

The Ledger

Land & energy, of record.

No. 001 Book 1 • Page 1

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A SURVEY TOWNSHIP • 36 SECTIONS • N.M.P.M.
Sections 2, 16, 32 and 36: held in trust by the State of New Mexico

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A first entry. The well that made southeastern New Mexico, the four-billion-dollar afternoon that just released it, and the oilfield tools now being pointed at a resource under every county: heat.

I • CHAIN OF TITLE

Drill there.

April 1924, a state school section outside Artesia, and the paperwork underneath the oil.

II • OF RECORD

Four billion dollars on 33,530 acres

The largest federal lease sale ever held, and the three landlords of the Delaware Basin.

III • FUTURE INTERESTS

Drill there, again.

Enhanced geothermal: the Permian's tools, hot dry rock, and the question of who owns the heat.



Every county keeps a ledger. In Eddy County it begins in the 1880s, in a bound book in a courthouse on the Pecos, and it has not stopped since: patents, deeds, leases, assignments, decrees, releases, each entered in the order it arrived, each one notice to the world that something about a piece of ground had changed. *The Ledger* is a reading of that record, and of the land and energy business that depends on it.

Each issue has three parts, and they take their names from the vocabulary of title. *Chain of Title* looks back: an instrument, a well, a statute, a decision, and the line of consequences that runs from it to the present. *Of Record* is what is being filed now: the sale, the rule, the number, the case, and what it means for the people who lease, examine, buy and operate land in the Permian Basin and beyond. *Future Interests* borrows a term from property law, where it names an interest that will vest later; here it names a technology, a method or a market that is not yet of record but will be: what is being built, by whom, and what it will ask of the people who work the land.

The Ledger is written for the people who live in the record: landmen, title attorneys, mineral and surface owners, operators, lenders, brokers, and anyone who has ever waited on an abstract. Sources are numbered in the text and listed at the end of every issue. When we are approximating, we say so.

Archive

I • CHAIN OF TITLE LOOKING BACK

Drill there.

In April 1924 a cable-tool rig outside Artesia found oil at 2,013 feet on a state school section. The well made a town, a family and a permanent fund, and its paperwork is where every title in southeastern New Mexico still begins.

The pay sand came in on April 9, 1924. The well was the Illinois No. 3, drilled by the partnership of Tom Flynn, Van Welch and Martin Yates Jr. on state-owned land a few miles from Artesia, in Eddy County. It was carried to

about 2,013 feet, past the oil, to be sure of it, and made roughly ninety barrels on its first day [1], [2]. Sometime that spring the well unloaded, and someone took the photograph that now hangs in every history of the region: a

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wooden derrick, a plume of oil, men in hats standing too close. In June the well was shot with nitroglycerin by the shooter Tex Thornton to improve the flow. The historical marker at the corner of Main and Sixth in Artesia records it,

and the histories of the region state the significance plainly: the first commercial oil well in southeastern New Mexico, and the first on state land [1], [2].

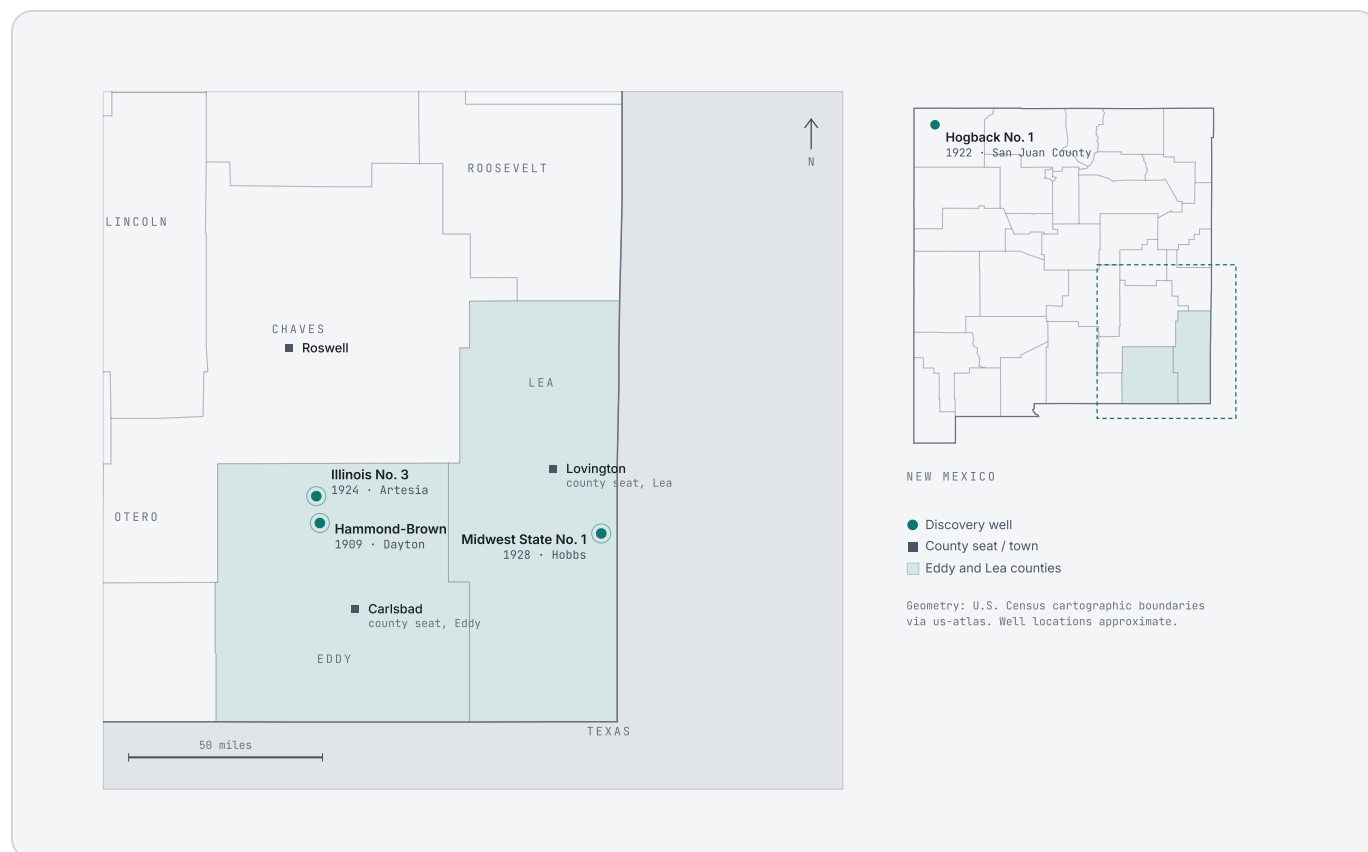


FIG. 1 Southeastern New Mexico and the wells that opened it. The Hammond-Brown well (1909) and the Illinois No. 3 (1924) in Eddy County; the Midwest State No. 1 (1928) at Hobbs in Lea County; and, in the inset, the Hogback No. 1 (1922) in San Juan County, the state's first commercial oil well. Eddy and Lea counties are shaded.

