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Testimony opposing House Bill HB2410

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

I write as cofacilitator of Southern Oregon Climate Action Now (SOCAN), an organization of some 2,000 Southern Oregonians who are concerned about the climate crisis and encourage state action to address it. As rural and coastal Southern Oregonians, we live on the frontlines of the warming, reducing snowpack, heatwaves, drought, ocean level rise, and the increasing wildfire risk that these trends conspire to produce. Because of this, we pay close attention to what is happening in the state legislature relating to climate.

I comment today in opposition to House Bill 2410 that promotes a Small Modular Nuclear Reactor demonstration project in Umatilla County and refers such an action to a ballot by the residents of Umatilla County. This bill is one among many that have been filed in order to overturn the current exclusion of nuclear generation plants from Oregon and promote nuclear electrical generation in the state, especially small modular nuclear reactors. The exclusion of nuclear power from the state was established as a result of passage of a ballot measure by the people of Oregon precluding construction of nuclear facilities in the state following the 1979 Three Mile Island nuclear accident until a safe mechanism for disposing of nuclear waste has been developed. The ballot measure also requires that before any nuclear facility is constructed, the proposal to do so must be approved by the people of the state via ballot measure (Oregon 1980). Instead of addressing the underlying issue of whether it is even appropriate to plan construction of a nuclear facility in Oregon given that ballot measure, this bill seeks to circumvent the will of the people of Oregon and establish a so-called 'demonstration project' involving a Small Modular Nuclear Reactor in Umatilla County. It is noteworthy that this effort comprises an element of Project 2025 (Dans & Groves 2023) which seeks to promote nuclear energy including Small Modular Reactors across the nation. The bill does not refer a ballot to undertake such a project to the people of Oregon but just to the residents of Umatilla County thus bypassing the clearly stated terms of the 1980 Ballot Measure (Oregon 1980). Indeed, the bill specifically states in Section 6 that: "This 2025 Act shall be

submitted to the people of Umatilla County for their approval or rejection at the next regular general election held throughout this state” (OLIS 2025). It is difficult to imagine a more transparent effort to evade the will of the people as expressed in that 1980 measure.

As Sierra (2024) pointed out: “In 1980, Oregon voters prohibited the construction of new nuclear reactors until the federal government developed a nuclear waste site. With no site in existence more than four decades later, new nuclear reactors are effectively banned within the state.” It seems highly inappropriate that the state legislature would charge a state department to undertake a study of a potential action that has been precluded by the people of Oregon through Ballot Measure without first determining there is interest in repealing that limitation. It is patently inappropriate for the state to expend taxpayer funds undertaking such an investigation. If nuclear proponents wish a demonstration project to be developed in Umatilla County based on a decision only of residents of that county, they and the residents of Umatilla County should pay for it. There is no justification for making this demonstration project a financial responsibility of the state, as HB2410 clearly would do.

Are Small Modular Nuclear Reactors Beneficial?

As discussed in Journet (2023) Small Modular Nuclear Reactors are prefabricated units that can be shipped and plugged in to establish a nuclear facility with a capacity of up to 300 MW as compared to the standard large scale nuclear reactor with a capacity ranging up to a few thousand MW.

Despite the hype that nuclear proponents have generated around SMRs, Ed Lyman, Director of Nuclear Power Safety with the Union of Concerned Scientists recently (Lyman 2024) identified five myths that SMR proponents promote:

- 1) SMRs are not more economical than large reactors. Indeed, one of the main reasons for the cancellation of NuScale’s proposed SMR in Idaho was the immense and skyrocketing cost per kilowatt hour (Bright 2023). Barber (2023) reported the demise of the proposed NuScale demonstration project in Idaho with the comment that “the utilities backing the plant were spooked ... by a 50 percent increase in the projected cost for the project...” Additionally, he pointed out that NuScale’s problem was that commitments to buy power from the facility covered less than 25% of its promised output. More recently, Green (2024) reviewed SMRs and summed up the current status and future potential as: “Small modular reactors (SMRs) have been the subject of endless hype in recent years but in fact, no SMRs have ever been built, none are being built now and in all likelihood none will ever be built because of the prohibitive costs.” Comparing SMRs with renewable energy sources, Lyman uses the levelized cost of energy and reports the estimated cost for the defunct NuScale per MWH as \$119 while land-based wind and utility-scale solar cost below \$40 per MWH.

