Committee: Education, Energy and the Environment / Economic Matters
Testimony on: SB937 / HB1035 "Public Utilities - Electricity Generation Planning - Procurement, Permitting, and Co-Location (Next Generation Energy Act)"
Position: Unfavorable
Hearing Date: February 28, 2025

The Chesapeake Chapter of Physicians for Social Responsibility (CPSR) respectfully submits this testimony in opposition to SB937 and HB1035. We appreciate Leadership's urgency in considering the rapidly increasing cost of electricity that is causing hardship for Maryland families. We also recognize the equally urgent intent to capture new jobs and revenue from emerging industries like Data Centers. We acknowledge the Maryland Energy Administration's conclusion that we have fallen far behind our targets for development of clean renewable energy while demand is expected to grow.

However, as an organization focused on addressing major threats to human health and well-being, we cannot agree with the basic propositions of this bill: that the response should be turning our focus and support to electricity production from additional gas-fired plants and from "new nuclear" energy, in the form of Small Modular Reactors (SMRs).

Neither of these solutions are consistent with the bill's name – **because both of them would create significant risk and harm to *future generations* of Marylanders.**

We know that other organizations will write at length about the documented experience that new nuclear electricity production is probably the most expensive form of power:

- …that U.S. and global experience show that new nuclear plants cost more than twice as many billions of dollars and twice as many years as projected;
- …that no SMRs have been successfully built in the U.S., and the one proposed project in Idaho was cancelled when costs almost tripled;
- …that in any case, the long lead time – potentially a decade – required to build an SMR doesn't respond to our near-term need for more electricity.

But – in addition to those real and immediate concerns – **our greatest concern is for the danger and potential harm that expanded nuclear power presents to future generations.**

Nuclear energy generates a unique category of waste – in the form of "spent fuel" – that represents both present and generational danger to human and environmental health. Fissionable material (fuel) is removed from a nuclear reactor when it can no longer sustain the chain reaction that produces the reactor's thermal energy. It is then stored, initially in cooling tanks, and then in concrete-surrounded "dry casks." However, although it cannot sustain the reactor's chain reaction, **spent fuel is highly radioactive**.

It is extremely hazardous to human health both now and for centuries, containing long-duration isotopes that are also deadly. These include Plutonium-239, which makes up about half of the radioactive spent fuel and has a half-life of 24,000 years. These are readily absorbed if released as particles and inhaled, or if they enter the food chain; they are retained in the body, and have severe long-term health effects including cancer.

Because it is extremely hazardous, spent fuel is kept at the reactor sites where it's generated.

- In 50-plus years, the U.S. government and nuclear industry have not been able to develop a safe "permanent" nuclear waste storage location (Nevadans rejected Yucca Mountain).
- As a result, Maryland has an estimated 1,420 metric tons (about 1,565 U.S. tons) of radioactive

spent fuel stored at Calvert Cliffs since those reactors began operating in 1975 and 1977.[1]

Since this urgent push for new nuclear is substantially being driven by the plans to build Data Centers with large electricity demand, consider that:

- Just the three large data centers planned for Frederick, Prince George's, and Montgomery Counties have total projected electricity capacity needs of between 3,520 and 4,767 Megawatts (MW). (Calvert Cliffs total capacity is 1,800 MW.)
- Building a 300 MW SMR at Calvert Cliffs would meet less than 10 percent of this requirement.
- With an average proposed SMR size of 50 to 80 MW, meeting the remaining need for just these three centers will require between 40 and 90 SMRs.

Each new nuclear site will become an additional site for this "Forever radioactive waste;" so every site will be deadly – no matter the cooling system or present-day safety features, SMRs would produce radioactive spent fuel waste like larger reactors. **They will therefore require continuous maintenance and security for centuries after any existing or new nuclear facility is "decommissioned**." Spent fuel storage is also a potential target for terrorist attack, including the sort of aerial drone attack being widely seen in the Ukraine conflict. The release of radioactive material from such an attack would affect large numbers of people and render a large area uninhabitable. And, Plutonium-239 is the material used for building nuclear weapons – so at some future time the stored Plutonium in spent fuel is likely be a target for dangerous parties wanting to take it without regard to the broader hazard it represents.