It was not the first oil in the county. In 1909 a well on the Hammond farm near Dayton, eight miles south of Artesia, had found oil that flowed at twenty to fifty barrels a day; it kept producing, modestly, until 1932 [2], [3]. The Pecos Valley of that era was being sold on other things. Its brochures promised orchards, alfalfa and artesian water, and for a while the water delivered. By the early 1920s the artesian wells were faltering, and the wildcatters who drifted through the valley left mostly dry holes behind

them [2], [4]. A Kansas-New Mexico Oil Company test drilled in 1919 could not make a paying well and was closed in 1922 [2].

Flynn, Welch and Yates had themselves drilled the Illinois No. 1 at Lakewood in December 1920, to about 2,000 feet; it came in as a gasser and was shut in, and its equipment was moved to the No. 2 location [2]. Martin Yates Jr. is credited with persuading Welch to keep his rig in New Mexico long enough to drill three more wells [4]. Gas from the No. 2 fueled the boilers at the No. 3. And there is the story the town has chosen to cast in bronze: two dry holes in, the partners'



geologist declined to pick another location, and Mary Yates, sitting on a spool of cable, pointed at a spot on the ground and told her husband to drill there. The sculpture that depicts the moment is called *Woman's Intuition*; it was dedicated in 2004, with two others, on the eightieth anniversary of the well [1], [5].

Yates was not modest about what would follow. Writing in 1924, he called the development in the valley so far "only a preliminary skirmish" beside the artillery to come [4]. He was right in a way he could not have measured. The Illinois Camp went up for the workers and their families; a refinery followed on the north bank of Eagle Draw in 1925; and the enterprises that grew from the partnership, Yates Petroleum among them, became fixtures of the state's independent oil business for the rest of the century [2], [4].

The well's second distinction, first on state land, is the part of the story that belongs to this section. Before there was oil under the Illinois No. 3 there was a chain of title above it, and it is worth following, because every abstract in the region opens the same way.

It begins with an act of the Territorial Legislature. In 1887, a quarter century before statehood, New Mexico enacted the sentence that still governs its recording system: a record of an instrument affecting real estate "shall be notice to all the world of the existence and contents" of that instrument from the time of recording [6]. Two years later the Legislature drew the boundaries of Eddy County and named Seven Rivers the seat. The town of Eddy took the seat by referendum in 1890 and became Carlsbad in 1899; the brick courthouse built on the block Charles Eddy donated still stands, though the clerk's office has since moved to a newer county complex [3].

MARGINAL NOTE

Book, page, reception

Every instrument recorded in a New Mexico county is assigned a book and page at the moment it is filed, and in modern systems a reception or instrument number as well. "Book 991, Page 321" identifies one document forever. Later instruments cite earlier ones by these numbers, which is how a chain can be followed backward from any starting point, and forward from any patent.



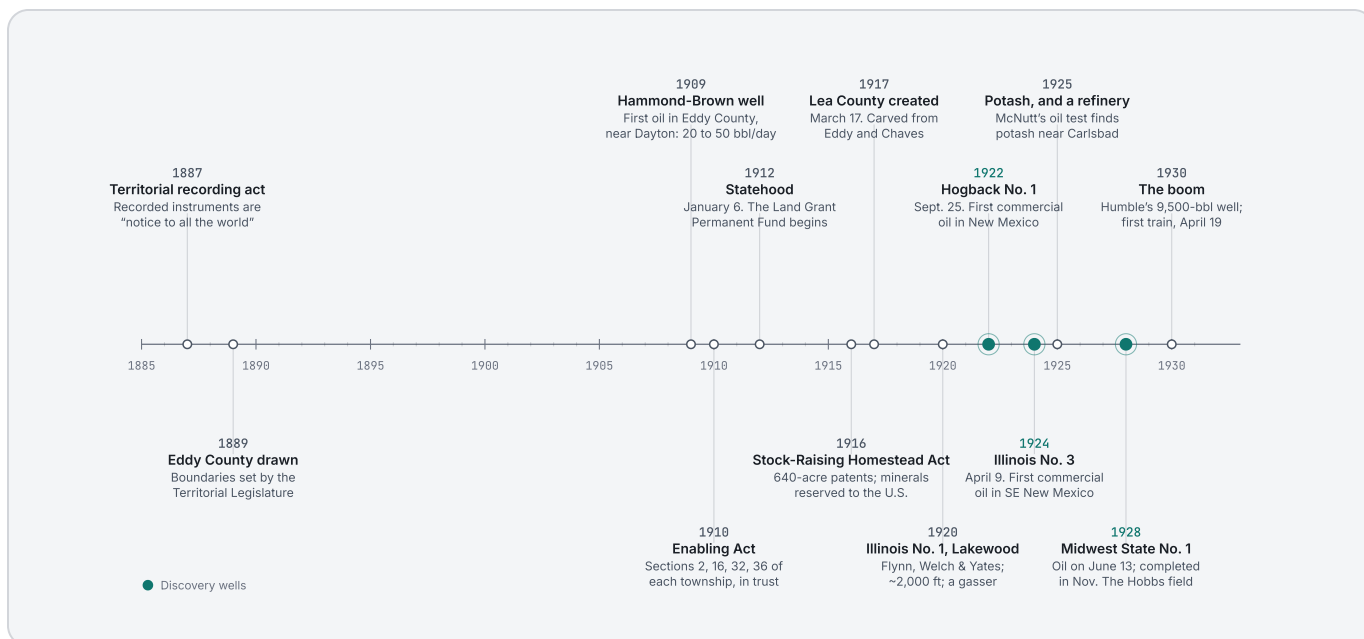


FIG. 2 Forty-three years in which the record and the resource arrived together. Land law (the recording act, the Enabling Act, the Stock-Raising Homestead Act) is interleaved with the discoveries it would govern. Filled markers are discovery wells.

The land itself came next. The Ferguson Act of 1898 and the Enabling Act of June 20, 1910 granted sections 2, 16, 32 and 36 of every township to the future state, to be held in trust for its schools and institutions: 13.4 million acres in all, four square miles out of every thirty-six [7]. Many western states received two school sections per township; New Mexico and Arizona, admitted together, received four [7], [8]. Where a designated section was already occupied, the state was allowed to select land elsewhere in lieu of it [7]. Statehood came on January 6, 1912, and with it the Land Grant Permanent Fund, into which royalties from those sections flow before a dollar of them is spent [9].

MARGINAL NOTE

Why 2, 16, 32 and 36

Sections in a township are numbered from 1 in the northeast corner, running west along the top row, then back east along the second, and so on down to 36 in the southeast corner. The school sections 16 and 36 sit in the third and sixth rows; the Enabling Act added 2 and 32, one in the first row and one in the last. The result is a pattern any New Mexico landman can pick out of a plat at a glance, and a reminder that a township is never a single landlord's ground.