- 2) Lyman (2024) concludes that SMRs are not generally safer or more secure than large light-water reactors. While he acknowledges that intuitively one might think that because of their smaller size, reduced fuel needs, and lower heat production SMRs pose a reduced environmental risk compared to large reactors, he argues that this is not the case. While SMRs have passive safety features these “may not always work, especially during extreme events such as large earthquakes, major flooding, or wildfires that can degrade the environmental conditions under which they are designed to operate.” Clearly, Oregon is susceptible to at least two out the three extreme events identified. Lyman (2024) also points out that “regulators are loosening safety and security requirements for SMRs in ways which could cancel out any safety benefits from passive features.” Apparently, the Nuclear Regulatory Commission is “exempting new reactors, including SMRs, from many of the protective measures that it requires for operating plants, such as a physical containment structure, an offsite emergency evacuation plan, and an exclusion zone that separates the plant from densely populated areas.” He warns that the NRC could also “allow SMRs to reduce the numbers of armed security personnel to protect them from terrorist attacks and highly trained operators to run them.” This is of particular concern because SMRs could become radiological weapons if sabotaged by knowledgeable saboteurs.
- 3) Lyman (2024) concludes that SMRs will not reduce the problem of what to do with radioactive waste. He points out that SMRs produce just as much highly radioactive isotope as large reactors per unit of energy generated. For some SMRs, “the concentration of fission products in the spent fuel, and the heat generated by the decay products—factors that really matter to safety—will be proportionately greater.” Additionally, just like the utility that manages large reactors, any owner of an SMR, for a data center for example, will have to manage significant quantities of spent fuel for the long term. In relation to the nuclear waste production of three kinds of SMRs Krall et al. (2022) concluded that “water-, molten salt-, and sodium-cooled SMR designs will increase the volume of nuclear waste in need of management and disposal by factors of 2 to 30.”
- 4) Particularly relevant to the current legislative proposals, Lyman (2024) concludes that SMRs cannot be guaranteed to provide reliable and resilient off-the-grid power for facilities, such as data centers, bitcoin mining, hydrogen or petrochemical production. He points out that “it is very unlikely that any reasonably foreseeable SMR design would be able to safely operate without reliable access to electricity from the grid to power coolant pumps and other vital safety systems.” The data center operator would have to provide back-up power for both the data center and the reactor. In terms of reliability, Lyman offers the caution that: “Premature deployment based on unrealistic

performance expectations could prove extremely costly for any company that wants to experiment with SMRs.”

- 5) In terms of the claim regarding energy use efficiency, Lyman (2024) argues that “SMRs do not use fuel more efficiently than large reactors.” Unfortunately, the reality is that “In terms of the amount of heat generated, the amount of uranium fuel that must undergo nuclear fission is the same whether a reactor is large or small.”

Lyman (2024) concludes by suggesting that SMRs might have a role to play in the future, but only if there is a realistic assessment of their costs and risks. He suggests that the nuclear industry is guilty of painting an overly rosy picture of the benefits of SMRs and avoiding the risks.

In relation to the merits of Small Modular Nuclear Reactors as developed by NuScale, Campbell (2024) pointed out, the Nu-Scale dream has perished because: “small modular nuclear reactors are still too expensive, too slow to build and too risky to respond to the climate crisis.”

Regarding the moratorium on nuclear construction in Oregon, she concludes: “Keeping this moratorium is wise, given the dangerous distraction posed by the false solution of small modular nuclear reactors. Let’s learn from the NuScale debacle and keep our focus on a just transition to a clean energy future—one in which nuclear power has no place.”

Why Even Consider the Nuclear Option?

In exploring on behalf of Southern Oregon Climate Action Now the claims of proponents and opponents of nuclear power as a climate solution, I concluded (Journet 2023) that proponents of this option seem to rely on one or more of three arguments to support their position:

- 1) The potential availability of renewable energy sources is inadequate to meet the global demand for energy
- 2) The generation of electricity from nuclear power is greenhouse gas (carbon) emissions free.
- 3) Nuclear generation facilities are safe.

My exploration of the literature (fully discussed in Journet 2023 submitted with this testimony) led me to conclude that each of these arguments is false:

- 1) there exists more than enough renewable energy to meet global demand,
- 2) full lifecycle assessment of energy generation methods suggests that, from plant construction to decommissioning and the extraction and processing of the fuel, while better than coal, oil and gas, nuclear is no improvement over genuine renewable sources (e.g., solar and wind) in terms of greenhouse gas emissions,
- 3) since provision of energy globally via nuclear generation would require the construction and operation of nuclear facilities throughout the world even where political systems

are of questionable stability and technological capacity is limited, nuclear power plants could become targets for military or terrorist action just as has occurred in Ukraine where both the massive plant in Zaporizhzhia (Froggatt & Lewis 2022) and, more recently the shell of Chernobyl (Holt & Nikitin 2024) have been the targets of Russian military bombardment. Thus, the nuclear option is not safe.

It is important to appreciate, also, that achieving generation via the nuclear option rather than via renewable sources generally takes many more years to become operational and is substantially more expensive (Jacobson 2024). This means that any greenhouse gas emissions reduced by switching from fossil fuel to nuclear generation will be substantially more expensive than would be the case if fossil fuels were replaced by solar, wind or genuine renewable resources. Note, also, that nuclear energy is not a renewable energy generation approach since raw nuclear fuel is a non-renewable resource and thus is in limited supply.

As a closing note, I'd like to underline that the entire effort represented by the stunning array of pro-nuclear bills, including those promoting small modular nuclear reactors, is derived from the plans outlined in substantial detail in the Heritage Foundation's Project 2025 (Dans and Groves 2023).

In summary, SOCAN opposes the effort to undermine or counter the 1980 ballot measure precluding the construction of nuclear reactors in Oregon until a satisfactory method for disposal of the hazardous waste has been developed. In addition, we urge that any demonstration project slated for Umatilla County should (a) be subjected to a vote of the people of Oregon since Umatilla County is still within the state and any problems generated by the project would impact residents outside the county, and (b) not be financed out of general funds but by the residents of Umatilla County. We argue that the enthusiastic promotion of the nuclear option based on a campaign of misinformation by the nuclear industry and its proponents should be resisted.

Respectfully Submitted

A handwritten signature in black ink that reads "Alan Journet". The signature is written in a cursive, flowing style.

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