

Submitter: John Perona  
On Behalf Of: Metro Climate Action Team - transportation  
Committee: House Committee On Climate, Energy, and Environment  
Measure: HB2534

14 February 2023

To: Chair Marsh and Members of the committee  
Re: Support for HB 2534  
From: Dr. John Perona, on behalf of Metro Climate Action Team - transportation table

Thank you for the opportunity to provide written comments on HB 2534 on behalf of MCAT's transportation table. We support HB2534 as an essential complement to Oregon's ambitious clean energy laws. Oregon is a national leader in clean energy development and has mandated rapid timetables for the carbon-free energy transition both with respect to electricity and clean fuels - both essential in the transportation sector. However, a comprehensive strategy for attaining these ambitious goals is yet to be developed. We think that such a strategy is essential if we are to meet the targets of both programs.

The areas of inquiry regarding energy use, research options developed, and recommendations and benchmarks provided by the advisory group will also provide a framework for optimizing the capture of competitive federal clean energy dollars for Oregon.

We also write to recommend that the ODOE work group proposed in HB 2530, which is dedicated to accelerating the development of Oregon's renewable hydrogen industry, be folded into the comprehensive inquiry envisioned in this bill. Hydrogen produced with low or zero carbon emissions is an essential component of the renewable energy economy - as both a feedstock for essential commodities such as fertilizers and ammonia, and as a fuel for high temperature industrial processes and transportation modes (such as aviation and shipping) that cannot be electrified with today's technology. Carbon-free electricity and low-carbon hydrogen should clearly be considered together because each technology will be essential to building the green energy economy.

The comments I made individually in support of HB 2530 are endorsed here by the MCAT transportation team. In particular, we wish to emphasize the importance of fully considering all low-carbon and zero-carbon hydrogen options, including manufacturing processes that come under the rubrics of "blue", "turquoise" and "green". We concur with many other commenters that green hydrogen, made by electrolysis of water using zero carbon electricity, is the best alternative because it would allow synthesis with zero emissions. However, the green hydrogen industry is

presently at a very early stage of development, with no large-scale production facilities in operation now, and with small production streams that incur very high costs. Of course, this is expected for any new technology and we can certainly anticipate that the industry will develop, especially with the recent federal legislation to create regional hydrogen hubs. The question, though, is how fast it will develop - especially since greening the electricity grid (and not hydrogen production) must be the top usage priority for new zero-emissions electricity as it comes into operation.

Blue hydrogen, made by the steam reforming reaction from natural gas, and including capture of carbon dioxide from the emissions stream, is presently much less costly than green hydrogen; its implementation could substantially reduce legacy carbon dioxide emissions in an interim period before green hydrogen is ready to deploy at scale. Blue hydrogen is also important to consider because it includes CCS technology - and the development of CCS at very large scale appears increasingly necessary for limiting temperature increases to below 1.5 or 2 degrees Celsius compared to the pre-industrial era. Similarly, so-called turquoise hydrogen, made by pyrolysis of hydrocarbon feedstocks, is interesting to inquire into because it produces solid carbon rather than carbon dioxide as the byproduct of hydrogen synthesis. In addition to green hydrogen, then, both of these technologies also deserve the attention of the advisory group and stakeholders that will consider recommendations for the overall energy industry.

Thank you for the opportunity to comment.