



FEATURED

DeepPower leads out in geothermal energy gold rush

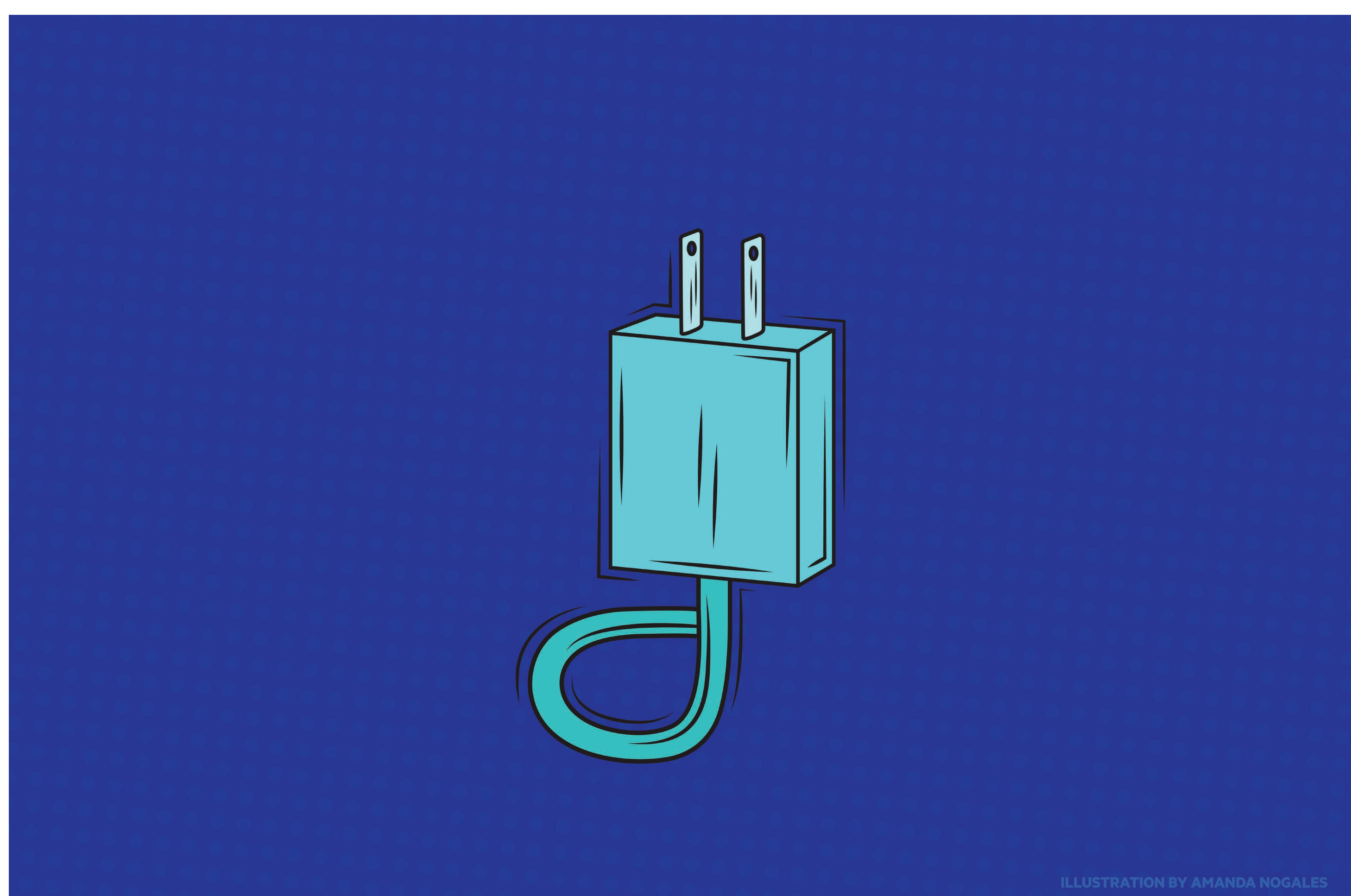


ILLUSTRATION BY AMANDA NOGALES

Andrew Van Noy had been working for years on the business side of tech when he decided to go all in on renewable energy. Geothermal power, he says, is the “holy grail of eternal green energy,” and he launched a company focused on making it more possible to pursue.

Now the CEO of what became Lehi-based DeepPower, Van Noy appreciated Utah’s robust economy built around tech startups. He felt it would be an excellent location to run a company seeking to make renewable energy available everywhere.

“Utah’s very forward thinking, so the government is forward thinking; the universities have been able to drill and test geothermal,” he says. “It made sense to build [the company] here.”

While Utah’s support of geothermal inspired him, he looked to experts outside the state where drilling was more common. He secured a \$2 million investment to get the research going and began looking for areas where his company could fill in gaps.

