Testimony opposing house bills HB 2038, HB 2426, HB 2410

Chair Lively and Members of the House Committee on Climate, Energy and Environment:

My name is Dr. Catherine Thomasson. Thank you for the opportunity to testify in opposition to HB 2410 and HB 2038. I am the former executive director of Physicians for Social Responsibility in Washington, DC, and directed PSR as one of several federal non-profits that worked to make sure that nuclear power is safe against the threats of accident, sabotage, inadequate waste storage, and combustion from nuclear waste pools.

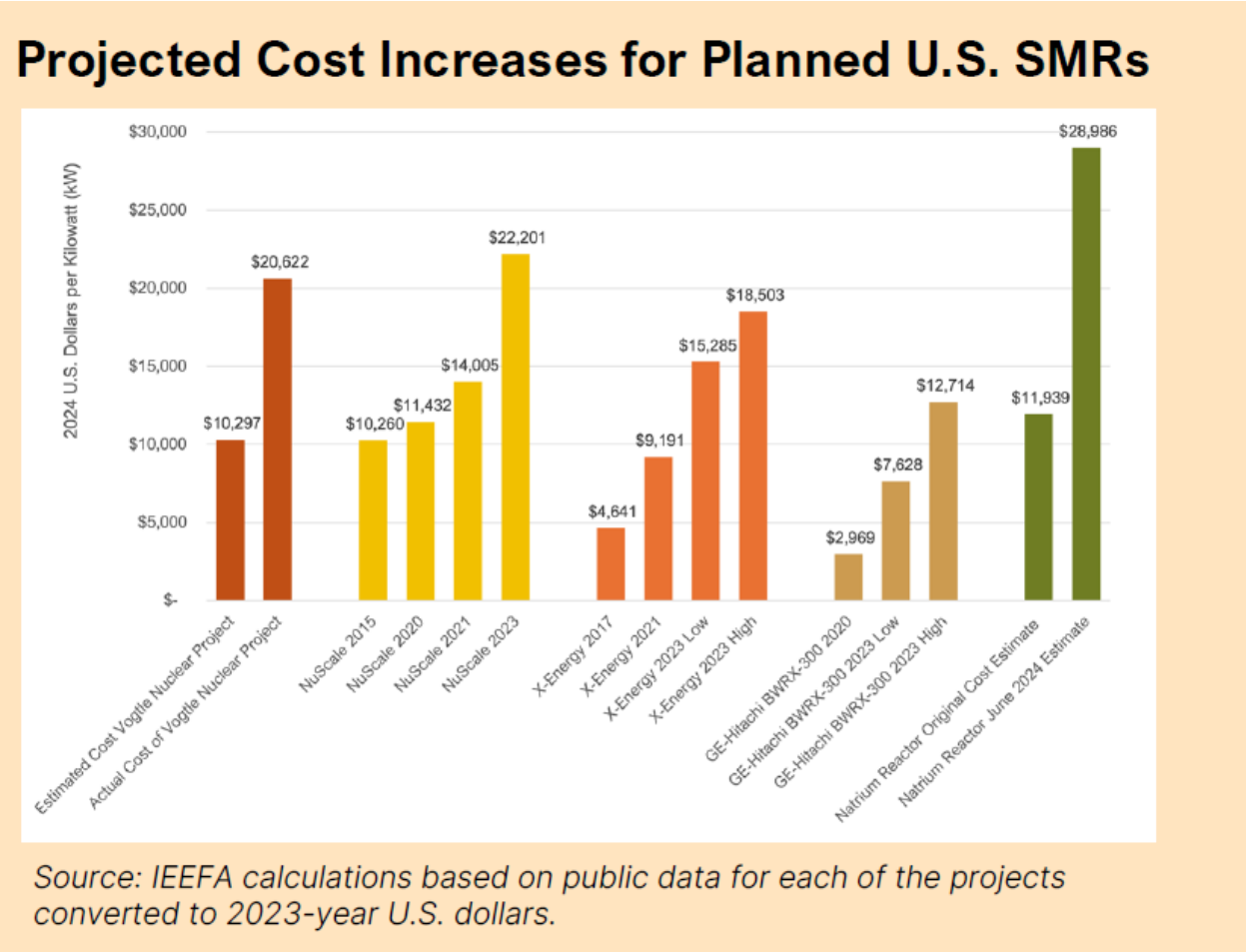
HB 2038 requires a study of the benefits of nuclear power. The downsides of nuclear power are clearly delineated by numerous studies and should be evaluated as well.

