

Tapping Deep Earth Heat to Generate Electricity Approaches Mainstream Status

For years, I've been fascinated by geothermal energy. I've written about homeowners such as Martin Voelker in Golden, who uses the 55-degree earth temperature beneath his home to heat and cool it using a heat pump. I've also written in the Geos Neighborhood in Arvada, where each single-family home has its own geothermal ("ground source") heat pump.

Golden's new city hall will be heated and cooled geothermally, powered by solar panels.

Our earth contains an unimaginable reservoir of heat. Just a few miles down, temperatures become hot enough to generate electricity around the clock, regardless of whether the sun is shining or the wind is blowing. Geothermal power produces no combustion emissions, requires relatively little land, and provides continuous "base-load" electricity that can complement solar and wind.

The challenge has never been finding the heat. The challenge has been reaching it economically. That may finally be changing.

A recent article in Canary Media reported that startup Dig Energy has completed its first commercial project using a novel drilling technology that it says can reduce drilling costs by as much as 80 percent. The company's first installation involved drilling seven boreholes for a geothermal heating and cooling system at the Boston headquarters of Suffolk Construction. According to the report, Dig's technology uses a high-pressure water jet to bore through soil and rock while reducing noise, water consumption, and expense compared with conventional drilling methods. Drilling is typically the most expensive part of any geothermal project.

Geothermal energy itself is essentially free and inexhaustible. Once you reach the heat underground, operating costs are relatively low. But getting there has traditionally required expensive drilling equipment borrowed from the oil and gas industry. The deeper the well, the higher the cost, often making geothermal economically unattractive despite its technical advantages.

A lengthy 2025 article in The New Yorker described what many experts see as the arrival of a new geothermal era. The article notes that geothermal was long considered practical only in places like Iceland, where volcanic activity brings immense heat unusually close to the surface. New drilling

techniques and technologies developed partly from advances in the oil and gas sector are changing that assumption. Investment in geothermal has accelerated rapidly, and companies are working to make geothermal energy viable in regions that previously lacked accessible resources.

One of the most promising approaches is known as enhanced geothermal systems, or EGS – a euphemism for fracking for steam instead of oil.

Instead of relying on naturally occurring underground reservoirs of hot water, engineers drill into hot rock formations and create pathways that allow water to circulate through the rock and return to the surface carrying heat. The concept essentially allows geothermal resources to be developed in places that have heat underground but lack natural hydrothermal reservoirs.

The result is that geothermal potential suddenly expands from a handful of fortunate locations to vast areas of the United States and the world.

Colorado may be particularly well positioned to benefit. We already possess a large concentration of drilling expertise. The same engineers, geologists, and drilling contractors who understand how to work thousands of feet below ground can potentially apply those skills to geothermal projects. In fact, many geothermal advocates see the industry's future not as a replacement for drilling expertise, but as its next chapter.

What's especially exciting is that innovation is occurring at both ends of the geothermal spectrum.

At the neighborhood and building scale, companies are reducing the cost of geothermal heating and cooling systems that can eliminate furnaces and air conditioners.

At the utility scale, companies are pursuing deeper wells capable of generating electricity continuously. Several next-generation geothermal developers are already demonstrating commercial-scale projects and signing agreements with major technology companies hungry for reliable clean electricity.

For homeowners, widespread geothermal electricity production may still seem distant. Most of us won't be drilling power-generating wells in our backyards anytime soon. But the significance of breakthroughs like Dig Energy's should not be underestimated.

Every major energy transition has depend-

Munich. German researchers, utilities, and government agencies view geothermal energy as a key tool for reducing dependence on fossil fuels while providing dependable energy regardless of weather conditions.

Together, the stories coming out of Utah and Germany suggest that the exploitation and deployment of deep-earth geothermal energy may finally be ready for the mainstream.

You can find links to both the Utah and German stories on my Substack blog at <http://RealEstateToday.substack.com>.