So when Flynn, Welch and Yates leased the Illinois tract, they leased it from the State of New Mexico, and the royalty on the oil that came up on April 9, 1924 went to the schools. The marker erected in 2004 noted that the permanent fund had by then grown to more than five billion dollars [1]. It now stands at roughly thirty-seven billion, with oil and gas royalties accounting for about ninety-nine percent of what is paid into it, and with public schools receiving more than \$1.3 billion in distributions in 2025 alone [9]. That is a



chain of title too: Congress to territory, territory to state, state to lessee, each link recorded, each one still binding.

A different chain was forming on federal land in the same years, and it explains the shape of title in Eddy and Lea counties to this day. On December 29, 1916, Congress passed the Stock-Raising Homestead Act, which offered settlers a full section, 640 acres of land designated as fit chiefly for grazing, on one condition written into every patent: "a reservation to the United States of all the coal and other minerals" beneath it, together with the right to enter and remove them [10]. The homesteader received the surface. The United States kept everything below. The Bureau of Land Management still describes the resulting arrangement, private surface over federal minerals, as the legacy of that one statute [11]. Anyone who has negotiated a surface use agreement in the Delaware Basin has been living with the consequences of 1916.

The first commercial oil in New Mexico was not, in fact, in the southeast. On September 25, 1922, the Midwest Refining Company's Hogback No. 1, drilled with a cable-tool rig on the Navajo Reservation west of Farmington, found the

Dakota sandstone at 796 feet and flowed 375 barrels a day of high-gravity oil [12], [13]. A pipeline to Farmington and a rail haul to Salt Lake City followed. But the discoveries that would make New Mexico an oil state were still ahead, and they lay east of Artesia, across a county line that was only five years old.

Lea County had been carved from Eddy and Chaves in March 1917, and its own history describes what it had to offer: no railroad, no river, no telegraph, a few settlements joined by wagon roads and cattle trails [14]. The flatness that made it thin ranching country also made it hard to explore. West Texas geologists could read surface structure; on the Llano Estacado there was nothing to read [12]. Midwest Refining spudded its State No. 1 near the store and windmill that were Hobbs in late 1927, and the well fought them. At 1,500 feet the engine house caught fire and the wooden derrick burned. A steel derrick was hauled in from Amarillo, the engine rebuilt by local mechanics, the tools fished from the hole. First oil showed on June 13, 1928; the well was completed that November at 4,065 feet, making six to seven hundred barrels a day on state land leased from the Will Terry ranch [12].



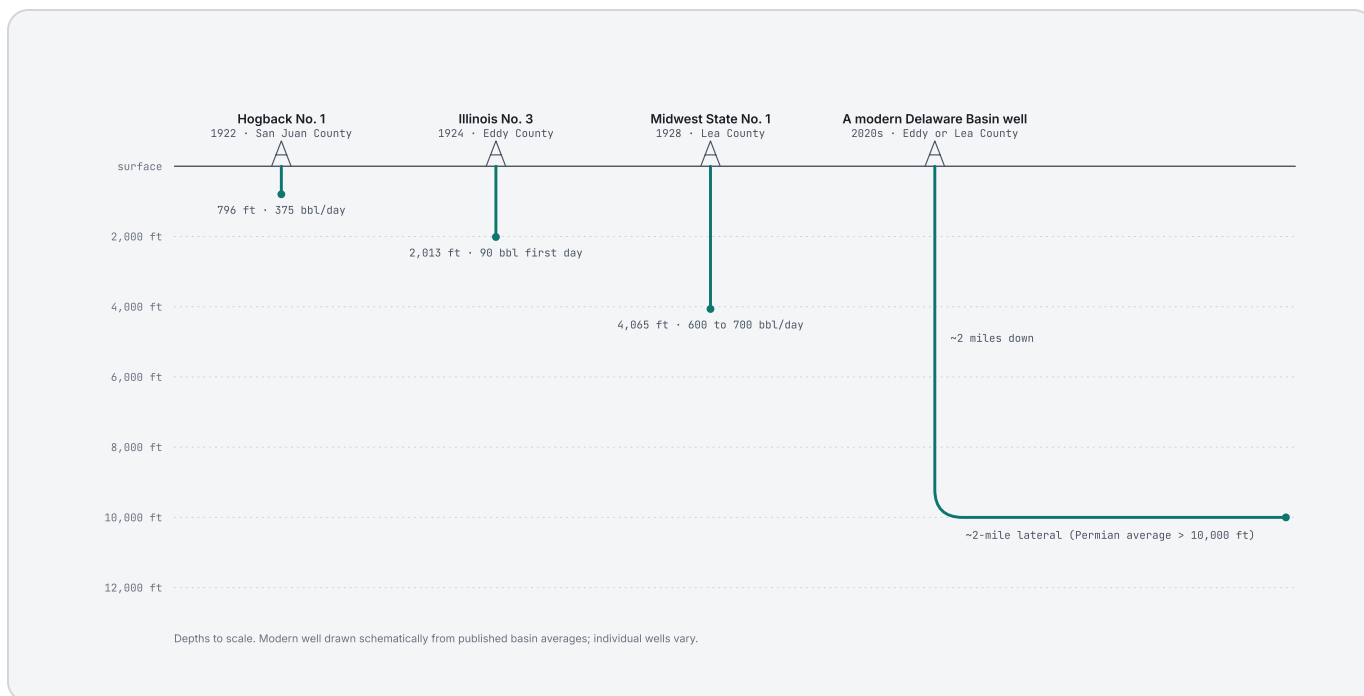


FIG. 3 Three discovery wells drawn to scale beside a modern horizontal well. The Hogback No. 1 found oil at 796 feet; the Illinois No. 3 at about 2,013; the Midwest State No. 1 at 4,065. A typical Delaware Basin well today turns horizontal roughly two miles down and runs a lateral of comparable length: the average Permian lateral passed 10,000 feet in 2022 [15], and the Wolfcamp lies as much as 9,500 feet below sea level in the central Delaware Basin [16].

By the end of 1928 companies had spent between fifteen and eighteen million dollars on leases, exploration and tests in Lea County, a sum on the order of three hundred million dollars in today's money [12], [17]. In January 1930 Humble Oil brought in a well northwest of town at 9,500 barrels a day and, with it, the first rotary rig in New Mexico; the first train reached Hobbs on April 19 of that year; and the 1930 census found the fastest-growing town in the United States [12]. The state Bureau of Geology puts the scale of it in a sentence: by the end of 1930, 130 wells in the Hobbs field had a combined rated capacity of a million barrels a day, and New Mexico produced 10.4 million barrels that year [18]. A geologist working an oil test east of Carlsbad in 1925 had, in the meantime, found potash instead, and a second industry with it [19].

