactor** operated for 4 years. Problems with the corrosiveness of superhot salts were a major issue.
13. **Reactors that use sodium or molten salts** for cooling or fuel destroy their internals rapidly, then leak. There is a constant need for replacement of parts. Only functioning reactor operated at Oak Ridge for only 4 years, not cleaned up yet. \$32 M spent so far. Now they are proposing to entomb it in place, no other solution found.

14. **Fermi 1 was a sodium cooled reactor.** It had a partial meltdown in 1966 and was permanently closed. A book was written about the incident, "[We Almost Lost Detroit](#)." Fermi is on Lake Erie, 40 miles from Ohio.
15. **NUCLEAR WEAPONS PROLIFERATION RISK. Dangerous comingling of military and civilian nuclear activities.** The military wants to reprocess High Level Radioactive Waste to extract plutonium and uranium-233 for bombs. Waste from Molten Salt Reactors produces high quantities of the coveted U-233. See [Nuclear Fuel Reprocessing equals Weapons Proliferation](#).
- In unprecedented language, the NDA would "*assume any regulatory powers delegated from the U.S. Nuclear Regulatory Commission, the U.S. Department of Energy...the U.S. Department of Defense...or any branch of the U.S. military... governing the construction and operation...of advanced nuclear reactors...and high-level nuclear waste reduction.*" (aka reprocessing)
16. **HR 434 mentions "United States Military"** seven times. This should alert legislators that the technology could be developed for military use, i.e., nuclear weapons. The Ohio Nuclear Free Network maintains that new uranium enrichment technology that would produce High Assay Low Enriched Uranium (HALEU) is being developed primarily for military use. At 20% of the fissionable U-235 (or 25% as proposed for the Portsmouth Nuclear Site) HALEU is already weapons usable. It would be a relatively simple matter to enrich from 20-25% to weapons grade at 90%. The government term HALEU is a deliberate misnomer. At 20%, uranium is officially designated to be high enriched, not low enriched.
17. **Reprocessing of High Level Radioactive Waste (HLRW)** is a way to obtain the fuel for a Molten Salt Reactor. HB 434 mentions nuclear waste "recycling. This refers to a technology better known as reprocessing, which turns solid high level radioactive waste into a *much-harder-to-contain and much more voluminous liquid*. Reprocessing has been a disaster wherever it has occurred: [West Valley](#), NY; [Sellafield](#), England; [Rokkasho](#), Japan; [La Hague](#), France; [Kyshtym](#) in Russia. This is how radioactivity is "reduced" in reprocessing, aka "recycling."
18. **Another nuclear subsidy IN THE WAKE OF OHIO HOUSE BILL 6?**
19. **Medical Isotopes?** Three US companies are working now on making medical isotopes using particle accelerators. This process is far safer and no nuclear reactors are needed. Positron emission tomography (PET) using different isotopes can produce sharper images and may soon replace technetium.
20. **Security?** How would this research project be protected from theft or malfeasance? Would it become a target for a terrorist or an opportunist? How many guards would be needed?
21. **How about a real solution for Ohio's energy needs?** Contrary to industry propaganda being taken at face value, nuclear power is **NOT "low carbon" or "carbon free" or "emissions free."** When the nuclear fuel cycle is included, nuclear has a high carbon footprint. And this does not include the energy that will be needed to attempt to isolate tens of thousands of tons of radioactive waste for millennia to come. Efficiency and renewable energy **cost less and produce more jobs**. Jobs and the grid are decentralized, eliminating major blackouts.

Testimony submitted by Patricia Marida
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