Hello respected council members. My name is Jordan Cox. I am currently a second year Masters Student at Oregon State University hoping to obtain my Ph.D. in nuclear engineering.

Firstly I would like to inform the council members that I am, in fact, directly paid to conduct research to advance the goals of nuclear energy by the United States Department of Energy. It is entirely possible that I am "a death industry payee to promote the end of human existence." However before you believe that, I would like to explain to you my position on nuclear energy, particularly in regards to the current proposed bill HB 3445.

I began my engineering career as a mechanical engineer at Utah State University. While attending I had the opportunity to assist with Engineers Without Borders, an organization working to providing engineering expertise to the developing world. While working in the town of Tuni Grande, Peru, our team examined all sources of water. In the center of town there was a well with approximately 10-15 electrical cords coming out of it. Those cords powered submerged pumps that bring water out of the well, bringing clean drinking water to the community. Over and over again, through experiences like these, I found that often access to basic human needs, such as clean drinking water, medical care, and disease free food is heavily dependent upon a reliable energy source.

I decided that I wanted to focus my graduate work in energy generation and I began looking at different energy sources I could be involved in engineering. In looking at different energy sources I would like to share a discovery I made. "Proponents of certain power sources, either for political or fiscal reasons, would like everyone to believe that today's energy crisis has simple solutions." I have found this to be false. The United States power grid is perhaps the most complicated system mankind has ever built, delivering instant and consistent power across the country without any significant form of storage. To keep this system running as our energy demands grow will require a diverse energy production portfolio.

To emphasize the necessity of diversity I would like to point out a few flaws of several energy sources, nuclear included. Three sources I have chosen, for lack of time, are hydro-electric, solar, and nuclear.

Hydro-electric is a particular favorite of the Pacific Northwest generating 68% of our energy. However Hydro-electric has significant watershed impacts and is limited by natural resources and therefore has an upper limit [1].

Solar energy, often touted as the solution to all energy problems has downsides as well. The efficiency of solar panels is very low. Solar panels are produced using very damaging and caustic chemicals. The most effective time of day for solar panels, from 9 a.m. to 3 p.m. is only 25% of the day. This means that even if significant power storage were available, you would require 4 times as many solar plants. These plants would cause massive spikes in energy during the day, and generate no electricity at night [2].

Nuclear energy has its own technical difficulties. Foremost among them in the United States is the lack of a long term fuel repository, which I believe should be a requirement before Oregon builds any more nuclear power plants. Besides the spent fuel concern in this country any nuclear plant will have public opposition and requires significant capital investment by the energy company.

My goal in sharing some of the current challenges is not to discourage, but rather expose that there isn't any panacea to the current energy crisis. But rather the future will likely require our states adopting a broad range of power generation technologies.

In regards, specifically to the proposed HB 3445 I strongly encourage the Oregon State Legislature to adopt this Bill for several reasons. Firstly because the establishment of this bill in no way suggests that the state of Oregon must pursue nuclear power, but rather aims to provide the legislators with sufficient information to make an informed decision on the future of nuclear power in Oregon by allowing the task force to conduct research among its nine members. Second this task force, in my understanding of the bill, will not cost money as cited that "Members of the task force who are not members of the legislative assembly are not entitled to compensation" on lines 13 and 14 on page 2 of the bill. If costs are incurred they will likely go directly to creating jobs by providing staff to the task force, or will encourage federal income to the state as the task force discovers areas of research that could be used to create undergraduate or graduate research positions. Finally nuclear task forces have been successful established in other states and have produced valuable data for their decision making processes [3].

Again I am strongly in favor of the proposed bill for reasons stated and I thank the council for listening to my testimony.

References

[1] "Historic Growth of Hydro-electric Power," University of Oregon, 9 February 1994. [Online]. Available: http://zebu.uoregon.edu/1998/ph162/l14.html. [Accessed 18 May 2015].

[2] C. Numez, "How Green Are Those Solar Panels, Really?," National Geographic, 11 November 2014. [Online]. Available: http://news.nationalgeographic.com/news/energy/2014/11/141111-solar-panel-manufacturing-sustainability-ranking/. [Accessed 18 May 2015].

[3] "House Bill 3445," Oregon Legislative Assembly, Salem, 2015.