The Oregon Conservancy Foundation

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Before the Senate Committee on Energy and Environment

Testimony of Lloyd K. Marbet,
Oregon Conservancy Foundation and Oregon Progressive Party
March 5, 2025

Promises made. – Promises broken

"Those who cannot remember the past are condemned to repeat it." – George Santayana
"You cannot escape the responsibility of tomorrow by evading it today" – Abraham Lincoln

Chair Sollman, Vice Chair Smith, members of the Committee, and members of the public, my name is Lloyd K. Marbet, Executive Director of the Oregon Conservancy Foundation (OCF), appearing before you today in opposition to SB 215 and SB 216.

Both SB 215 and 216 repeal Oregon's 1980 Ballot Measure Law protecting Oregon for 45 years from the hazards and waste of operating more nuclear plants in Oregon. The only difference between these bills is SB 215, if passed into law, is referred to a vote of the people, for approval or rejection, in the next regular general election. SB 216 does not contain voter referral.

It is important to "remember" Oregon's nuclear past, in order to avoid repeating it with unproven, uneconomical Small Modular Nuclear Reactor (SMNR) designs. The failed operation of Oregon's first commercial nuclear reactor is now a distant memory. Most people are also unaware that Trojan's high level radioactive waste, fissioned in 791 spent fuel assemblies over 17 years, still remains at its Rainier, OR. plant site, contained in 34 steel & concrete dry casks sitting on an outdoor concrete pad located close to the Columbia River.

In 1999, PGE's temporary "Independent Spent Fuel Storage Installation" was first licensed for 20 years by the Nuclear Regulatory Commission (NRC). In 2019 the NRC extended it out another 40 years to **2059**. Its operating costs are paid for by PGE ratepayers who gain **no electric power from it.** Why, because the U.S. still has no "permanent" high level radioactive waste repository, **yet SB 215 and 216 opens the door wide for more nuclear power plants and their waste to come to Oregon.**

None of the new SMNR designs are operational, and no assembly line manufacturing facilities exist. No reactor designs can fully prevent the impacts on SMNRs from catastrophic climate change, human error, terrorism, war, or greed. As for greed, consider the assembly line production at Boeing Corporation: Cutting corners for profit, producing tragedies that require

more government regulation, which itself is now fast disappearing. **And "remember" all SMNRs produce radioactive isotopes, radiation and nuclear waste.**

Last year Congress passed the "Advance Act" putting the NRC in the business of **"both promoting and regulating nuclear power."** a serious conflict of interest impacting safety, as it did with the 1946 Atomic Energy Commission, which the NRC replaced in 1975. **Amazingly, if given enough time, bad ideas can reincarnate, and who needs bad ideas with nuclear power!**

SMNRs are not the answer to mitigating catastrophic climate change. Instead it exacerbates those problems by robbing investments in energy alternatives that are more economical environmentally sound and proven to work. **The real business of SMNRs is obtaining government subsidies,** merrily joined by the expansion of data centers seeking to profit off AI concepts that carry their own societal and environmental impacts.

We ask that you reject both SB 215 and 216 in Committee, and allow the 1980 Ballot Measure law to exist unchanged, promoting true government accountability: a concept fast disappearing in our country. It is "long overdue" for the nuclear industry to "permanently" dispose of its nuclear waste, and to cease making more. This decision belongs to the citizens of Oregon as provide for under the existing law

NOTES:

There is so much more to the story of Oregon's failed Trojan Nuclear Power Plant. More than time would be allowed for this testimony. Yet the history it imparts is a warning to our future about relying on uproven reactor designs and the human errors that can compromise them. Until last night I had never seen this hour long documentary, It graphically and factually depicts the untold story of Trojan. I invite you to view it and draw your own conclusions:

The Downfall of Oregon's Nuclear Power Plant

Also attached to this testimony are copies of "Nuclear Power in Oregon? – A Fact Sheet on Small Modular Nuclear Reactors," focusing on Oregon's NuScale SMNR design, along with "OCF's Resource Guide - Nuclear Power Unaffordable At Any Size" containing valuable information, with live links, regarding the impacts we face with siting more nuclear power plants in our state and enriching the nuclear industrial complex at ratepayer and taxpayer expense.

And the cost of a thing is the amount of what I will call life which is required to be exchanged for it, immediately or in the long run.
– Henry David Thoreau

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Nuclear Power in Oregon?

A Fact Sheet on Small Modular Nuclear Reactors

What are Small Modular (Nuclear) Reactors?

