

HB 434 – Enact Advanced Nuclear Technology Helping Energize Mankind Act

Good afternoon Chairman Stephens, Vice-Chairman Stewart, Ranking Member Weinstein and members of the Committee. Thank you for permitting me to take a few minutes to speak in opposition to HB 434. My name is Lee Blackburn and I am a former member of the Department of Energy's Site Specific Advisory Board for the Portsmouth Gaseous Diffusion Plant outside Piketon, Ohio. This is the facility that enriched uranium to weapons-grade during the cold war and is currently being used to produce high-assay low-enriched uranium, known as HALEU. The site will also eventually produce high-purity depleted uranium metals for the government's nuclear weapons programs.

In addition, it's undergoing a major, multi-billion dollar clean-up that's contaminating the adjacent community and generally isn't going very well. So poorly in fact that DOE has stopped holding Site Specific Advisory Board meetings in an effort to diminish public outrage.

I'd like to however, take a few minutes and talk about HB 434. Let me start by saying there are a number of problems with nuclear, from tritium and other radioactive leaks, to cancer, terrorists risks, potential accidents, nuclear weapons proliferation and of course, what to do with the waste. The biggest problem however, is that of cost and that's also the biggest problem with HB 434.

Specifically, Sections 4164.04, on the Ohio Nuclear Development Authority's (the Authority) exercise of power and Section 4164.10, the purpose for which it is established. Section 4164.04 references the spending of public moneys and the taking of private lands. The latter of course is eminent domain while the former could easily saddle the State and its citizens with tens of billions of dollars in costs, with the Authority being answerable to no one.

During Senate testimony for HB 104, the predecessor to HB 434, former Senator and now Judge John Eklund asked the sponsor of these bills, Rep. Stein, who the Authority would be answerable to and Rep. Stein was unable to provide an answer while the bill itself doesn't address this particular issue.

On the issue of costs, Section 4164.10 (B) (1) states the Authority is established to make the State a leader in the development and construction of new-type advanced-nuclear- reactors. Looking back at HB 771, the predecessor to both HB 434 and HB 104, it referenced both the eGeneration Foundation and molten salt reactors.

The eGeneration Foundation is a proponent of molten salt reactors and two of their representatives, Dr. William Thesling and Mr. Jon Morrow, testified no less than four times in favor of HB 104 and have already testified in favor of HB 434. Two additional representatives of eGeneration Foundation, Mr. David Amerine, a project consultant, and Dr. Eugenio Villaseca, an academic advisor, also provided testimony in favor of HB 434.

In addition, Mr. Amerine is a board member of the Ohio State University's nuclear engineering external advisory board from which five members of the Authority's nominating council will be chosen. So, it's highly likely the new-type advanced-nuclear reactor to be developed and constructed will be a molten salt reactor.

Except, the only sustained operation of a molten salt reactor in the U.S. ran from 1965 to 1969 at Oak Ridge, Tennessee. During its operation, the reactor suffered numerous leaks due to the corrosive nature of salt and once shut down, multiple cracks in various components were discovered. This, after only four short years of operation.

Due to this and a multitude of other issues, a molten salt reactor hasn't been built in over 50 years. While Elysium Industries has been working on modeling and optimization of flow and heat transfer for molten chloride salt fast reactors, the only molten salt reactor even being considered in the U.S. today is a DOE funded high temperature, molten chloride fast reactor being designed by the Southern Company in partnership with TerraPower, Bill Gate's company that's planning to build the Natrium, a \$4 billion high temperature sodium-cooled fast reactor for which the government will pay at least half the costs.

I mention this to illustrate not only the high costs of developing a reactor but also to point out that virtually every reactor under development today has some form of government funding and the Authority would reasonably expect similar funding from the state of Ohio among others. I would certainly hope that after saddling your constituents with the billion dollar bailout of the obsolete and wasteful Ohio Valley Electric Cooperative (OVEC) plants by way of HB 6, you wouldn't further burden them with this atrocious bill.

In any case, Section 4164.10 (B) (2) states the Authority is established to make the State a national and global leader in the commercial production of isotopes. In HB 771, this was originally medical isotopes and both Dr. Thesling and Mr. Morrow, along with Ms. Patty Gascoyne testified as proponents of HB 434, praising medical isotopes that could be created by a molten salt reactor.

However, there are already three companies in the U.S. working on delivering medical isotopes; SHINE in Janesville, WI, NorthStar Medical in Beloit, WI and Niowave in Lansing, MI. and all three are using particle accelerators instead of nuclear reactors. Such particle accelerators will produce both molybdenum-99 and actinium-225, as well as xenon-133. Developing a molten salt reactor to produce medical isotopes would be costly, unnecessary and wasteful.

Finally, Section 4164.10 (B) (3) states the Authority is established to make the State a leader in the research and development of high-level-waste reduction and storage technology. This is probably the scariest and most expensive part of the bill. Contrary to what Mr. Edward Pheil of Elysium Industries might've said during his testimony before the Committee, waste reduction involves reprocessing, pure and simple.

And although electrometallurgical pyroprocessing is being developed, currently, any reprocessing of high-level radioactive waste would entail using highly concentrated nitric acid (known as the PUREX method). This is the same stuff that's leaking from underground tanks into the Columbia River at the Hanford Nuclear Reservation in the state of Washington.

Outside of the federal government, the only facility to reprocess high-level radioactive waste in the U.S. operated for just six years, from 1966 to 1972 at West Valley, NY. Yet during that short period of time, the site became so polluted that DOE has already spent \$3.1 billion for clean-up and last year the Government Accountability Office estimated it could cost another \$10.6 billion to finish, IF done immediately.

Meanwhile, waste storage would mean creating our own Yucca Mountain right here in Ohio. In 2017, it was estimated Yucca Mountain had already cost \$15 billion and would cost another \$80 billion or so to finish.

To end with a comment Mr. Morrow made in testimony before this Committee for HB 104: "While the 1954 Atomic Energy Act clearly provides for States and the Federal entities to work together in creating new nuclear technologies – no States have created an entity to facilitate such collaboration." I ask, what do the other 49 states know that Ohio apparently doesn't?

Thank you. Questions?