

**TESTIMONY BEFORE THE OHIO HOUSE
ENERGY AND NATURAL RESOURCES COMMITTEE
HOUSE BILL 104**

October 16, 2019

*PROPONENT TESTIMONY OF WILLIAM H. THESLING PH.D.
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Thank you Chairman Vitale and the members of the Energy and Natural Resource committee for allowing me to testify.

My Name is Dr. William Thesling. I am a founder of eGeneration Economic Development Corporation established in 2012.

In the interest of Full disclosure, I am also the founder of eGeneration Foundation. The eGeneration Foundation is an IRS 501(C)3 non-profit organization mentioned in HB104 and if passed, eGeneration will initially act as an agent to market the State initiated for-profit Public Benefits corporation created by the legislation. For this marketing eGeneration will receive compensation. I potentially stand to benefit from the passage of this legislation. Today however, I am testifying on behalf of eGeneration Foundation's 501(C)4 sister organization the eGeneration Economic Development Corporation which is not mentioned in the legislation.

I have lived in Ohio my entire life. I have a doctorate in Electrical Engineering from Cleveland State University. I am a co-founder of Efficient Channel Coding Inc., a technology company specializing in advanced digital communications products (Satellite, fiber optics and terrestrial wireless). ECC was sold to Viasat, a Nasdaq company, in 2005. I am an author or co-author on over 30 patents. I am a serial entrepreneur and strongly believe innovation is the key to a better future.

A goal of House Bill 104 is to make Ohio a leading state in Advanced Nuclear Technology Research, Development, and Commercialization. This has some enormous long-term benefits for Ohio as a manufacturing State – a State that still has the know-how to build things.

- There has been much advancement in materials technology, digital controls, sensors, instrumentation and computer modeling over the past several decades.
- These gains in technology have allowed us to revisit old technologies that were previously considered to be not viable.
- Nowhere is revisiting an old technology more compelling than Molten Salt Reactor Technology that was abandoned in the early 1970's largely for political reasons. This technology was demonstrated in a working reactor at Oak Ridge National

Laboratory for four years in the late sixties and the next step was to develop a demonstration reactor. This technology was deemed by the scientist of the day to be viable but its development costs were considered by the politicians of the day to be too great for its time.

- Molten Salt Reactor technology represents a very different reactor architecture from the prevalent Light Water Reactor design that has been in use for decades. MSR technology was specifically developed to do the impossible – power an aircraft and give it unlimited range. Engineers have analyzed some of the MSR designs and concluded that it would be possible to produce electricity for less than \$20 per MW/HR. Lower energy prices may even be possible. Currently the cheapest electricity on our grid comes from advance combined cycle natural gas system. Such plants exhibit a LCOE of around \$41.0 per MW/HR.
- MSRs are less complex, operate at higher temperatures to achieve greater efficiency, and are passively safe due to their physics. All this means that they will be much cheaper to build once licensed.

Interesting things can happen with Molten Salt Reactor technology resulting in electricity production below \$20 per MW/HR:

- Using our high-level nuclear waste as fuel allows us to covert a cost center into a profit center. In this situation our fuel costs are effectively negative.
- We can use the heat from MSR instead of natural gas derived heat, to harvest America's vast heavy-oil reserves.
- The plasma gasification of trash and sewage becomes feasible – landfills could become a thing of the past. Present landfills could be repurposed to produce ultra-clean synthetic transportation fuels.
- Arid land could be made fertile by the desalination of sea water and pumping it to where it is needed.
- The gasification of the millions of tons of subgrade coal that Ohio has, becomes feasible. The captured of CO₂ can be used for enhanced oil extraction from Ohio's old oil wells. The syngas produced can be used to make ethanol, butanol, and methanol to be used to give desired properties to plastics, or be converted into fertilizer.
- MSR reactors – with their superior power to weight ratio could power our manned journey's into deep space and provide the power for bases on other planets.

If you want to truly cleanup the planet and give most the world a fighting chance to lift itself out of poverty – the technology is within our grasp. MSR technology can be the engine that enables us to solve many of humanities resource limitation problems.

I have a daughter and I hold to that old axiom: Leave to the next generation a world in better condition than the one inherited. I suspect you share that sentiment.

HB104 represents minimal risks for the state of Ohio and I will argue HB104 allows the free-market to act as an agent of innovation within the nuclear sphere once again.

Let's do something truly amazing. Something that our children will be proud of us for. Let's take our destiny into our own hands. Let's not be afraid to dream and empower the nuclear community to innovate and realize their dreams.

I humbly ask you all to support HB104

Thank you.