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Antique Maps Available



Rock formation along the Squaw Trail near Kanab, Utah

An Indigenous Archaeologist's Journey to Find the Lost Children

How “heart-centered” archeology is helping to find the Indigenous children who never came home from residential schools

Read in Scientific American: <https://apple.news/A8kM8snQgTIWTpMkzuYy71A>

Editorial: Incomprehensible USPS decision will have snowball effect on Northern Nevada

<https://www.rgj.com/story/opinion/2024/04/25/editorial-incomprehensible-usps-decision-will-have-snowball-effect-on-northern-nevada/73415961007/>

"Love them or loathe them, pinyon-juniper woodlands are a growing biofuel battleground"

<https://www.latimes.com/environment/story/2024-02-11/should-pinyon-juniper-forests-be-turned-into-biofuel>

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USDA Rural Development Highlights Nevada Energy Opportunities to Western Governors' Association

Phoenix, April 24th, 2024--USDA Rural Development Nevada (USDA RD-NV) State Director Lucas Ingvaldstad today spoke to assembled Western governors and Federal representatives at the Western Governors Association's Western Prosperity Forum. Invited to discuss emerging energy opportunities available to farmers, ranchers, and small businesses, State Director Ingvaldstad highlighted recent investments in Nevada via the [Rural Energy for America Program \(REAP\)](#) and the [Higher Blends Infrastructure Incentive Program \(HBIIP\)](#). The State Director also

called attention to the recent announcement of REAP and HBIP awards nationwide, [made in recognition of Earth Day by USDA Deputy Secretary Xochitl Torres Small](#).

“We were proud to discuss today how USDA RD ensures that rural and Tribal communities can both participate in and benefit from the clean energy economy, as well as the historic investments made by the Biden-Harris Administration through the Inflation Reduction Act,” said Ingvoldstad. “Whether in Nevada or in any other state, investments in infrastructure through REAP and HBIP help families and businesses cut costs, save money at the pump, join new markets, and modernize their rural communities for a better quality of life for the decades to come.”

Attendees at the Western Prosperity Forum included Arizona Governor Katie Hobbs, USDA Under Secretary for Natural Resources and Environment Homer Wilkes, U.S. Department of Health and Human Services Associate Director for Science Yulia Carroll, Governor of the Gila River Indian Community Steven Roe Lewis, and U.S. Department of Energy Stakeholder Engagement Lead Toniqua Hay.

Recent investments in supporting emerging energy opportunities for Nevada farmers, ranchers, and small businesses include:

- Storm's Oasis Dairy in Battle Mountain will use a \$540,900 investment to purchase and install a photovoltaic system that will generate approximately 672,473 kilowatt hours (kWh) a year for Storm's Oasis Dairy. The system will supply power to a 300-horsepower motor which powers a well that pumps water to hay fields used as feed for the dairy farm. It is estimated this project will save the farm \$44,979.00 in utility savings in year one.
- Railroad Valley Farms in Tonopah will use a \$561,209 investment to convert two diesel-powered irrigation wells to hybrid solar/diesel electric pumping stations as part of 854,126-kilowatt hour (kWh) photovoltaic solar irrigation phase II. It is estimated this change will reduce fuel consumption by up to 70 percent. The recipient's farmland is completely off grid.
- Nevada Bank and Trust LLC in Mesquite will use a \$40,000 investment to help purchase solar panels for rooftop and car park usage. With a 30-year lifespan, the panels will deliver a 98 percent carbon footprint reduction. The project annually is anticipated to save the business \$6,600 in energy costs and produce 52,000 kilowatt hours (kWh).
- IC Breakout LLC in Palomino Valley will use a \$12,000 investment to purchase three 30.72 kilowatt (kW) batteries for IC Breakout LLC, an electronic-circuit-board manufacturer. Guaranteed for 19 years, the batteries promote clean energy use. The project annually will save approximately \$2,196 in energy costs.

To learn more about investment resources for rural areas, visit <https://www.rd.usda.gov/nevada> or contact the nearest USDA Rural Development state office. USDA Rural Development provides loans and grants to help expand economic opportunities, create jobs and improve the quality of life for millions of Americans in rural areas. This assistance supports infrastructure improvements; business development; housing; community facilities such as schools, public safety and health care; and high-speed internet access in rural, tribal and high-poverty areas. For more information, visit www.rd.usda.gov.

Tapping into the heat beneath Nevadans' feet

Scientists and companies hope the generation of geothermal power in Nevada will one day lead the nation



Ormat's Beowawe geothermal plant. (Courtesy of Great Basin Center for Geothermal Energy)

Good morning, and welcome to the Indy Environment newsletter. I'm Amy Alonzo, the environment reporter for The Indy.

