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In Support of Amending the Geothermal Steam Act of 1970

In the winter of 1808 John Colter became the first explorer to venture into the territory of what is now known as Yellowstone national park. A member of the Lewis and Clark Expedition, John Colter was off on a solo fur trapping expedition when he stumbled upon a landscape of hot springs, bubbling mud pots, and tremendous exploding geysers. Colter's encounter of Yellowstone's incredible geothermal activity spanning roughly a square mile tract of land next to the mouth of the Shoshone River in modern day Wyoming amazed and disbelieved his east coast audience, who coined his discovery "Colter's hell." Colter's discovery is in fact not a hell at all but instead one of the world's most serene and beautiful tracts of wilderness created by intensive volcanic movement underneath Yellowstone's surface. However, Colter's discovery truly could become a hell if we do not amend the Geothermal Steam Act of 1970. It is not often that nature provides a win-win for it and humanity, but affirming does just that.

To examine this issue further, let's look at the reasons for amending the Geothermal Steam Act of 1970 and its corollary benefit to the US. I will first outline why we amend the Steam Act out of necessity, and then I will outline why we should amend due to the instrumental economic advantages this legislation provides.

In 2017 researchers at NASA's Jet Propulsion Laboratory examined the caldera system under Yellowstone National Park. The scientists were evaluating the potential damage of a super-volcanic eruption, a phenomenon that has already occurred at Yellowstone three separate times. Yellowstone last erupted six hundred and thirty one thousand years ago; and erupted six hundred

and sixty nine thousand years before that. An October 29, 2021 WSJ article stated that it is “not a matter of if it’ll erupt but when.” NASA’s scientists concluded that the destruction of a similar eruption would exceed that of an asteroid one and a half miles wide crashing to earth. To put this into context, a 2014 U.S. Geological survey modeled the expected volcanic ash distribution from a Yellowstone super-eruption. The survey determined that the ash radius would reach New York. Jacob Lowenstern, one of the studies co-authors, followed the report by saying that such an eruption would blanket the midwest in 3-feet of harmful volcanic ash, destroying America’s usable cropland and shocking the world into a global volcanic winter that would last generations, the impacts are manifold.

Fortunately there is a solution. Horizontal drilling for geothermal energy extraction would siphon off excess energy carbon free. Not only would modern extraction methods stop a super-volcanic eruption, but the excess energy would become an invaluable power source for millions of Americans. Jacob Borden, professor of chemical and bioprocess engineering at Trine University stated that this siphoning process would produce enough excess energy to power over 20 million American homes for a few thousand years for only 10 cents a kilowatt-hour. To put this into context, that is less than Texans paid for electricity in 2019.

Now you may wonder why this mutually beneficial process is not currently in use this very instant. The answer to this is very simple. In 1970, Congress passed the Geothermal Steam Act to incentivize the use of geothermal methods for energy extraction. However, Congress specifically excluded national parks because geothermal extraction techniques at the time were environmentally harmful and would have destroyed Yellowstone’s ecosystem. However, the modern practice of horizontally drilling reaches energy sources miles from where a well is bored

into the earth. Almost completely eliminating the ground-level impact directly above geothermal resources.

We should amend the Geothermal Steam Act to allow the responsible extraction of energy from national parks. This would not only stave off a volcanic winter but also fuel millions of Americans' homes carbon free for thousands of years to come. Let’s not turn Colter’s Hell into a reality.