The Midwest State No. 1 produced, quietly, until 2002 [12]. The Illinois No. 3 has a marker and a plaza. What both wells have in common, and what the boom years left in every county clerk's office in the region, is paper: the state leases and the federal reservations, the assignments among partners, the deeds by which ranch families sold surface and kept minerals or sold minerals and kept surface, the releases and the decrees. A century of drilling has been recorded on top of that first layer, and none of it has made the first layer obsolete. When an examiner opens the chain on any tract in Eddy or Lea County today, the first instrument is still a patent or a state lease, and the question it poses, who was given what and what was kept, is the same one Flynn, Welch and Yates had to answer before they could drill there.



Four billion dollars on 33,530 acres

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SECTION II

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On May 20 the Bureau of Land Management held the largest oil and gas lease sale in its history, nearly all of it in Lea and Eddy counties. What the bidding says about the Delaware Basin, who the three landlords of southeastern New Mexico are, and why the sale is only the first entry in the record.

The sale closed on a Wednesday. Seventy-four parcels, 33,530 acres of federal minerals in Lea, Eddy and Quay counties, New Mexico, and in Texas, were leased at the Bureau of Land Management's quarterly competitive auction on May 20, 2026, for \$4,007,944,870 in bonus bids and first-year rentals, the largest lease sale the agency has ever held [20], [21], [22]. The previous New Mexico record, \$972 million, had stood since September 2018 [21], [23]. The May sale exceeded it fourfold.

The platform that ran the auction reported the texture of the bidding: sixty-one vetted bidders placed 1,072 bids, every one of the seventy-four

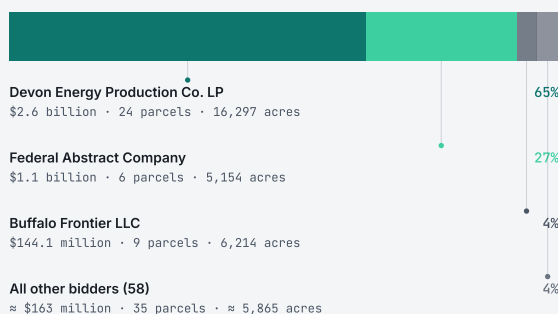
parcels drew more than one, and the high bid on a single parcel reached \$405,761,280. The per-acre record fell too. A 640-acre parcel, one full section, went for \$357,129 an acre, about \$228 million for a square mile of leasehold that will expire in ten years if no well holds it [21], [24].

The three largest buyers accounted for 98 percent of the money. Devon Energy took 24 parcels covering 16,297 acres for \$2.6 billion; a bidder of record named Federal Abstract Company paid \$1.1 billion for six parcels totaling 5,154 acres; Buffalo Frontier LLC acquired nine parcels for \$144.1 million [24]. Fifty-eight other bidders divided what remained.



MAY 20, 2026 • WHO BOUGHT WHAT

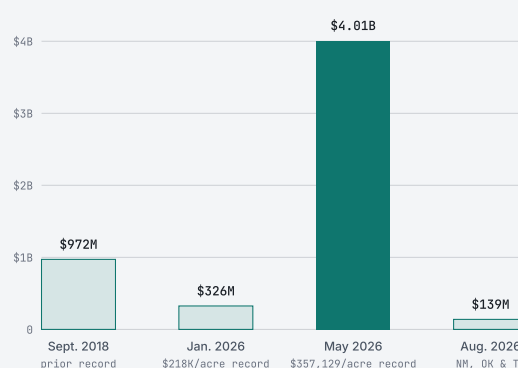
\$4.01 billion in winning bids



74 parcels • 33,530 acres • 61 bidders • 1,072 bids
Winning bids as reported by the sale platform; BLM total receipts incl. rentals: \$4,007,944,870.

BLM NEW MEXICO SALES IN CONTEXT

Total receipts per sale



New Mexico office sales, 2026 to date: > \$4.4 billion, about 90% of BLM leasing revenue nationwide this year.

FIG. 4 The May 20, 2026 sale, and the sales around it. Left: winning bids by buyer; the three largest accounted for 98 percent of the total. Right: total receipts from recent BLM New Mexico sales, including the prior record of September 2018 and the two other 2026 sales. Amounts from the sale platform and BLM press releases [20], [21], [24], [25], [26].

The May sale did not come out of nowhere. In January, the Bureau's New Mexico office had already set a per-acre record of \$218,000 at a sale that raised \$326 million [26]. In August, the following quarterly sale, 25 parcels in New Mexico, Oklahoma and Texas, brought a comparatively modest \$139 million [25]. Add them together and the sales administered from Santa Fe have produced more than \$4.4 billion in 2026, roughly 90 percent of the \$4.9 billion the Bureau has collected from oil and gas leasing nationwide this year [25]. Across the second quarter the agency sold 389 parcels on 355,456 acres for \$4.1 billion; more than 97 percent of that came from one afternoon in New Mexico [27].

MARGINAL NOTE

Bonus, rental, royalty

A federal lease is paid for three times. The *bonus* is the one-time price bid at auction for the right to hold the lease; it is what the four billion dollars mostly was. *Rental* is a yearly per-acre payment for as long as the lease is held without production. *Royalty* is the landlord's share of what is produced, paid on every barrel and every thousand cubic feet. Federal leases carry a ten-year primary term and continue for as long as oil or gas is produced [21].

Why here, and why now? The answer is under the parcels. New Mexico produced 819 million barrels of crude oil in 2025, against 71 million in 1981, and the Energy Information Administration's monthly figures put May 2026 at 74.2 million barrels, the highest month on record, which works out to roughly 2.4 million barrels a day [28]. The American Petroleum Institute has noted that state output more than doubled between 2019 and early 2025, that about 80



percent of that growth occurred on federal land in Lea and Eddy counties, and that nearly 70 percent of New Mexico's crude comes from federal land, against 27 percent nationally [29].

Undeveloped federal acreage in the core of the Delaware Basin is the scarcest thing an operator can buy, and the bidding priced it as such.