- Higher cost (triple) than any other method of renewable energy with consistent and high-cost overruns. Details below.
- Serious nuclear waste storage and safety concerns are also high cost without a federal permanent waste repository. (Only Finland has a permanent repository)
- Loosening of nuclear safety safeguards at the federal level.
- Highly toxic uranium fuel to miners and the environment. All the uranium currently comes from Australia.
- High opportunity costs: Long duration to build, hence tying up money that could be spent on doubling transmission by improving capacity (GETs), building solar/wind with battery backup.
- Nuclear power is not 24/7 with a downtime range in France from 3 to 5 months/year.
- SMR is a new technology that failed to get built in Idaho due to rapidly rising costs and changes in design over 8 years. Only 3 global plants all with different technology. No requirement for a containment vessel in face of a meltdown.
- Requirement by law in Oregon to not build without a federal repository and a vote of the people.
- Concern about high electricity demand by data centers and cryptocurrency should require a different payment method or self-generation as is outlined in the Power Bill.

High Cost: Small Modular Nuclear power plants (SMR's) are being marketed as a lower cost nuclear energy model.

The cost of the 3 new SMR plants in the world is 3 to 5.5 times as much as new wind power with battery backup.

Current cost per kilowatt (kW) of the 3 new SMR plants in the world (one @ in India, Russia and China) cost around $5,000 - $8,000/kwh 3.5 to 5.5 times as expensive as new wind power with battery backup ($1,451/kWh). In the U.S., the projected cost increases of 4 possible SMR projects are listed in this chart with severe cost overruns according to the Institute for Energy Economics and Financial Analysis. (https://ieefa.org/SMR)



Source: IEEFA calculations based on public data for each of the projects converted to 2023-year U.S. dollars.

The price would be much higher without $4 billion federal tax subsidies that include a $1.4 billion U.S. Department of Energy contribution and a $30/MWh break from the Inflation Reduction Act.

Although four dozen companies have designed SMRs, only one design by Oregon-based NuScale has been certified by the Nuclear Regulatory Commission. However, in November 2023, it was announced that the only active project in Idaho was cancelled due to cost overruns from its initiation in 2015 of $4.2 billion in 2018, then $6.1 in 2020 and $9.3 billion in 2023 even after reduction in size and years of delays. The rural consortium pulled the plug on the project in 2023. (Utility Dive-2023)

In June 2024, a new Levelized Cost of Energy report by Lazard estimated the unsubsidized cost of nuclear to be between $141 to $221/MWh. New utility-scale solar costs between $46 and $102 with some storage capacity.

Costs of solar and wind are rising due to inflation and construction too. So, the opportunity costs of paying for a nuclear plant to potentially come online no sooner than 10 to 20 years makes no sense when we need to begin building truly renewable energy with battery storage now and speed the transition to renewables. By wasting money with Oregon subsidies for a plant in Umatilla as suggested in HB 2410 or in further study per SB 685 when NuScale out of OSU has been engineering this for over twenty years, we lose the opportunity to build community solar and resilient storage and encourage further investment by utility companies.

Is nuclear power really a 24/7 operation? No.

In France, where 75% of power comes from nuclear, the average number of days of shut down ranged from 96 days (3 months) to 152 days (5 months) per year for re-fueling, maintenance, lack of cooling water, and other reasons. (World Nuclear Report-2023).

Many nuclear power plants in the U.S. have been shut down due to heat waves with lack of cooling. Passive cooling of SMR's would be inadequate as well in the face of heat waves.

Employment: Wind and solar energy production employ far more people than the nuclear industry.

Cost to Consumers

Umatilla County already gets over half its energy from renewables. The demand from the richest corporations in the world for AI, data centers and cryptocurrency are driving costs up for rural consumers. There are better ways to require their self-generation or change the cost to protect consumers as in HB 3546 so they don't use up all the lower cost hydroelectric power.

Nuclear Toxicity and Waste Cycle

Uranium mining is often on indigenous lands. Uranium dust and its byproducts including radon causes lung cancer, lung disease, heart disease and other chronic diseases among miners and contaminates the groundwater. It is also chemically toxic to the kidneys. (NIH 2013)

Once burned, nuclear fuel rods must spend at least 5 years in cooling pools that require ongoing 24/7 cooling. SMR's use higher levels of enriched uranium with 2-30x longer

storage times needed (PNAS 2022). Additional studies are needed to determine the exact needs and safety measures required.

If the water is lost from the spent fuel pond, or boils off, the spent rods will heat up, rupture and burn. The Nuclear Regulatory Commission's Emergency Operation Center has estimated that **30% of the highly radioactive, long-lived cesium-137 in the Spent Fuel Pond could be released in a pond fire**. No spent fuel pool is required to be within a containment vessel. One gram of radioactive cesium-137, a piece smaller than a dime, if made into an aerosol or tiny smoke particles, and spread over one square mile of land, will make that land uninhabitable for more than a century. This almost occurred at the Fukushima plant when the generators failed.

Standard spent fuel can be moved to safer dry canister storage in 5 years, but it's often not done, due to cost, lack of regulation and no motivation to move waste to a permanent storage site at the expense of taxpayers, which the U.S. doesn't have. Almost all of the shuttered U.S. plants, still have to hold the spent fuel on site. HB 2810 states they wouldn't but again it takes at least 5 years for fuel pool storage before it can be put in dry casks to transport and there is no permanent repository.

Finland is the only country in the world with a permanent nuclear waste repository.