Oregon Senate Committee on Energy and Environment
Comments on SB 360
March 23, 2021

Chair Beyer, Vice Chair Findley, Committee Members:

I am Dr. Theodora Tsongas, an environmental health scientist/epidemiologist with 40 years' experience evaluating the health effects of exposure to environmental contaminants. I have served in federal and state public health agencies and held teaching appointments in Environmental Science at Washington State University, in Environmental Health at the University of Colorado and in Community Health at Portland State University. I am a member of Oregon Physicians for Social Responsibility and a member of the American Public Health Association. I am commenting on my own behalf.

I am commenting to express my concerns, again, about the intent of Senate Bill 360 to make an exemption from State law for small modular nuclear reactors. I testified against Senate Bill 990 in May 2017. My concerns have increased since then with the continuing accumulation of evidence about the harms of exposure to radiation, radionuclides, and radioactive wastes.

Small modular nuclear reactors are unproven and are planned for siting within small communities, making the potential risks associated with them even greater. Not only would exempting them from siting restrictions go against the will of Oregon voters, it does not act in the best interests of your constituents.

The health risks of exposure to radiation are well documented, in spite of the Nuclear Regulatory Commission's willingness to ignore these documented risks to the public, especially to women, young children and those still in the womb.[1] [2] Studies in Europe and elsewhere, as well as the BEIR VII report of the US National Academy of Sciences on the Biological Effects of Ionizing Radiation have demonstrated the health risks of radiation exposure. BEIR VII has demonstrated that there is a linear dose-response relationship between exposure to radiation and cancer, meaning there is NO safe level of exposure to radiation. The studies in Europe have found excesses of leukemia in children living near normally operating nuclear power plants, in

[1] National Research Council. 2006. *Health Risks from Exposure to Low Levels of Ionizing Radiation: BEIR VII Phase 2*. Washington, DC: The National Academies Press. https://doi.org/10.17226/11340.

[2] http://www.ocregister.com/2017/02/06/nrc-nuked-cancer-study-assuming-no-link-between-reactors-and-disease-records-show/

population based studies of leukemia incidence.[3] [4] As evidence accumulates of chronic diseases associated with exposures to radioactive materials in persons living near the Hanford site and studies of childhood leukemia after the Chernobyl accident, concerns are increasing for exposures to the child in utero as well as young children due to their increased susceptibility, and for epigenetic effects leading to increased risks of cardiovascular disease and other chronic diseases.[5] [6] All the evidence leads to the necessity for precaution, where we must depend on our best estimates of risk based on biological and epidemiological data. Precaution in this case is absolutely necessary, as we must realize that exposures to radioactive materials released into the environment (air or water or soil) by operation, start-up and shut-down of these modular reactors, and the radioactive waste they will generate will continue to raise the cumulative adverse health risks to the public.

The high-level radioactive waste generated by the light-water reactors that are part of the NuScale/Fluor reactor systems is the same as waste generated by the current nuclear power plants in the US for which there is no permanent disposal site. Thus, the risks of exposure to this high level radioactive waste will remain and increase.

It is unconscionable that we citizens of Oregon should have to continue to point out the wisdom of the people of Oregon in 1980, and the unacceptable risks of nuclear power and the interminable dangers of nuclear wastes that continue to be generated, to our legislators, who, by bringing up this issue, continue to waste our tax dollars, time, and energy when we all should be focused on the multiple public health and economic emergencies with which we are faced. Please do not give a venue, at our expense, to corporate interests who value profits over life. Instead, please listen to your constituents who are concerned with human life and their well-being.

Thank you for the opportunity to communicate my concerns.

Theodora Tsongas, PhD, MS
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[3] Claire Sermage-Faure et al. 2012. Childhood leukemia around French nuclear power plants—The geocap study, 2002-2007. International Journal of Cancer 131: 5:E769-E780.

[4] Steve Wing, DB Richardson, W Hoffmann. 2011 Cancer risks near nuclear facilities: The importance of research design and explicit study hypotheses. Environmental Health Perspectives 119:417-421.

[5] Kate Brown. 2013. Plutopia. Nuclear families, atomic cities, and the great Soviet and American Plutonium Disasters. Oxford University Press.

[6] Trisha T. Pritikin. 2020. The Hanford Plaintiffs. Voices from the fight for atomic justice. University Press of Kansas.