Specifically, he spoke to scientists in Iceland and at the University of Oklahoma, where drilling is extremely popular and geothermal energy projects have taken place. He also connected with researchers at the Massachusetts Institute of Technology, all with the idea of supporting their work by offering for-profit solutions.

The whole concept comes down to drilling. Geothermal energy works by drilling wells to access steam in the planet’s crust—about six miles deep, burning at 400 degrees Fahrenheit—which activates a generator to create electricity. While there are several ways to achieve this, Van Noy mainly focuses on the “flash steam” method, which involves using higher water temperatures. The energy produced could provide enough power to maintain society with ease for generations to come.

Because this would require massive drilling programs across the planet to achieve, Van Noy sees it as a perfect political solution; oil and gas companies could pivot while remaining within their technical realm, and it could appease opponents of that industry by providing renewable energy.

In the eyes of the U.S. Department of Energy (DOE), geothermal wells, like the ones DeepPower is trying to help normalize, are important because they would provide “homegrown” energy, meaning any community powered by geothermal wells would be fully energy independent.

For Van Noy, this solution is critical. He argues that wars, like Russia’s invasion of Ukraine, have destabilized the world’s access to oil and put energy in a precarious position, causing a worldwide energy crisis.

Right now, geothermal’s primary ability is heating and cooling homes, but there’s increasing interest from researchers, politicians and business people in the idea because it brings many apparent positives. The DOE has even launched entire sections on its funding site toward subsidizing research and development around geothermal energy.

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Van Noy’s vision is to tap into this energy source for towns and cities across the globe. He says if communities can pay to get wells up and running, their energy costs can eventually sink to zero because the energy won’t go away. At the same time, however, he argues there is a lot of money to be made in building the systems that would allow us to tap into geothermal energy. He says this is an excellent incentive to get businesses to invest and make the idea a reality.

DeepPower’s current focus is to engineer anti-corrosion coatings for the metal piping involved in this process so it survives in the acidic crust of the Earth. Van Noy notes that pilot programs have learned it can be costly to pull out and replace this piping when it corrodes. His company is also developing specialized concrete strong enough to hold these pipes in place but flexible enough to withstand when the pipes expand and contract due to temperature changes.

“Previous generations of drilling technology cannot go deep enough to make geothermal cost-effective,” DeepPower’s product announcement reads. “We are developing a suite of advanced low-cost, high-temperature and high-pressure drilling systems to boldly go where no humans have gone before. The deeper we go the more energy we can unleash.”

The biggest hurdle to developing geothermal energy is its relatively new and costly nature. But it is zero-emission and relatively safe DOE reports suggest, making it a potentially perfect solution to energy needs. To that end, the government has started supporting research and development programs to make geothermal energy use a reality.

But with risk comes reward, Van Noy suggests. His company’s products help build geothermal wells six times faster than traditional oil and gas wells, meaning wells can be built weeks faster and become far more efficient. Because drilling an oil and gas well can cost companies millions each day, he says advances will help save companies money if they dig for geothermal wells instead.

In April, DeepPower announced a collaboration with the University of Oklahoma to produce far faster drilling methods than traditional oil- and gas-well digging. The company had entered into an agreement in 2022 with Oklahoma Professor Saeed Salchi to test revolutionary products.

“Salehi and his team have now confirmed that there is a very real business case for their new drilling invention,” Van Noy said in a press release about the development. “The next phases of the techno-economic studies will provide us with a more comprehensive model regarding geothermal well cost, production, and other important metrics.”

Van Noy sees the issue of energy as one of access and certainty once geothermal is up and running. He points out that renewable energy programs like solar panels and wind energy can be problematic because they are susceptible to changes in weather and can take up large amounts of space. In his estimation, geothermal would allow for more efficiency and reliability, no matter what’s happening on the planet’s surface.

On an FAQ section of their website, the DOE echoes this point by arguing that one powerful incentive to harness this source of energy is it would never be impacted by weather or other external factors and would remain available at all times.

“Unlike large area solar and wind farms, a 9-inch hole by 5 miles deep can produce the same amount of power as 320 acres of solar panels,” DeepPower’s press announcement reads. “Like a power plug into the Earth, we aim to provide every city, state, and country direct and independent access.”

But as Van Noy notes, the concept of geothermal is still developing. As these benefits become more apparent, there will likely be heavy competition between tech companies to cash in on the opportunity.

“It’s the wild west; it’s the gold rush; everyone’s trying to figure out how to drill that deep,” Van Noy says, pointing out the onslaught of potential government grants. “In order to successfully drill, there’s going to have to be some public-private partnership.”

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Jack Dodson is a reporter and documentary filmmaker most recently based in Palestine-Israel from 2018-2022. He has reported for Vice, BBC, The Intercept, Middle East Eye, among many others. He has a master’s in investigative journalism and documentary from Columbia Journalism School and a bachelor’s degree from Elon University in rhetoric.

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