Real Estate Today



By Jim Smith
Realtor®

ed on making infrastructure cheaper. Solar panels became mainstream when their costs collapsed. Wind power expanded when turbine technology improved. Electric vehicles became practical as battery prices fell.

Geothermal has long possessed extraordi-

nary advantages but struggled with one stubborn obstacle: the cost of drilling the wells. We appear to be witnessing the overcoming of that obstacle.

Find links to both the Canary Media and New Yorker articles on my Substack blog.

Here Are Some of My Current Active Listings

Narrated Video Walk-Throughs of Each Listing Can Be Found at www.GRElistings.com

1694 S. Balsam St., Lakewood - \$595,000

This 5-bedroom brick ranch with finished basement is on the northeast corner of Balsam Street and W. Mexico Ave. in the Clover Lane subdivision. It was built by the builder for his own family in 1962, but the current owner purchased it a few years later and has owned it for 58 years! He has kept it up nicely and made many improvements and repairs including granite countertops, Champion double-pane windows, new sewer line, heated garage, and more!



13527 W. 63rd Way, Arvada - \$499,990

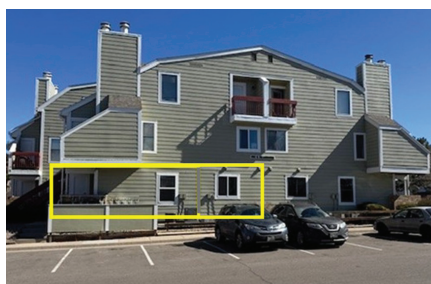
PRICE REDUCED! This contemporary 3-bedroom/4-bath townhome features over 2,250 finished square feet, highlighted by an open-concept main level with soaring vaulted ceilings and slab-granite kitchen countertops. All new berber carpeting was just installed on all three levels plus the stairs. A sunny dining area opens to a spacious private patio, perfect for outdoor relaxation. Energy-conscious buyers will appreciate the ChargePoint EV charging station in the two-car garage. The basement contains a third bedroom with a 3/4 bath.



359 Canyon Point Cir., Golden - \$1,650,000

The seller, who purchased this model home in 2002, has made several great improvements including solar panels, hardwood flooring, and totally new gourmet kitchen and master bathroom.

The 4 upstairs bedrooms and stairs have new Berber carpeting, too. The view to the east takes in both table mountains and the city of Golden, plus a view of Lookout Mountain and the iconic "M" on Mt. Zion. There's a trailhead to Mt. Galbraith Park's five miles of hiking trails within the subdivision. The main-floor deck has been completely rebuilt with metal railings and a breakfast bar.



992 S. Dearborn Way #7, Denver - \$150,000

This 1-bedroom/1-bath Sable Cove condo would make a great starter home for the right buyer. It's east of I-225 and north of Mississippi Avenue, south of Aurora's town center. The seller, who bought it for a family member, updated everything in this ground level unit. It has luxury vinyl plank flooring throughout, a pantry with slide-out drawers, laundry hookups, and a wood-burning fireplace. There is lots of open lot parking for you and your guests.

Developments in Utah and Germany Point to Geothermal's Future

In the United States, Fervo Energy's Cape Station project in Utah has become one of the first commercial-scale demonstrations of next-generation geothermal power. By adapting drilling and subsurface technologies developed for the oil and gas industry, Fervo has shown that deep underground heat can generate reliable, carbon-free electricity around the clock.

The German Geothermal Association (BVV) is pushing the development of deep geothermal resources for both heating and electricity, particularly in Bavaria around

CENTURY 21
GOLDEN
REAL ESTATE
Hometown Service Delivered with Integrity

Jim Smith, Broker
CENTURY 21 Golden Real Estate
303-525-1851
Jim@GoldenRealEstate.com



The articles in the ad are posted at
RealEstateToday.substack.com

Two decades of these columns are
archived at JimSmithColumns.com

