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Preliminary Proposal

Geothermal Possibilities in Central Oregon

Background:

Current energy models are making a significant impact on the present state and future of our planet. Initiatives to build sustainable infrastructure where resources are available with the least amount of ecological impact are vital for moving forward. Geothermal power was only introduced to Oregon starting in 2010 and was expanded in 2012. As of 2020, Oregon produces 24 Megawatts (MW) of energy with plans to improve to 99 MW (State of Oregon: Energy in Oregon - Geothermal, n.d.). A quote from the Bend Bulletin claims that a new study funded by Google ranks Central Oregon as having a particularly high potential for geothermal productivity. The 2022 Biennial Energy report claims that the state of Oregon in 2020 consumed 45.4% of its energy through electricity and only 0.1% was provided by geothermal energy. I intend to research with spatial analysis to find what locations might best be suited for future geothermal projects.

Methodology:

Data sources will be pulled from the Department of Energy Open Data Portal, the Oregon Department of Geology and Minerals Industry (DOGAMI), and Oregon GEOHub. My project will initially start with an exploratory data analysis phase to understand energy consumption by source and location starting with the [City and County Energy Profiles](#) for the United States. The City and County Energy profile is extremely useful and can provide information on types of energy, industry use, expense, and emissions. The next level of data will be extracted from [DOGAMI](#) which provides location and attribute values for hot and warm springs, geothermal wells, low-temperature geothermal wells, and geothermal prospect wells. The Oregon GEOHub site provides the necessary layers for identifying [zoning](#) and political boundaries. With the data in place, I will perform predictive modeling to identify new geothermal sustainable energy locations using weighted overlay calculations.

Expected Results:

I expect to find small pockets of suitable zones in Central Oregon in a North-South trending pattern along and near the Cascade Mountain Range that provide many opportunities for new geothermal energy production.

References:

State of Oregon: Energy in Oregon - Geothermal. (n.d.). <https://www.oregon.gov/energy/energy-oregon/Pages/Geothermal.aspx>

Benner et al. *Biennial Energy Report.* November 1, 2022. <https://www.oregon.gov/energy/Data-and-Reports/Documents/2022-Biennial-Energy-Report>