ASSOCIATION of OREGON RECYCLERS

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House Committee on Business and Labor
Oregon State Capitol
900 Court Street NE
Salem, OR 97301

RE: HB 2698 - Follow up Information from hearing on March 31st regarding e-waste and recycling.

Chair Holvey and Members of the Committee,

We wanted to add this follow up from yesterday's public hearing in regards to some comments around e-waste and recycling. Many state recycling laws only cover a limited scope of products, with most including heavy CRT 'tube' televisions and monitors but not newer products like internet-of-things devices or smart refrigerators. (See http://www.electronicstakeback.com/wp-content/uploads/Scope_of_Product_in_Ewaste_Laws.pdf). Within the narrow scope of products included in e-waste recycling laws, the volume weight is generally decreasing but the number of units is increasing as obsolescence is accelerated.

Many of the metrics associated with 20-year old recycling programs are based on lead- and cadmium leaching into landfills from cathode ray tube (CRT) monitors and TVs and incentives for tracking and recovery of e-waste are tied to weight. Very few of these programs have kept up with the explosion of electronics in a wide array of products.

CRT waste is declining as those products phase out, but manufacturers are increasingly producing devices which rapidly become obsolete and end up in the waste stream faster than more durable equipment (like CRTs). The amount of time the average consumer in the United States keeps a cell phone is only 2.83 years. (https://www.wsj.com/articles/upgrade-no-thanks-americans-are-sticking-with-their-old-phones-1540818000?ns=prod/accounts-wsj). Globally, it's around 21 months (https://www.counterpointresearch.com/smartphone-users-replace-their-device-every-twenty-one-months/) . According to the U.N.'s Global E-Waste Monitor report, in 2019, the U.S. generated 6918 kt of e-waste. That's 21.0 kt per capita. And, that report also notes that e-waste is increasing:

> "In 2019, approximately 53.6 million metric tons (Mt) of e-waste (excluding PV panels) was generated, or 7.3 kg per capita. It is estimated that the amount of e-waste generated will exceed 74Mt in 2030. Thus, the global quantity of e-waste is increasing at an alarming rate of almost 2 Mt per year." (See http://ewastemonitor.info/wp-content/uploads/2020/12/GEM_2020_def_dec_2020-1.pdf)

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Further, while the volume may be lower, the costs of handling newer products, many of which contain Lithium ion batteries, are higher. The authors of the Yale study have explained that the same innovations that made devices smaller and lighter, have also made them harder to disassemble and repair. For example,
'To make lightweight products, manufacturers miniaturized components and glued parts together, making it harder to repair devices and more expensive to recycle them. Lithium-ion batteries pose another problem: They are hard to detect and remove, and they can spark disastrous fires during transportation or recycling.'

Right to Repair laws won't only help reduce this e-waste, they will also reduce the strain on the environment that occurs during the manufacturing process for new devices. Your smartphone consumes enough energy during manufacturing to power 1,200 60-watt light bulbs for an hour. (https://spectrum.ieee.org/energy/environment/your-phone-costs-energyeven-before-you-turn-it-on). And, 85% of the emissions impact of a smartphone comes from production. (https://www.irishnews.com/magazine/science/2018/03/02/news/how-our-smartphones-are-hurting-the-environment-1268849/). 81% of the energy a laptop uses in its lifetime is consumed during manufacturing, not during use by consumers. A desktop computer requires 530 pounds of fossil fuels to make. (https://www.ncsl.org/research/environment-and-natural-resources/e-waste-recycling-legislation.aspx). And, it takes about 70 pounds of water and hundreds of chemicals—including arsenic—to make a single microchip; your cell phone contains dozens of them. (https://pages.jh.edu/aandreo1/495/Bibliography/Processing/EnergyCosts/EnergyAndMaterialsUseInMicrochips_EST.pdf)

Lastly, the rare earth minerals that go into our devices are often conflict minerals, are dangerous and expensive to mine, and are largely unrecoverable in the recycling process.

Thank you for this opportunity to convey this information.

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