In just the 2,000 years of the Christian era, we have seen the fall of whole civilizations – from the Romans to the Aztec; the Dark Ages, Revolutions and Civil Wars, World Wars, Depressions, the Holocaust, use of the Atomic Bomb, collapse of the Soviet Union, brutal ethnic wars in the Balkans and the Middle East. *Which of us can vouch to the generations that follow us for thousands of years that we can keep them safe from the danger we are creating?*

Building additional methane gas plants presents a different, but equally compelling, danger to future generations. Methane is a fossil fuel – burning it to produce electricity produces two main combustion products: water and CO_2. A 200 MW capacity combined-cycle (most efficient) methane gas-burning plant will burn about 12 billion cubic feet of natural gas each year, producing about 650,000 metric tons (about 720,000 U.S. tons) of CO_2 each year.

However, an equal danger comes from leakage of methane along the pathway from extraction (drilling or fracking) through pipelines, compressor stations, and storage, to end use at the power plant. The amount of such leakage is estimated by the EPA to be about 1.4%;[2] independent studies suggest a leakage rate 50 percent or more greater, or about 2.3%.[3] This means that supplying the methane to the CO_2-emitting plant just described would also release 3,200-5,300 metric tons of methane each year. And, with a near-term (20 year) climate driving potency equal to 84 times the equivalent weight of CO_2,[4] this methane release from supplying a single plant would add the near-term climate disrupting equivalent of an additional 270,000-450,000 metric tons of CO_2 every year.

Math aside, **these calculations simply confirm why adding more gas plants is a threat to future generations: methane and CO_2 drive climate change.** And climate change – which is the danger we're trying to reduce - isn't reversible once it happens. So building more gas plants to solve our near term energy problems is like throwing gasoline on a fire to put it out.

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[1] Nuclear Decommissioning Collaborative; Calvert Cliffs 1&2 https://decommissioningcollaborative.org/calvert-cliffs-1-2/

[2] U.S. Environmental Protection Agency; *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2022* (published April 2024)

[3] Brandt A., Stanford Doerr School of Sustainability, Environmental Assessment and Optimization; *Methane leakage from natural gas systems;* https://eao.stanford.edu/research-project/methane-leakage-natural-gas-systems?utm_source=chatgpt.com

[4] McDonald J., Annenberg Public Policy Center, FactCheck.org; *How Potent Is Methane?*; 2018

In any case, methane burning plants are also expensive, and they won't happen quickly – even with "expedited review" by PJM (which has substantial participation by fossil-fuel producing state members), the design, approval, financing, and construction process will take years.

A final note: We might want to step back and question the assumptions underlying the push for these new generation-threatening energy sources.

- Just this week, Microsoft announced that it is beginning to cancel leases and lease options it had developed for Data Centers[5] – in some cases, only those where the required power was already available or available within a short time made the cut.

- In addition, a recent analysis by Duke University's Energy Center found that managed voluntary curtailment of 0.5 percent of total power usage – a planned curtailment of less than 3 hours at a time – could provide the projected power needed for all anticipated Data Center development.[6] As noted by one reviewer –

  "*The result comes just weeks after China's Deepseek AI program went public with a major breakthrough in its computational approach, upending the debate over how much new power capacity is needed in the years to come.*

  "*The 'clearest takeaway' from the Duke study is that we might not need as many new gas power plants in the immediate future—or at all, according to the report's lead author, who said the findings should help bring new data centers online even faster*."[7]

We strongly suggest that this General Assembly should pause before approving energy investments that represent such existential threats to our children, our children's children, and so many generations to come.

We instead suggest that legislature support the proposals before it that would allow the thoughtful planning that we need – the *Energy Resources Planning Act* and the *Data Center Impact & Analysis Act*. We further suggest that it support the proposals that will address key constraints and create effective incentives to accelerate development of the truly clean renewable energy that we are committed to – including the *Renewable Energy Certainty Act*, the *Abundant Affordable Clean Energy Act*, and the *Affordable Grid Act*.

We should build a path that our children can follow, not fear.

We therefore respectfully request an Unfavorable report on SB937/HB1035.

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[5] Bloomberg; Technology - Microsoft Cancels Leases for AI Data Centers, Analyst Says; 23February2025; https://www.bloomberg.com/news/articles/2025-02-24/microsoft-cancels-leases-for-ai-data-centers-analyst-says

[6] Norris, TH; Duke University, Nicholas Institute for Energy, Environment & Sustainability; Rethinking Load Growth - Assessing the Potential for Integration of Large Flexible Loads in US Power Systems; February, 2025; https://nicholasinstitute.duke.edu/publications/rethinking-load-growth

[7] Kaufman, A; Mother Jones Environment; Here's How We Can Power the AI Boom Without Building a Ton of New Gas Plants; 13February2025; https://www.motherjones.com/politics/2025/02/new-duke-study-power-curtailment-ai-data-centers-nuclear-gas-plants/