- According to the World Nuclear Association: "Small modular reactors (SMRs) are defined as nuclear reactors, generally 300MWe equivalent or less, designed with modular technology using module factory fabrication, pursuing economies of series production and short construction times." ("Small Nuclear Power Reactors" 1/2019.) The "economies" of SMRs are unproven, are proposed to be used to generate electricity, and can be combined with other SMRs to increase total electrical output.

What is NuScale/Fluor's Small Modular Nuclear Reactor (SMNR) Design?

- NuScale is a publically traded company headquartered in Portland, Oregon whose largest shareholder (55%) is Fluor Corporation. (NuScale's website: https://www.nuscalepower.com/.)
- NuScale's SMNR design, originating at Oregon State University, is a modular pressurized light water nuclear reactor using 3-5% enriched Uranium 235 reactor fuel.
- In 2016, NuScale submitted its SMNR Design Certification Application to the Nuclear Regulatory Commission (NRC) for approval. The NRC issued a Final Safety Analysis Report on 8/28/20. ("Application Review Schedule for the NuScale Design" on NRC's website: https://www.nrc.gov/.) On 11/10/20, NuScale announced a 25% power increase in its reactor design. On 1/19/23, the NRC approved by rule NuScale's standard reactor design. Safety issues are still outstanding.

- A SMNR module is designated "small" because each module will be approximately 76-feet tall, 15-feet in diameter and projected to produce 77 MWe. It would be manufactured and assembled in a factory, **yet to be built**, and then transported to a plant site.
- The SMNR can be combined with other modules at the nuclear plant site and connected to a single control room. Proposed reactor combinations describe 6, 8 and 12 combined units. A 12 unit 924 MWe power station would be equal to approximately 80% of the power output of the decommissioned 1,130 megawatt Trojan Nuclear Power Plant. Most likely, SMNRs would be installed in multiple units becoming far from "small."
- Nuscale's reactor design produces the same kind of high-level nuclear waste temporarily stored at nuclear plant sites across the country. This waste was never intended to be stored indefinitely at nuclear plant sites. All commercial high level nuclear waste, produced since 1957, awaits transport to a federally licensed permanent waste repository **that still doesn't exist**.

Current Oregon law regarding nuclear power.

- In 1980, Oregon voters approved Ballot Measure 7, prohibiting new construction and operation of nuclear power generating plants statewide until the following conditions are met:

ORS 469.595 Condition to site certificate for nuclear-fueled thermal power plant. Before issuing a site certificate for a nuclear-fueled thermal power plant, the Energy Facility Siting Council must find that an adequate repository for the disposal of the high-level radioactive waste produced by the plant has been licensed to operate

See Reverse Side

by the appropriate agency of the federal government. The repository must provide for the terminal disposition of such waste, with or without provision for retrieval for reprocessing.

ORS 469.597 Election procedure; elector approval required. (1) Notwithstanding the provisions of ORS 469.370, if the Energy Facility Siting Council finds that the requirements of ORS 469.595 have been satisfied and proposes to issue a site certificate for a nuclear-fueled thermal power plant, the proposal shall be submitted to the electors of this state for their approval or rejection at the next available statewide general election. The procedures for submitting a proposal to the electors under this section shall conform, as nearly as possible to those for state measures, including but not limited to procedures for printing related material in the voters' pamphlet.
(2) A site certificate for a nuclear-fueled thermal power plant shall not be issued until the electors of this state have approved the issuance of the certificate at an election held pursuant to subsection (1) of this section.

Can Oregon's 1980 ballot measure law be changed by the Oregon Legislature?

Yes, it is a statutory law! In the last four "full" Oregon Legislative sessions of 2017, 2019, 2021, and 2023 multiple bills were sponsored on behalf of NuScale, either proposing to **repeal** the entire ballot measure law "or" **exempt** Small Modular Nuclear Reactors and reduce the geographic area requiring voter approval from statewide to just a county or a city where they might be built. This ignores the fact that accidental radiation releases are not restricted by artificial boundaries. Also, accidents can happen during transport of reactor modules, both before and after the fissioning of their nuclear fuel, on routes through cities and counties where voters would not be allowed to vote in the reduced site approval process. **Oregon's 2025 legislative session has four bills sponsored to repeal the 1980 ballot measure law and five bills to exempt SMNRs. The nuclear industry is back!**

What will SMNRs cost and do we need them?

