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Representative Pam Marsh, Chair
Representative Bobby Levy, Vice Chair
Representative Emerson Levy, Vice Chair
Members of the House Committee on Climate, Energy, and Environment

RE: HB 3590

Thank you for the opportunity to testify in favor of HB 3590. My name is Kevin Downing and for 27 years I worked at DEQ, the last 18 of which I was the originator and coordinator of the Oregon Clean Diesel Initiative.

This bill creates opportunity to better utilize solid waste, in this case in the form of forest slash and residue, to create a high-quality liquid fuel that can effectively power Oregon's economy while lowering pollution, saving lives and sustaining water availability in mountain snowpack.

Mountain snowpack stores a significant quantity of water in the western United States, accumulating during wet season and melting during the dry season. This natural hydrologic cycle provides water for city and industrial users as well as irrigated agriculture. Researchers at Oregon State University have reported declining trends in snowpack with total lost snow water melt comparable in volume to the West's largest man-made reservoir, Lake Mead[1].

Coastal areas in the western United States are especially vulnerable to adverse atmospheric and terrestrial influences on early snow melt due to the influence of the ocean keeps winter temperatures a bit warmer in the Cascades than in interior mountain ranges like the Rockies with fewer days below 0° C in which snow may accumulate[2].

Snow melt in the Cascades is also vulnerable to deposition of Black Carbon, the dominant absorber of visible solar radiation in the atmosphere[3]. Black carbon is a regionally emitted pollutant that results from incomplete combustion of carbon-based fuels ranging from diesel engines to open biomass burning in wildfires and prescribed burns. While snow is the most reflective natural substance available, deposition of black carbon accelerates snow melt[4,5]. This phenomenon has also

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[1] Mote, Phillip et al. Dramatic declines in snowpack in the western US. *Climate and Atmospheric Science.* 2018 (1:2), https://doi.org/10.1038/s41612-018-0012-1

[2] Evan. A. & Eisenman, I. A mechanism for regional variations in snowpack melt under rising temperature. *Nature Climate Change.* 2021, (11). https://doi.org/10.1038/s41558-021-00996-w

[3] Ramanathan, V. & Carmichael, G. Global and regional climate changes due to black carbon. *Nature Geoscience.* 2008 (1). https://doi.org/10.1038/ngeo156

[4] Kang, S. et al. A review of black carbon in snow and ice and its impact on the cryosphere. *Earth-Science Reviews,* 2020 (210). https://doi.org/10.1016/j.earscirev.2020.103346.

[5] Reveillet, M et al. Black carbon and dust alter the response of mountain snow cover under climate change. *Bature Communications.* 2022 (13). https://doi.org/10.1038/s41467-022-32501-y

been observed in the Cascades with the advent of early season snow melt attributed to dust and black carbon accelerated by as much as three weeks in recent years compared to a thirty-year period beginning in the 1980s[6], with industrial activity and forest fires as major contributors of black carbon and other light absorbing particles[7].

HB 3590 establishes an opportunity for a higher use of forest slash, most of which is not burned with resulting emissions of black carbon and other light absorbing particles that affect snowmelt and also impair visibility. The state of Oregon faces responsibilities under the Clean Air Act to manage regional haze and improve visibility. This bill will facilitate meeting those requirements with less slash burning and improve forest health. Reducing the need to burn and instead utilize this residue as a feedstock for a high quality diesel fuel optimizes the resources that Oregon has now. We know from recent research that higher quality diesel fuels, as compared to the petroleum-based product widely used today, can further reduce emissions that harm people's health while minimizing the impact on global climate.

Twenty years ago, working at DEQ as the developer of the Clean Diesel Initiative, a voluntary program to reduce harmful exhaust emissions from widely used diesel engines, we came across an interesting synthetic diesel fuel being formulated in Europe. In collaboration with Daimler, through our Freightliner connections, we explored the possibilities of waste to liquid fuel technologies being brought to Oregon. Those efforts failed to bring a pilot production facility due to lack of support from other state agencies and partners. We are now excited about the possibilities that HB 3590 presents to achieve the outcomes sought back then. We are confident that with your favorable consideration, significant and broad reaching benefits can be secured for Oregonians, in forest health and public health.

We urge your careful consideration and support of this legislation.

Respectfully submitted,

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[6] Uecker, T. et al. The post-wildfire impact of burn severity and age on black carbon snow deposition implications for snow water resources, Cascade Range, Washington. *Journal of Hydrometeorlogy.* 2020 (21). doi: 10.1175/JHM-D-20-0010.1

[7] Kaspari, S. et al. Accelerated glacier melt on Snow Dome, Mount Olympus, Washington, USA, due to deposition of black carbon and mineral dust from wildfire. *Journal of Geophysical Research: Atmospheres.*2015 (120) doi:10.1002/2014JD022676.