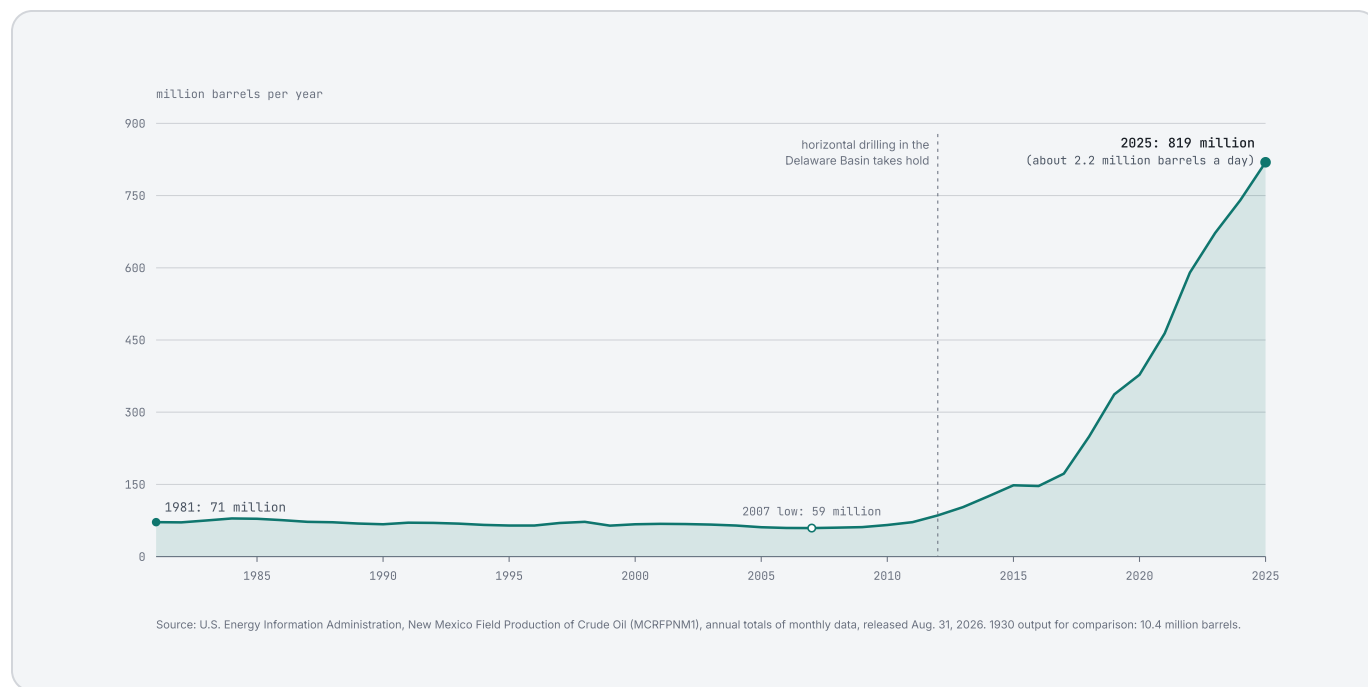


FIG. 5 New Mexico crude oil production by year, 1981 to 2025, in millions of barrels. The state produced about 71 million barrels in 1981, 59 million at the 2007 low, and 819 million in 2025. Monthly data through May 2026 [28].

Policy moved in the same direction. The sale was conducted under the federal tax law enacted in July 2025 (styled the Working Families Tax Cut Act, and known to most people as the One Big Beautiful Bill), which reset the minimum royalty on new federal onshore leases to 12.5 percent, reversing the 16.67 percent minimum adopted in 2022 [25]. The Bureau frames the lower rate as a reduction in the cost of doing business on public land; the bidders, evidently, agreed. Bonus and rental receipts are shared with the state where the parcels lie, which in this case means roughly two billion dollars from a single sale returning to New Mexico for classrooms, early childhood programs and infrastructure [22].

The state, meanwhile, has become a more expensive landlord. Senate Bill 23, signed in the spring of 2025, raised the top royalty rate on new state trust leases in the most productive parts of the Permian from 20 to 25 percent, the first change to the rate since the 1970s. The law took effect June 20. The State Land Office's first auction under it, on July 15, brought \$56 million in bonuses, and its second, on August 19, brought \$256 million, the most the office had ever earned in a single sale [30], [31]. The Land Grant Permanent Fund those royalties feed now holds about \$37 billion [9]. Critics of the increase had predicted that operators would decamp for Texas. The Commissioner of Public Lands observed afterward that "they ran for their checkbooks" instead [30].



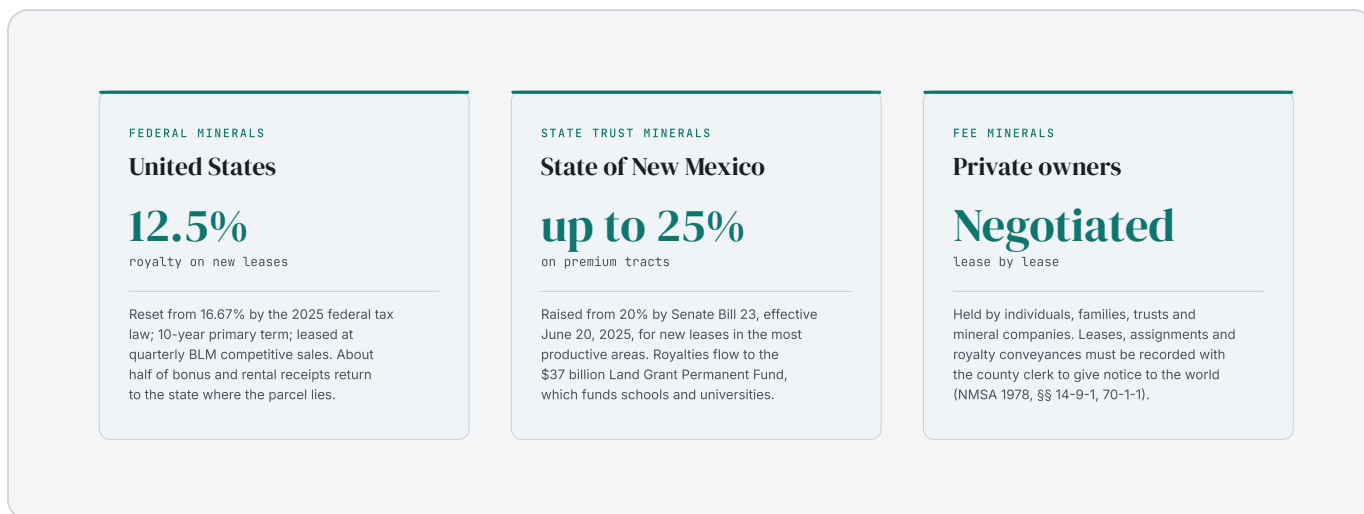


FIG. 6 The three mineral landlords of southeastern New Mexico. Federal minerals carry a 12.5 percent royalty on new leases; state trust minerals up to 25 percent on premium tracts; fee minerals whatever the owner negotiates. A single township can contain all three [9], [25], [30], [32], [33].

Put the three together and you have the peculiar geometry of title in southeastern New Mexico. A single township can contain federal minerals reserved under the 1916 homestead act and leased at 12.5 percent; state trust sections 2, 16, 32 and 36 leased at up to 25 percent; and private fee minerals, severed from the surface by some deed of the 1940s or the 1980s, leased at whatever the mineral owner's lawyer could negotiate. Each landlord keeps its own records. The Bureau issues its leases and maintains its case files; the State Land Office does the same; and the county clerk holds the deeds, the memoranda of lease, the assignments and the royalty conveyances that tie all of it to particular people.