I turn the lights off religiously when I'm leaving a room. I keep the thermostat turned down in the winter and up in the summer.

But no matter how hard I try to reduce my energy consumption, I know I use a lot of electricity — if nothing else, the computer I'm writing this on is powered up at least 40 hours a week. And if I've learned anything in this job, it's that even the cleanest, greenest energies still come with a host of challenges.

Solar fields can destroy prime desert tortoise habitat. Some lithium mines threaten endangered species.

Scientists are hoping geothermal energy, something Nevada has in abundance, could finally provide a power source we can feel good about.

As always, we want to hear from readers. Let us know what you're seeing on the ground and how policies are affecting you. Email tips to me at amy@thenvindy.com.

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*With highly fractured, permeable ground, the Great Basin's geology makes it one of the most geothermally rich areas in the world. Hot fluid rises easily toward the surface, ideal for driving power plants, and present-day Nevada is the second-largest producer of geothermal energy in the nation behind California.*

Tapping into hot fluids below the ground to spin turbines in power plants that generate electricity and boasting a [lower carbon footprint](#) than many other power sources, geothermal accounts for about [9 percent](#) of energy generated in Nevada. But that number could be much higher, scientists



say. The Silver State could produce about 30 gigawatts (GW) of geothermal power — about 30 times more than it does now.

“We truly live in a classic geothermal province, one of the largest on Earth,” said Jim Faulds, state geologist and member of UNR’s Great Basin Center for Geothermal Energy, at a geothermal symposium hosted earlier this month at the university.

Established in 2000 and funded by the U.S. Department of Energy (DOE), the center aims to accelerate discoveries of commercially viable hidden geothermal systems in the Great Basin while reducing exploration and development risks.

The takeaway from the symposium’s panel of geothermal producers? Renewable energy developers are looking to the state to be an even larger player in the geothermal energy market.

“Nevada is uniquely well positioned in the world with geothermal,” said Kerry Rohrmeier, government affairs manager for Ormat Technologies, an international company based in Reno.

The DOE estimates the nation needs between [700 and 900 GW](#) of clean power by 2050 for a decarbonized economy, and geothermal has the potential to account for nearly [10 percent](#) of that.

The United States has the most installed geothermal capacity in the world, generating 3.7 gigawatts of geothermal power at plants across the West, including more than two dozen in Nevada. Yet geothermal accounts for just 0.4 percent of the nation’s overall electricity.

The production of geothermal energy has taken off in fits and starts because it’s not as simple as putting up a solar panel or wind turbine, Faulds said.

“The Earth is complicated. You think you have a decent resource, and it doesn’t pan out,” he said. “There’s those kinds of things that make geothermal a little bit slower than some other forms of renewable energy.”

But with a low carbon footprint and the ability to continuously produce energy, scientists and energy experts think it has the potential to be a game changer in the nation’s push for clean energy.

And Nevada, the state with the [greatest geothermal resources](#) in the nation, has the chance to lead that charge, according to scientists and geothermal energy producers. Recently, major power purchase agreements were signed between geothermal producers and entities such as the University of Utah, Google, Southern California Public Power Authority and NV Energy for geothermal energy produced in Nevada, with some contracts extending as long as 40 years.

“We are now in a new wave of geothermal exploration,” said Cary Lindsey, geothermal research scientist with the Great Basin Center for Geothermal Energy.

### **The heat beneath our feet**

Across the Great Basin, particularly in northwestern Nevada, the state’s crust is being pulled apart due to tectonic forces. That pulling motion results in the state’s land mass growing by roughly 2 acres per year.

That pulling of the crust is good for geothermal energy production, Faulds said.

“If the crust gets pulled apart, it gets thin, and you’re bringing hot mantle closer to the surface and you have a high geothermal gradient,” he said.

Geothermal power plants tap into those hot fluids below the ground to spin turbines in power plants that generate electricity. Power can be generated from fluids with temperatures higher than 194 degrees Fahrenheit.

Nevada has 27 geothermal plants, mostly in the northern portion of the state, that combined have the capacity to generate up to [827 megawatts of power](#) at any given time, although many don’t operate at full capacity and only about half that amount is transferred to the grid. A megawatt is 1,000 kilowatts, enough to power as many as 800 households.

That number is likely to grow substantially.

The Nevada Division of Minerals has received more than three dozen permit applications for geothermal exploration so far this year, a number fluid minerals manager Dustin Holcomb calls “just bonkers.”

[Revenue from geothermal](#) in the state is increasing as well. The state collected \$14.3 million in geothermal leases and royalties last year, up from slightly less than \$10 million in 2022 and \$8.5 million in 2021. All geothermal rentals and royalties are split 50/25/25 between the state, the generating county and the federal government.

