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February 18th, 2016

Senator Lee Beyer
Senate Committee on Business and Transportation
900 Court St. NE,
Salem, Oregon 97301

RE: Support for HB 4036

Dear Chair Beyer and Members of the Committee:

The Geothermal Energy Association (GEA) supports the Oregon legislature's efforts to increase renewable energy development in the state. GEA would like to remind the state legislature of the values of geothermal power as a renewable energy source, express our full support for ending the state's coal consumption, and expanding renewable generation to 50%. A 50% RPS will help expand clean energy technology in the state, provide green jobs and economic development, and earn tax revenues and royalties for state treasuries. Geothermal power provides the only renewable energy that can directly replace the loss of coal fired, base load generation, as well as flexible generation and ancillary services. A diversified renewable portfolio is critical when transforming a state's generation infrastructure to primarily renewables, to prevent additional dependency on fossil fuels and a firm power solution to the state.

Geothermal is a proven, substantial, clean, economically beneficial, and environmentally friendly source of power. The United States Geological Survey estimates there are over 540 MW of identified geothermal power resources in Oregon and an additional 1,800 MW of undiscovered systems.¹ These resources could generate approximately 12% of the state's electricity consumption, or nearly 2.3 million homes, offsetting 6 million metric tons of CO₂ emissions annually. In addition to conventional geothermal systems, Oregon contains a significant potential for Enhanced Geothermal Systems which are actively being researched and developed by industry with support from the U.S. Department of Energy.

Lastly, geothermal power brings a number of health benefits for Oregon's residents by reducing emissions and helping Oregon to do its part to decrease the severity of climate change. Geothermal power is one of the cleanest forms of power² and has one of the lowest land impacts of any energy technology.³ Geothermal power is capable of providing both firm and flexible power in addition to numerous ancillary services including load following, ramping, and reserve capabilities that help stabilize electricity grids that are under stress due to large low capacity factor generators.⁴

¹ Williams, Colin F., Reed, Marshall J., Mariner, Robert H., DeAngelo, Jacob, Galanis, S. Peter, Jr., 2008, Assessment of moderate- and high-temperature geothermal resources of the United States: U.S. Geological Survey Fact Sheet 2008-3082, 4 p.

² Sullivan, J. L., and M. Q. Wang. "Life cycle greenhouse gas emissions from geothermal electricity production." *Journal of Renewable and Sustainable Energy* 5, no. 6 (2013): 063122.

³ McDonald, Robert I., Joseph Fargione, Joe Kiesecker, William M. Miller, and Jimmie Powell. "Energy sprawl or energy efficiency: climate policy impacts on natural habitat for the United States of America." *PLOS One* 4, no. 8 (2009): e6802.

⁴ Matek, Benjamin. "Flexible Opportunities with Geothermal Technology: Barriers and Opportunities." *The Electricity Journal* 28.9 (2015): 45-51. ScienceDirect



Enclosed with this letter of support is a factsheet that provides more detail on the possibilities of using geothermal power to reduce carbon pollution in the State of Oregon. The enactment of HB 4036A will demonstrate the State of Oregon's commitment to clean energy by replacing fossil fueled megawatts for clean, safe, and environmentally-friendly megawatts.

Sincerely,

Karl Gawell, Executive Director
Geothermal Energy Association
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Washington DC

Additional supporters include:
Enel Green Power North America
Ormat Technologies, Inc.
US Geothermal, Inc.
Cyrq Energy, Inc.
CalEnergy Generation
Terra-Gen, LLC
Domenic J. Falcone Associates

The Geothermal Energy Association (GEA) is a trade association comprised of over 150 U.S. companies that support the expanded use of geothermal energy and are developing geothermal resources worldwide for electrical power generation and direct-heat uses.