- From the mining and enrichment of uranium, the construction, operation, and decommissioning of nuclear plants, to the transportation and ultimate disposal of large amounts of nuclear waste, the nuclear fuel cycle has been plagued with high costs, hidden subsidies, health and environmental impacts, and unresolved waste disposal problems.
- From its beginning, the nuclear industry mastered the art of public relations, promoting endless promises of benefits - "power too cheap to meter," while leaving taxpayers and the public "holding the bag" with cost overruns and broken promises. Now the nuclear industry is promoting a resurgence of new nuclear technology, unproven reactor designs to address climate change, and the need for "base load power" to back up renewable energy, combat global poverty, and conduct business as usual. As always the last thing in their play book is any true accountability. **Substituting one failed energy technology for another is not a solution to catastrophic climate change!**
- No one knows what the true costs of SMNRs will be, because there's no experience with their actual operation. We are asked to continue the nuclear experiment, trust in its never ending public relations, hope the outcome will justify its promises and inherit its continuing failures to meet them.

CONCLUSION: 50 years ago, when the Trojan Nuclear Plant was built, the first facility to operate was its Visitors Information Center. At this high tech media operation, free public tours were offered with colorful video presentations and fancy brochures about the promises of the nuclear fuel cycle, how Trojan was to operate, and how its high level nuclear waste would be disposed. Its reality proved different Today Trojan is gone, prematurely shut down by malfunctioning reactor components. **Its high level nuclear waste remains onsite, awaiting a permanent high level nuclear waste repository that still does not exist.** Even if a permanent repository did exist, no one alive today will know if it can successfully store this waste for the tens of thousands of years it must be removed from the environment. Future generations, deriving no benefit from this toxic waste, are the ones who will know! **The message we send them, from what we leave them, is up to you!**

And the cost of a thing is the amount of what I will call life which is required to be exchanged for it, immediately or in the long run.
– Henry David Thoreau

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12/30/24 OCF Resource Guide

"NUCLEAR POWER UNAFFORDABLE AT ANY SIZE"

1. Nuclear Power Plant Accidents, Nuclear Weapons Testing and radiation releases:
   a. "Three Mile Island - A Nuclear Crisis in Historical Perspective" by J.S. Walker
   b. "Manual for Survival: A Chernobyl Guide to the Future" by Kate Brown
   c. "The Woman Who Knew Too Much, Alice Stewart and the Secrets of Radiation" by Gayle Greene

2. Oregon's 1980 Statutory Ballot Measure Law – Siting of Nuclear Plants in Oregon:
   a. Oregon Revised Statutes (ORS) 469.590 to 469.601
   b. 2/4/22 Eugene OR City Club: Should Nuclear Be Part of The New Energy Future

3. NuScale:
   a. NuScale's corporate website: https://www.nuscalepower.com
   b. Eyes Wide Shut by M.V. Ramana, September 2020
   c. NuScale's Small Modular Reactor - Risks of Rising Costs, Likely Delays, and Increasing Competition Cast Doubt on Long-Running Development Effort - 2/2022 Institute for Energy Economics and Financial Analysis (IEEFA)
   d. The End of DOE's Flagship SMR —A Cautionary Tale - Stephanie Cooke, former editor of Nuclear Intelligence Weekly and author of In Mortal Hands: A Cautionary History of the Nuclear Age.

4. Nuclear Power designated "Clean Energy" :
   a. NIRS: Nuclear Energy is Dirty Energy (and does not fit into a 'clean energy standard')

5. X-energy At Hanford:
   a. X-energy - Advance Nuclear Reactors - corporate website: https://x-energy.com/
   b. Union of Concerned Scientists: "Advanced" Isn't Always Better - Assessing the Safety, Security, & Environmental Impacts of Non-Light-Water Nuclear Reactors"

6. Government Subsidies for Nuclear Power:
   a. Taxpayers for Common Sense: "Doubling Down - Taxpayers' Losing Bet on NuScale and Small Modular Reactors" 12/14/21
   b. Senate extends nuclear liability-limiting law without public scrutiny. Here's why we should care. - Victor Gilinsky, physicist and former Commissioner of the US NRC.
   c. Small modular nuclear reactors: a history of failure - Dr. Jim Green

7. Energy Alternatives to Nuclear Power That Can Save Our Climate:
   a. "No Miracles Needed" by Mark Z. Jacobson - also 1/23/23, The Guardian Interview
   b. "Reinventing Fire" by Amory Lovins - also 3/26/22, The Guardian Interview

> Nuclear is empirically slower, less certain of getting built, less certain of working properly, there are a lot of lemons, Trojan was one, and also more expensive. And therefore just do the math: If something costs more per kilowatt hour, that means you get fewer kilowatt hours per dollar, therefore it will replace less fossil fuel generation per dollar, therefore it makes the problem worse. This is really simple logic, and claiming we need everything because the problem is urgent is exactly backwards, because the more climate change is an urgent problem, the more we need to invest judicially, not indiscriminately... (Emphasis added!)
>
> – Amory Lovins, Adjunct Professor, Stanford University. Eugene City Club, 2/4/22