The DOE is pouring substantial funding into geothermal research across the Great Basin. The focus is largely on enhanced geothermal, which often utilizes horizontal drilling and hydraulic fracturing technology developed by the oil and gas industry. This technology reaches heat in areas untappable by conventional geothermal plants, using drilling and hydraulic fracturing to allow fluid to move through hot rock that was previously impermeable.

The DOE has an enhanced geothermal test site in Utah — [FORGE](#) — focused on higher drilling speeds and decreased implementation costs. The technologies tested at FORGE are being utilized in Nevada at a project developed by Fervo Energy in partnership with [Google](#) and being used to power its data centers.

While the technology for enhanced geothermal continues to get fleshed out, the department is also focusing on conventional geothermal energy production.

UNR’s Great Basin Center for Geothermal Energy’s [INGENIOUS](#) project received [\\$10 million](#) in federal funding to map out and build a playbook for conventional geothermal energy production — geothermal that doesn’t rely on fracking.

The goal is to map geothermally favorable resources across the Great Basin and create a template for geothermal exploration, Faulds said. Nearly half of the region’s geothermal resources are hidden, meaning they have no above-ground outlet such as a hot spring, and they are often

discovered by accident, Faulds said, during mineral exploration or while drilling an agricultural well.

### **The need for more data and environmental oversight**

Geothermal isn't a panacea though.

“Solar, wind, geothermal — they all have their own environmental impacts. Some are more well understood than others,” Jaina Moan, external affairs director for The Nature Conservancy's Northern Nevada Field Office, said after the symposium. “There's drawbacks to any technology we deploy.”

Historically, conventional geothermal exploration didn't take surface expressions such as [hot springs](#) into consideration, as evidenced by the ongoing battle over a proposed geothermal plant in the Dixie Valley area that could threaten an endangered toad. Hot springs in the area are home to the endangered Dixie Valley toad, and a [report](#) by the U.S. Fish and Wildlife Service — the agency that listed the toad as endangered at the behest of the Center for Biological Diversity — found that operating a geothermal plant in the area would have significant impact in Dixie Valley by reducing or eliminating discharge into the wetlands.

But technology and science are increasing understanding of the Earth's subsurface, its complexity and the relationship between hydrology and geology and mitigating those issues, Faulds said, adding that creating a database documenting hot springs, nearby energy developments and ensuing environmental impacts — a database that is currently lacking — would benefit industry and conservationists alike and could help prevent environmental issues in the future.

But the federal government seems to be heading in the opposite direction.

Earlier this month, the Bureau of Land Management adopted categorical exclusions to expedite geothermal exploration permitting. If the agency determines an exploratory project meets exclusionary criteria, the exploratory project can bypass the [National Environmental Policy Act](#) (NEPA) and avoid drafting an environmental assessment for permitting exploration, although any subsequent development would require NEPA analysis.

The details of the exclusions have not been outlined by the Bureau of Land Management and is a confusing approach to policy making, Patrick Donnelly, Great Basin director for the Center for Biological Diversity, said in a call with *The Nevada Independent*.

“Why would you issue these categorical exclusions without sharing what they are?” he asked. “Without having seen the exclusions, we don't know if there's an issue or not ... but how are we to know?”

And ultimately, much of the renewable energy produced in the Silver State is exported across state lines, according to Faulds.

This exporting of geothermal power means that Nevada's landscape — yet again — bears the brunt of clean energy generation while reaping just a fraction of the benefits.

*This story was updated at 10:17 a.m. 4/25/24 to correct that Nevada receives 9 percent of its power from geothermal sources, not 4 percent.*

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Here's what else I'm reading this week:

Construction of a \$10 billion transmission line through the Southwest can continue, a federal judge ruled, despite objections from tribes, archaeologists and environmentalists. More from [PBS NewsHour](#).

In a piece for *The Nevada Independent*, [Daniel Rothberg](#) tells the story of the push for Bahsahwahbee, a national monument just outside Great Basin National Park.

The federal government says conservation is as important as grazing and resource extraction on public lands in a new rule — and not everyone is happy about it. The [Associated Press](#) explains.

See also

How Nevada is about to become a leading boron producer

Rhyolite Ridge is known for its lithium, but the proposed mine's extensive boron reserves could make Nevada a leading exporter.

<https://thenevadaindependent.com/article/how-nevada-is-about-to-become-a-leading-boron-producer>



[One recovery effort, two strains of fish. The complex comeback of Lahontan cutthroat trout](#)

April 21st, 2024 at 2:00 AM

Federal and tribal spawning operations are vital in the ongoing recovery of Lahontan cutthroat trout on the Truckee River and Pyramid Lake, but it is unclear whether the fish can continue to rebound without intensive human intervention.