That last point is the one this section exists to make. A federal lease sale is a beginning, not an end. New Mexico's recording statute requires that deeds, mortgages, leases with terms over five years or memoranda of them, assignments, United States patents "and other writings affecting the title to real estate" be recorded with the clerk of the county where the land lies [32], and a companion statute requires that assignments and other transfers of royalty in oil

and gas production be recorded in the county whether the underlying land is federal, state or private [33]. The bidder of record at a May auction is rarely the last name on the chain. Assignments follow; working interests are carved up and conveyed; overriding royalties are reserved; and each of those transactions becomes an instrument in a book in Carlsbad or Lovington, notice to all the world from the moment it is stamped.

Return for a moment to 1928, when the companies drilling around Hobbs had spent fifteen to eighteen million dollars in Lea County on leases, exploration and tests, perhaps three hundred million in today's dollars [12], [17]. In May 2026 a single parcel, one of seventy-four, drew a high bid larger than that entire county's first-year spend, adjusted for a century of inflation. The land is the same land. The sections were surveyed before statehood; the minerals were reserved before the first well. What has changed is what the record has to carry, and how quickly it has to carry it.



Drill there, again.

The horizontal well, the multistage frac and the fiber-optic cable that remade the Permian are being pointed at a resource that exists under every county in the country: heat. What enhanced geothermal has proved this summer, what it still has to perfect, and the title question it brings with it.

On June 16 the Bureau of Land Management held a lease sale in New Mexico that had nothing to do with oil. Sixty-eight parcels of federal geothermal rights were offered and forty-seven sold, 152,381 acres in all, for \$16.3 million in high bids, the second-highest total for a geothermal sale in the agency's history. One 4,479-acre parcel went for \$701 an acre, a federal record, and the share of parcels that sold at the \$2 minimum fell from 76 percent in 2019 to 17 percent this year [34], [35]. Two months later, on August 18, a Utah sale broke every one of those marks, with \$24.7 million in high bids and a top price of \$1,207 an acre [36]. Set beside the four billion dollars of Section II these are small sums. They are also a sign of something new: bidders competing, parcel by parcel, for the right to drill for warmth.

What changed is not the heat. It is the tools. For most of a century, geothermal power meant finding a place where hot water already existed

underground, close enough to the surface to reach, and drilling into it. New Mexico has exactly one such plant, Lightning Dock, near Lordsburg, rated at about fifteen megawatts; when its new owner drilled a step-out well there in early 2025, it found 325-degree water in a fracture zone between 7,500 and 8,000 feet that flowed at a thousand gallons a minute on its own [37]. That is the old kind of geothermal, and it depends on geology that is rare. Enhanced geothermal removes the requirement. Drill two wells into rock that is hot but dry, turn them horizontal, fracture the rock between them so that water can pass from one to the other, and circulate: cold water down one well, hot water up the other, a turbine at the surface. Three tools make this possible: horizontal drilling, multistage stimulation, and fiber-optic sensing to see where the fractures went. All three were perfected in shale basins, by people who are now, in some cases, doing this instead [38], [39].

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SECTION III

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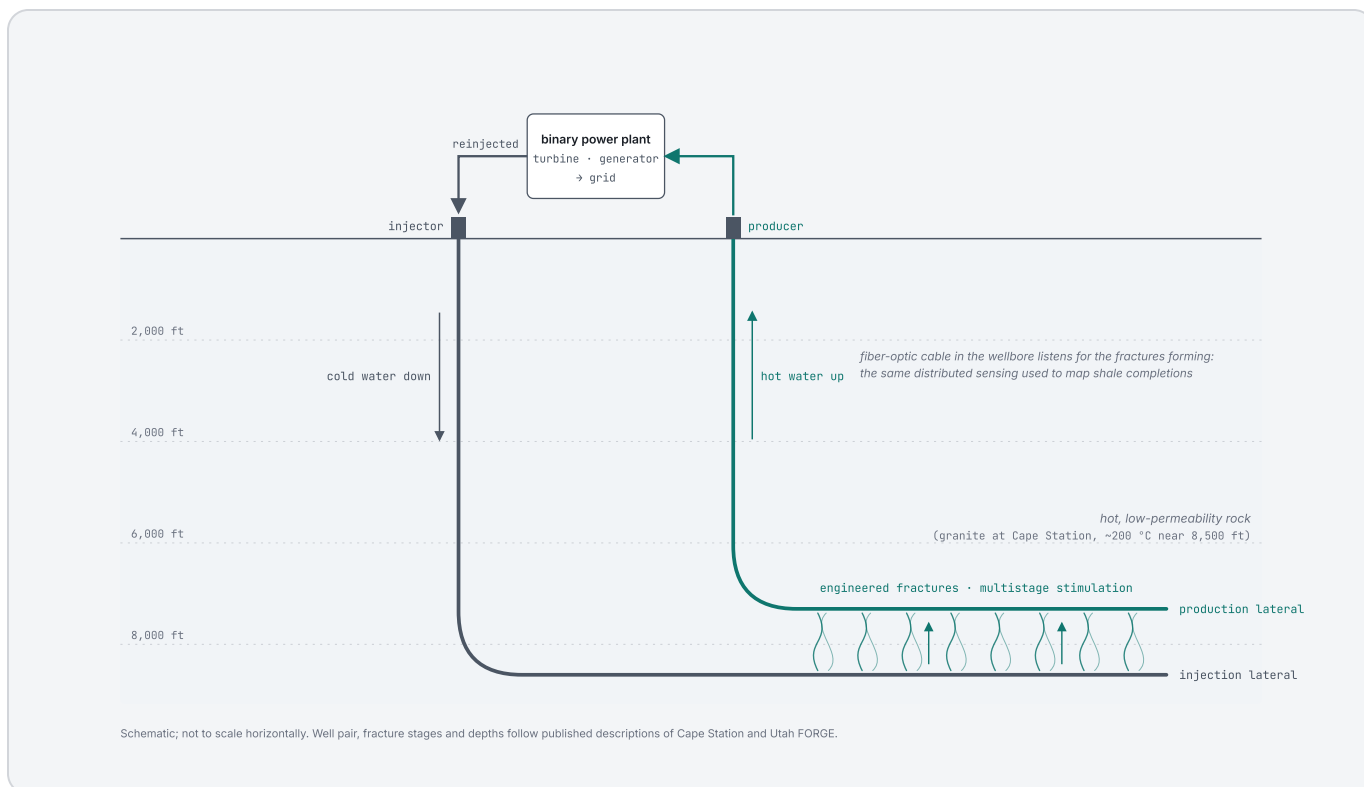


FIG. 7 An enhanced geothermal system, schematically. A pair of horizontal wells is drilled into hot, low-permeability rock and connected by engineered fractures. Water injected into the lower well travels through the fractures, picks up heat, and is produced from the upper well to a power plant at the surface, then reinjected. At Cape Station in Utah the laterals lie at roughly 8,500 feet in rock near 200 °C (392 °F) [39].

