February 3, 2023

To: Senator Janine Sollman, Chair, Senate Committee on Energy and Environment
Senator Lynn Findley, Vice-Chair, Senate Committee on Energy and Environment
Members, Senate Committee on Energy and Environment
From: Diane Brandt, Oregon Policy Manager, Renewable Northwest
Re: SB 64: Inclusion of Recycling in Study

Dear Chair Sollman and Members of the Committee,

Renewable Northwest ("RNW") is a regional, non-profit renewable energy advocacy organization based in Oregon, dedicated to decarbonizing the region by accelerating the transition to renewable electricity. Our members are a combination of renewable energy businesses and environmental and consumer groups. **Renewable Northwest encourages any study conducted by the Department of Environmental Quality on batteries, as directed by SB64, to include recycling, looking at existing and emerging best practices, and to investigate and draw upon current battery technology research.**

Nationally, using batteries on the electricity grid for long and short duration storage of energy is a growing application. Batteries support reliability and help ensure that power is available for electric utility customers when they need it. Battery storage technology is continually evolving, and we expect that battery storage will continue to be used in Oregon's energy future. Battery storage currently appears in the preferred portfolio of PacifiCorp's most recent integrated resource plan and in the draft preferred portfolio of Portland General Electric's upcoming integrated resource plan.

Equally, battery technology and research is increasing and evolving. RNW appreciates that SB 64 wants to understand the impacts of these batteries and suggests that the bill include specific language supporting a study of battery *recycling* in addition to the end of useful life *disposal*. Such a study could help open up avenues for limiting the amount of materials heading towards landfills. It could also capture best practices from other states and countries - as this is a global and national issue, there are many studies[1] and examples of innovative approaches that exist on this issue. For example, there is a growing body of relevant academic and industry-conducted research on battery recycling including methodology for different battery

[1] The National Renewable Energy Lab conducts a wide range of research on battery storage: https://www.nrel.gov/storage/

Some other studies of note:
Recycled cathode materials enabled superior performance for lithium-ion batteries. Ma et al.,2021. https://www.cell.com/joule/fulltext/S2542-4351(21)00433-5?_returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS2542435121004335%3Fshowall%3Dtrue;
A Circular Economy for Lithium-Ion Batteries Used in Mobile and Stationary Energy Storage: Drivers, Barriers, Enablers, and U.S. Policy Considerations. NREL, 2021. https://www.nrel.gov/docs/fy21osti/77035.pdf; and Lithium-Ion Battery Recycling—Overview of Techniques and Trends. Baum et al., ACS Energy Letters 2022 7 (2), 712-719, DOI: 10.1021/acsenergylett.1c02602

chemistries and sizes. **Oregon can benefit from understanding these best practices and innovations around recycling of batteries.**

Again, we **would encourage any study into battery disposal to also include recycling methodologies and techniques; to review existing studies, innovations, and programs; and to capture any best practices that Oregon could benefit from as it moves forward in its energy transition to renewable, non emitting energy resources.**

We look forward to any future conversations on this topic.

Sincerely,

Diane Brandt
Renewable Northwest