<https://thenevadaindependent.com/article/one-recovery-effort-two-strains-of-fish-the-complex-comeback-of-lahontan-cutthroat-trout>

and

<https://thenevadaindependent.com/article/indy-environment-how-a-south-reno-hot-spring-can-offer-hints-about-life-on-mars>

New UC Berkeley student housing complex will have Ohlone name

A new housing complex for graduate students in Albany will be called xučyun ruwway to honor the homeland of the Ohlone people.

by [Ally Markovich](#) April 23, 2024, 3:54 p.m.



A rendering of xučyun ruwway at the corner of Monroe and Jackson streets in Albany. Credit: Ayers Saint Gross Architects / American Campus Communities

A new UC Berkeley apartment complex for graduate students set to open in Albany in August will have a Chochenyo Ohlone name that honors local Indigenous people.

When it opens in the fall, xučyun ruwway (HOOCH-yoon ROO-why) will have room for 761 graduate students across five six-story buildings in Albany. It will triple the UC Berkeley housing for single graduate students.

It's the first time that UC Berkeley has chosen a building name in a local Indigenous language and consulted with tribal groups during the process.

The xučyun Ohlone lived in what is now parts of Alameda and Contra Costa counties, including Berkeley and Albany, since what they call Time Immemorial, or the beginning of the world. The term xučyun refers to their ancestral homeland in this region. In Chochenyo, "ruwway" means a home or a house.

The name was chosen to honor the Ohlone people and reflect the university's intention for the complex to be a hub for graduate student life.

"It's an indication of the university's desire to move beyond the history of erasure and to celebrate visible and thriving people today," said Tedde Simon, UC Berkeley's newly hired director of Tribal Affairs.

A rendering shows a "transit plaza" along Monroe Street, where students can catch the bus to campus or connect to BART stations. Credit: Ayers Saint Gross Architects / American Campus Communities

A rendering shows an aerial view of xučyun runway, which will be located near University Village family housing. Credit: Ayers Saint Gross Architects / American Campus Communities The university worked with the Muwekma Ohlone, a Bay Area tribe, and UC Berkeley’s new ‘ottoy initiative, to select the name last summer. Led by Vincent Medina and Louis Trevino, co-founders of the Ohlone Cafe, ‘ottoy aims to foster understanding about Ohlone people and repair the relationship between UC Berkeley and the Ohlone community.

UC Berkeley has had a conflictual relationship with the Ohlone since at least the [early 1870s](#), when university researchers began digging up remains in Berkeley and across the country, amassing what was until recently the largest collection of Indigenous remains in the United States at the Phoebe A. Hearst Museum. Despite federal repatriation laws, the remains of [4,900 Native Americans are still in the university’s possession](#).

And while the name itself doesn’t repair the harm done, Simon said, it does raise the visibility of the Ohlone people and signal the university’s desire to improve its relationship with local Indigenous people.

The apartment complex will add badly needed student housing to the city. UC Berkeley provides housing to roughly 23% of students, the lowest percentage of any University of California campus. An even smaller share of graduate students live in housing owned by the university.

“We’re still going to need to develop more grad student housing to reach our goal” of guaranteeing one year of housing to all graduate students, said Kyle Gibson, a spokesperson for Capital Strategies, UC Berkeley’s development arm. But, he said, this is a significant step forward.

The complex is adjacent to University Village, which offers housing to students with families, and is located near an AC Transit line that goes directly to campus.

With over 55,000 square feet of green spaces with lawns, picnic areas and gardens, the complex will include units ranging from one to four single-occupancy bedrooms with shared kitchens.

Priced below market rate, the apartment-style units will be fully furnished and include in-unit washers and dryers. Amenities include a fitness center, communal lounges and large additional kitchens on the ground floor. The buildings will be fully electric, from lighting to kitchen appliances.

The complex will include interpretive signage with the xučyun runway name, explaining how to pronounce it and its significance.

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***Things we can learn from the animals:***

**Why this rhino-zebra friendship makes perfect sense**

[https://www.nationalgeographic.com/animals/article/zebra-rhino-friends-south-africa-savanna?rid=C38947501E68571D7AA5496FBC02C266&cmpid=org=ngp::mc=crm-email::src=ngp::cmp=editorial::add=Daily\\_NL\\_Thursday\\_History\\_20240425](https://www.nationalgeographic.com/animals/article/zebra-rhino-friends-south-africa-savanna?rid=C38947501E68571D7AA5496FBC02C266&cmpid=org=ngp::mc=crm-email::src=ngp::cmp=editorial::add=Daily_NL_Thursday_History_20240425)

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Antique Maps Available:

[Early Native American cartography on a printed map](#) [War of 1812 satire denouncing Native American depredations on the western frontier](#) ...

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