The clearest demonstration belongs to Fervo Energy, a Houston company founded in 2017. Its first commercial horizontal well, at Project Red in Nevada in 2022, reached 11,220 feet in seventy days with a 3,250-foot lateral in rock at 350 °F [40]. Six months into its next project, Cape Station in southwestern Utah, the company was drilling wells that were hotter and 2,100 feet deeper in twenty-one days, and the cost of the first four horizontal wells there fell from \$9.4 million to \$4.8 million apiece. Fervo credits diamond-compact bits borrowed from the shale

industry, mud coolers to defeat the temperature, and a rate of penetration of seventy feet an hour that had already outrun a national laboratory's projection for 2035 [41]. In June 2025 an appraisal well called Sugarloaf reached 15,765 feet, toward a projected 520 °F, in sixteen drilling days [42]. On July 8 of this year the company reported its ninth well for Cape Station's second phase: 19,448 feet measured depth, a 7,500-foot lateral, 460 °F rock, twenty-one days from spud to total depth [43].



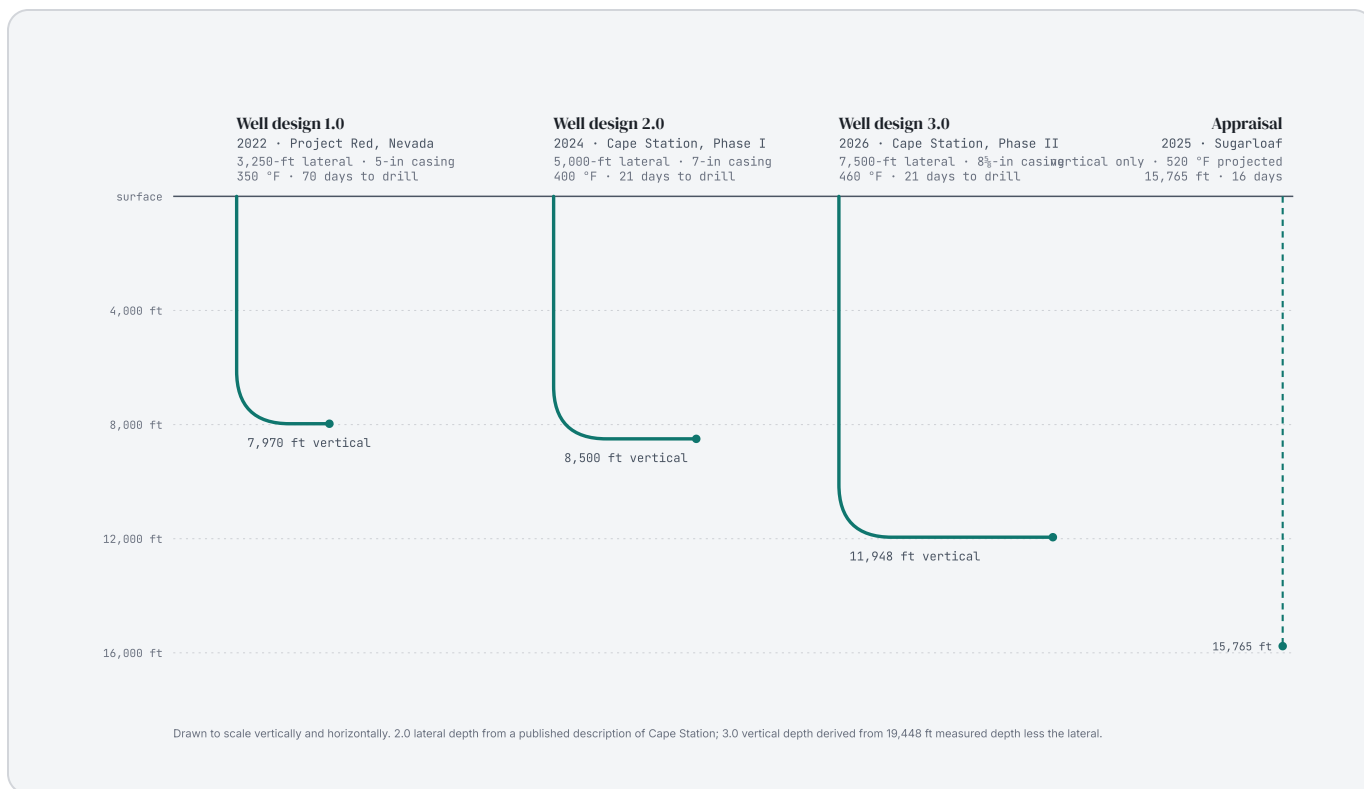


FIG. 8 Three generations of one company’s geothermal well, drawn to scale. Each generation is deeper, hotter and longer than the last, and none took longer to drill than its predecessor: seventy days in 2022, twenty-one in 2024, twenty-one again in 2026 for a well nearly twice as long. Depths and laterals as reported by Fervo Energy [40], [43]; vertical depths for the 2024 and 2026 designs are derived from reported measured depths and lateral lengths.

Those numbers matter because enhanced geothermal is a drilling business. The heat is free; the well is the cost. Cape Station’s first phase, roughly a hundred megawatts, is expected to begin delivering power in late 2026, with a second phase of four hundred megawatts targeted for 2028, sold under long-term contracts to buyers that include Google [44], [45]. In December the company raised \$462 million from a group of investors that included Devon Energy, the same Devon that spent \$2.6 billion at the May lease sale in Section II [46]. Fervo says the Cape area alone could support more than five gigawatts at depths up to 13,000 feet [42].

MARGINAL NOTE

Three kinds of geothermal

Hydrothermal, the conventional kind, taps water that nature has already heated and stored in permeable rock: Lightning Dock in New Mexico, The Geysers in California. *Enhanced* geothermal engineers the reservoir itself, fracturing hot dry rock between horizontal wells and circulating water through it: Cape Station in Utah. *Pressure* geothermal, the approach of Houston’s Sage Geosystems, stores water under pressure in engineered fractures and produces it in cycles, which lets a single well act as both power source and battery [47].

The proof did not come from one company. Utah FORGE, a federal test site adjacent to Cape Station that has absorbed more than two hundred million dollars of Department of Energy money since 2014, drilled seven wells into



granite near 200 °C at 2.5 kilometers. In the summer of 2024 it ran a thirty-day circulation test, injecting ten barrels a minute into one well and recovering ninety percent of it from another at 188 °C [39], [48]. That result is the basis for the Energy Department’s Enhanced Geothermal Shot, announced in 2022, which aims to cut the cost of enhanced geothermal by ninety percent, to \$45 a megawatt-hour, by 2035; the department’s modeling puts installed geothermal capacity at ninety gigawatts by 2050, from about 3.7 gigawatts today [48], [49]. And on August 19 of this year Sage Geosystems placed a three-megawatt facility at Christine, Texas in service after 120 days of operation, reporting water losses below ten percent over repeated cycles in an engineered reservoir: a small plant addressing the industry’s oldest complaint, which is that water pushed into hot rock tends not to come back [47].

