

BILL SUMMARY

Despite its deceptively brief length of only 14 pages, HB 434, like its predecessors, HB 171, HB 104, and Sub. HB 104, has been deemed by national experts as one of, if not the most, unprecedented, extreme, drastic, dangerous pieces of legislation ever introduced into a state legislature because it seeks to significantly alter provisions of Ohio's agreement state status by creating a Nuclear Development Authority (NDA) with sweeping, alarming, nearly unrestricted powers to "perform (ostensibly) an essential governmental function and address matters of public necessity for which public moneys may be spent and private property acquired (eminent domain)." (Sec. 4164.04, p. 4) by having the NDA "...act in place of the governor in approving agreements with [Sec. 4164.11(F)] ...and assum(ing) any regulatory powers delegated from [Sec. 4164.11(E)] 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 or similar federal agencies, departments, or programs governing the construction and operation...of advanced nuclear reactors and the handling of radioactive materials... to make this state (Ohio) all of the following:

- (1) A leader in the development and construction of new-type advanced-nuclear-research reactors;
- (2) A national and global leader in the commercial production of (radioactive) isotopes;
- (3) A leader in the research and development of high-level-nuclear waste reduction (undefined, but presumably some form of reprocessing of highly radioactive spent fuel waste) and storage technology" (Sec. 4164.10, p. 10)

All the "advanced" reactor bills, including the current HB 434, lack specificity or detail, and fail to address critical issues or actual provisions including, but not limited to: potential government/taxpayer subsidies; public health and safety; siting requirements; emergency/evacuation planning; costs for reactor research, construction, clean up, decommissioning etc.; liability caps; spills, leaks, discharges, accidents and contamination during and post reactor operation; nuclear waste disposal; security and nuclear weapons proliferation safeguards etc.

NO PUBLIC INVOLVEMENT

HB 434, like its predecessors, has no provisions for community or public stakeholder involvement. Yet like previous versions, as noted in the first paragraph of this testimony, Sec. 4164.04 of HB 434 provides for the creation of the NDA under the Department of Administrative Services "...to address matters...for which public moneys may be spent and private property acquired." The public would have no say in NDA matters, but could potentially be on the hook for billions of dollars under worst case scenarios.

Ohio has recently passed laws like SB 52 allowing extensive public participation and decision-making by permitting counties to kill solar and wind projects (largely on the basis of aesthetics), even those approved by the Ohio Power Siting Board, yet counties are expressly forbidden from vetoing natural gas or nuclear projects.

"Governor Mike Dewine signs (SB 52) giving (county) commissioners 'kill switch' on wind, solar projects" 7/13/21 <https://www.wtol.com/article/news/politics/state-politics/ohio-gov-mike-dewine-signs-bill-wind-solar-projects/512-643ddb27-ce1e-410d-9a52-8774b768f2a9>

CONFLICTS OF INTEREST

Location of the NDA within the Ohio Department of Administration (HB 104 called for the NDA's establishment under the Department of Commerce), means that nuclear promotion, not the regulation of public health and safety is the priority. There is an inherent conflict of interest in the NDA acting as both regulator and promoter of the "advanced" reactor nuclear industry.

As noted in the first paragraph of this testimony, the NDA will have both promotional and regulatory powers delegated from the NRC, the DOE,...the U.S. Department of Defense,...or any branch of the U.S. military or similar federal agencies, departments, or programs governing the construction and operation of "advanced" nuclear reactors, radioactive materials, and high-level radioactive waste.

It is worth noting that in 1974, due to conflicts of interest in its dual roles of promoting and regulating nuclear energy, the Atomic Energy Commission was split into the Nuclear Regulatory Commission (NRC) for purposes of regulating nuclear power and the Energy Research and Development Agency which later became the Department of Energy (DOE) whose purpose was to promote nuclear power and develop nuclear weaponry.

"By 1974, the AEC's regulatory programs had come under such strong attack that Congress decided to abolish the agency. Supporters and critics of nuclear power agreed that the promotional and regulatory duties of the AEC should be assigned to different agencies. The Energy Reorganization Act of 1974 created the Nuclear Regulatory Commission; it began operations on January 19, 1975."

<https://www.nrc.gov/about-nrc/history.html>

After perusing the website of a company called eGeneration, it was quite obvious and disturbing that this corporation was behind HR 518, which, in 2017-2018, began the entire "advanced" reactor push in Ohio. Incredibly and unabashedly, HR 518 was adopted virtually verbatim, word-for-word from a petition on eGeneration's website, and the subsequent "advanced" reactor bills HB 771, HB 104, Sub HB 104, and now HB 434 all contain language attributable to eGeneration.

