

April 16, 2015

Chair Vega Pederson, members of the committee, my name is John Patterson. I live at 326 SW Pendleton St., Portland, Oregon and I'm with Mr. Sun Solar also in Portland

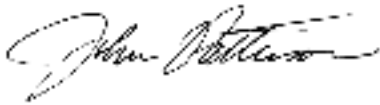
I am here today in support House Bill 3344 amendment 5.

- Solar water heating used to be a thriving industry in Oregon Back in 1980, when solar hot water heaters were the only rooftop solar technology available, I started the Oregon-based company Mr. Sun Solar. It did pretty good business.
- I surveyed available solar water heating systems and found, in those early days, that a lot of them had reliability problems with freezing in the winter or overheating in the summer. So in 2005, with backing of the Oregon Department of Energy, I invented my own solar water heater system, called the Sol-Reliant system, which was designed for Oregon's Climate. It never froze, worked on the hottest days, and would require no service for 30 years or more. While I eventually sold Mr. Sun Solar to Neil Kelly Company, I still own Sol-Reliant.
- My Sol-Reliant system proved popular, so I invested in equipment, such as a multiheaded drilling machine—instead of drilling one hole at a time, it could drill several—to speed the manufacturing process. I had ten full-time employees including: a full-time engineer to design and oversee my solar hot water heater manufacturing process, up to four people to manufacture them, and a full-time installation crew.
- At the solar water heater industry's peak in 2008, the Sol-Reliant system was the most popular of about six solar water heater designs commonly installed in Oregon. And I was shipping them out of state to dealers and customers in New York, Pennsylvania, Florida, Alabama, and California.
- Mr. Sun Solar was far from the only solar water heater company. As of 2008 there roughly twenty companies were manufacturing and/or installing solar water heaters statewide: including five in Portland, four in Eugene, three in Bend and, a half a dozen others in Hood River, Pendleton, Roseburg, Grants Pass, Medford and Ashland.
- All-told, over 20,000 solar water heaters have been installed in Oregon since 1980. Solar electric photovoltaic (PV) systems came on the market in about 2005. Since then roughly 13,000 solar PV system have been installed in Oregon. In 2008, my company, Mr. Sun, was doing roughly 50% solar water heaters and 50% PV..
- **The Problem:** All of that ended because out-dated, unequal state-level clean energy incentives resulted in the net cost of solar water heaters being much higher than solar PV.

- In the summer of 2014, I was in the home of Jack and Adele Thompson, a north Portland couple who had received a bid for solar hot water from me two years ago and were now ready to go ahead. They had heard the cost of solar had gone down. I informed them that solar PV had gone down but solar hot water had not. I explained that low cost PV modules from China had driven down the price globally but that nothing equivalent had happened with solar water heaters. In fact, the price of copper and labor for solar water heaters had gone up dramatically in recent years. They concluded maybe they should look at PV instead.
- I then gave them a bid for a PV system that would deliver the same 2500 kilowatt-hours per year as the solar hot water. The price of the solar water heater and solar PV systems I could have installed for them was, in fact, the same (\$10,000). That, by the way remains true, solar hot water heaters remain cost competitive with solar PV with roughly the same energy yield at same cost., But in their case, *after all the incentives* had been applied, the hot water system cost \$5,000, but PV system cost only \$2,500. "Why is that?" they asked. I told them it's just the way the incentives work.
- HOWEVER, it turned out they did not have south-facing roof space for a solar PV array that would deliver the same energy as the hot water. PV would have taken 200 square feet of roof space. The solar hot water system would have taken only 56 square feet. That's when they threw up their hands and said, "Wait a minute! You're telling us that solar hot water is 4 times as space efficient on rooftops as PV yet the net cost is twice as much? There's something wrong here." I agreed.
- That's when I got the idea for this bill.
- The cost difference between solar hot water heaters and solar PV is due solely to differing state incentives. My installs this year will be in single digits, whereas in the 80's they were in the hundreds. Due to decreasing demand, I furloughed my manufacturing machinery. I laid off my manufacturing staff and installation crews.
- The cost difference wasn't just hurting sales of my Sol-Reliant system, it was killing Oregon's entire solar water heating industry. The number of statewide installs has gone steadily down since 2008--from hundreds per year to less than fifty this year. There have been no new applications to the states solar hot water heater installation apprenticeship program in 2 years. Without trained technicians to maintain system, the 25,000 systems already installed are in danger of having no one to maintain them.
- *Solution:* How will this bill improve the situation?

- By equalizing the incentive for solar hot water heaters to roughly match that of solar PV, we should see a gradual uptick in the number of solar water heaters installations over time, as the industry rebuilds.
- If the industry can thrive in Oregon again, I have potential dealers in Pendleton, La Grande, and other parts of the state as well as potential dealers in Washington, Idaho, and California. But it takes the Oregon market to drive the business, keep the doors open.

Thank you for the opportunity to testify before you today. I would be happy to answer any questions."

A handwritten signature in cursive script, appearing to read "John Patterson".

John Patterson, founder, Mr. Sun Solar and Sol-Reliant