1) eGeneration's Petition - <https://egeneration.org/petition/>

HR 518 - as adopted by the House in the 132nd General Assembly

https://search-prod.lis.state.oh.us/solarapi/v1/general_assembly_132/resolutions/hr518/AH/02/hr518_02_AH?format=pdf

2) HB 771 - Introduced in the 132nd General Assembly, 56 pages. The bill's title "Establish Medical-Isotope Economic Development Authority" (lifted from eGeneration material) was designed to sound benign and beneficial.

PDF Text of HB 771

https://search-prod.lis.state.oh.us/solarapi/v1/general_assembly_132/bills/hb771/IN/00/hb771_00_IN?format=pdf

3) HB 104 - Introduced in the 133rd General Assembly, 34 pages, still contained some language attributable to eGeneration. Its title "Advanced Nuclear Technology Helping Energize Mankind Act" (ANTHEM) is also framed to seem innocuous, acceptable, and humankind's savior.

PDF Text of HB 104

https://search-prod.lis.state.oh.us/solarapi/v1/general_assembly_133/bills/hb104/IN/00?format=pdf

4) SUB. HB 104 - 133rd General Assembly, second 10 page version did not pass the Senate,

PDF Text of Sub. HB 104

https://search-prod.lis.state.oh.us/solarapi/v1/general_assembly_133/bills/hb104/PH/02?format=pdf

OH Legislative Service Commission Brief Comparison of the 2 versions of HB 104

<https://www.legislature.ohio.gov/download?key=13435&format=pdf>

Five of the seven people presenting HB 434 proponent testimony on December 8, 2021 have direct ties to eGeneration:

- David Amerine is a project consultant for eGeneration Foundation and 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, a potential conflict of interest.
- William Thisling - testified on behalf of eGeneration and also testified four times in favor of HB 104

- Jon Morrow - testified on behalf of eGeneration and also testified four 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 and coordinates with eGeneration.
<https://www.elysiumindustries.com/>
<https://thoriumenergyalliance.com/resource/elysium-industries-mcsfr-molten-chloride-salt-fast-reactor-ed-pheil>

Despite a detailed, complicated, process to form a Nominating Council to choose members of the NDA "To foster innovative partnerships and relationships in the state...among...the state's...private companies...in cooperation with the public and private sectors..." (Sec. 4164(C)(D) p. there do not appear to be any restrictions in HB 434 regarding the NDA's relationship with companies designing, constructing, operating the reactors or "reducing high-level radioactive waste." Nothing in HB 434 precludes private companies from being members of the Nominating Council or the NDA, itself. Do we have a potential HB 6/Generation Now where a supposed non-profit corporate entity - eGeneration - or a corporation like Elysium Industries is behind HB 434 and its NDA?

PREMATURE AT BEST

Finally, this entire incessant push for Ohio "advanced" reactors is premature given that the NRC has not yet developed rules, regulations or even guidance regarding "advanced" reactors, and public comment period on the Part 53 Advanced Reactors rule (which doesn't yet exist) has recently been extended (for a third time) until August 31, 2022, and a final rule isn't expected to be promulgated until 2025. <https://www.nrc.gov/reactors/new-reactors/advanced/rulemaking-and-guidance/part-53.html>

SERIOUS ISSUES OHIO COULD FACE IF HB 434 BECOMES LAW

Thorium (in HB 104) 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)."

Further molten salt is highly corrosive and damaging.

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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.
- Reprocessing has been a disaster around the world including Sellafield, England (formerly Windscale); Rokkasho, Japan; La Hague, France; Kyshtym, Russia

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WITNESS INFORMATION FORM

Please complete the Witness Information Form before testifying:

Date: 2/8/22 HB 434 Energy & Natural Resources Committee hearing

Name: Connie Kline

Are you representing: Yourself Organization

Organization (If Applicable): _____

Position/Title: _____

Address: _____

City: Willoughby Hills State: Ohio Zip: 44094

Best Contact Telephone: _____ Email: _____

Do you wish to be added to the committee notice email distribution list? Yes No

Business before the committee

Legislation (Bill/Resolution Number): HB 434

Specific Issue: Advanced Nuclear Reactors

Are you testifying as a: Proponent Opponent Interested Party

Will you have a written statement, visual aids, or other material to distribute? Yes No

(If yes, please send an electronic version of the documents, if possible, to the Chair's office prior to committee. You may also submit hard copies to the Chair's staff prior to committee.)

How much time will your testimony require? _____

Please provide a brief statement on your position:

HB 434 would create a Nuclear Development Authority with virtually unrestricted powers to use public moneys, acquire private property by eminent domain, and assume regulatory powers delegated from the U.S. NRC, U.S DOE, U.S. DOD etc. to construct and operate advanced nuclear reactors which could benefit private corporations without cost specificity or provisions for community or public stakeholder involvement.

Please be advised that this form and any materials (written or otherwise) submitted or presented to this committee are records that may be requested by the public and may be published online.