What remains to be perfected is not mysterious, and the Energy Department has written it down. Well costs must fall by another sixty percent. Reservoirs must sustain flows on the order of 125 liters a second (about 47 barrels a minute) for years, not weeks. Operators must learn to control where fluid goes a kilometer beyond the wellbore, and to reach fifty percent more hot rock than they can today [50]. Every one of those is a problem the Permian knows: pressure, water, fracture geometry, and the risk that injecting fluid into faulted rock will make the ground move. The transmission line is a problem of a different kind. When analysts at Enverus examined the June sale, they found that geography alone did not explain the prices; the strongest single predictor of what a parcel fetched was its distance to a high-voltage line [34].



FIG. 9 What bidders have paid for heat. High bids per acre at BLM geothermal lease sales: Utah’s 2007 record stood for eighteen years before it was broken in April 2025; the federal record was set in New Mexico in June 2026 and broken in Utah two months later. Amounts from the sale platform and reporting on each sale [34], [36], [51].

New Mexico’s hand is stronger than its single plant suggests. One industry estimate puts the state’s geothermal potential at 163 gigawatts, which is why the June sale offered nearly

200,000 acres [52]. The Legislature created a geothermal projects development fund in 2024 and extended it in 2025 [53]; the State Land Office has proposed a new leasing rule to



replace one written for an earlier era [54]; and federal geothermal leases, like oil and gas leases, run an initial ten years, with half the money going to the state and a quarter to the county where the parcel lies [55]. If the learning curve holds, if a well that took seventy days in 2022 and twenty-one in 2026 takes fourteen in 2030, the question for the Permian is not whether its rigs will drill for heat but whose land they will do it on.

Which brings the technology back to the record. Every geothermal lease will be recorded with a county clerk, and every runsheet in a geothermal play will have to answer a question that most abstracts have never had to ask: who owns the heat? Texas answered by statute. Since June 18, 2023, geothermal energy and associated resources in Texas are real property belonging to the landowner, and, where the surface and minerals have been severed, to the surface owner; heat is expressly not a mineral, and title insurers were given the right to except it from their policies, which many now do [56], [57].

New Mexico has not been so explicit. Its geothermal statutes, written in the 1970s, define the resource as the natural heat of the earth and everything carried by it, excluding hydrocarbons, and place it under the Oil Conservation Commission; the pooling provisions speak of the “unleased mineral interest” as the thing being pooled [58], [59]. Commentators generally read New Mexico, with California and Hawaii, as leaving the heat with the mineral estate [60]. A ranch that straddles the state line near Jal therefore answers the same question two different ways on either side of a fence.

MARGINAL NOTE

Who owns the heat

Texas: the surface owner, by statute (Nat. Res. Code § 141.004), unless a deed says otherwise; not a mineral. *New Mexico:* not settled by a single sentence; the statutes treat geothermal resources as something pooled with the mineral interest and regulated like oil and gas, and most commentators place them with the mineral estate. *Federal land:* leased by the BLM under its own program, separate from oil and gas. A geothermal lease is recorded like any other; the examiner’s first task is to decide which estate had the right to grant it.

In 1924 the hard part was knowing where. Mary Yates pointed at the ground, and the well came in, and everything that followed in this issue followed from that. The promise of enhanced geothermal is that the pointing is over. The heat is under Eddy County and under Beaver County, Utah, and under every county between; what differs is how far down it is and what a well costs to get there, and those are engineering questions with learning curves attached. For a century the Permian’s tools have been used to bring things up out of the ground. The next thing they bring up may be the temperature.



The record is clear.

Archive builds title from the record: an automated title examination platform for the Permian Basin, beginning with Eddy and Lea counties, New Mexico. *The Ledger* is published at archiveledger.com.

COLOPHON

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REFERENCES

- [1] "The Illinois #3," historical marker, Artesia, N.M., erected 2004. Historical Marker Database, no. 235360. [Online]. Available: <https://www.hmdb.org/m.asp?m=235360>
- [2] J. Hope, "Focus Regional Oil & Gas 2024 | History in Artesia," *Focus NM Daily*, May 23, 2024. [Online]. Available: <https://focusnmdaily.com/2024/05/23/foreg2024-oilgas-history-in-artesia/>
- [3] Eddy County, N.M., "About Eddy County." [Online]. Available: <https://www.co.eddy.nm.us/248/About-Eddy-County>
- [4] "Martin Yates, Jr.," historical marker, Artesia, N.M. Historical Marker Database, no. 235362. [Online]. Available: <https://www.hmdb.org/m.asp?m=235362>
- [5] "The Derrick Floor, Artesia, New Mexico," *RoadsideAmerica.com*. [Online]. Available: <https://www.roadsideamerica.com/story/69084>
- [6] N.M. Stat. Ann. § 14-9-2, "Constructive notice of contents" (Laws 1886-1887, ch. 10, § 2). [Online]. Available: <https://law.justia.com/codes/new-mexico/chapter-14/article-9/section-14-9-2>
- [7] New Mexico Legislative Finance Committee, "Finance Facts: State Trust Land." [Online]. Available: https://www.nmlegis.gov/Entity/LFC/Documents/Finance_Facts/finance%20facts%20state%20trust%20land.pdf
- [8] Arizona State Land Department, "Our Agency & Mission." [Online]. Available: <https://land.az.gov/our-agency-mission>
- [9] New Mexico State Investment Council, "About the SIC," Apr. 2026. [Online]. Available: <https://www.sic.state.nm.us/about-the-sic/>
- [10] Stock-Raising Homestead Act of 1916, Pub. L. 64-290, 39 Stat. 862, codified at 43 U.S.C. ch. 7, subch. X. [Online]. Available: <https://uscode.house.gov/view.xhtml?path=%2Fprelim%40title43%2Fchapter7%2Fsubchapter10&edition=prelim>
- [11] U.S. Bureau of Land Management, "Mining: Split Estate due to Stock Raising Homestead Act." [Online]. Available: <https://www.blm.gov/programs/energy-and-minerals/mining-and-minerals/split-estate>
- [12] B. A. Wells and K. L. Wells, "First New Mexico Oil Wells," American Oil & Gas Historical Society, updated June 7, 2026. [Online]. Available: <https://aoghs.org/petroleum-pioneers/hobbs-new-mexico-oil-discovery/>
- [13] "The San Juan Basin: Episodes and Aspirations," in *San Juan Basin III*, New Mexico Geological Society 28th Field Conference Guidebook, 1977, pp. 83-89. [Online]. Available: https://nmgs.nmt.edu/publications/guidebooks/downloads/28/28_p0083_p0089.pdf
- [14] Lea County, N.M., "About." [Online]. Available: <https://www.leacounty.gov/249/About>
- [15] U.S. Energy Information Administration, "Advances in technology led to record new well productivity in the Permian Basin in 2021," *Today in Energy*, Sept. 30, 2022. [Online]. Available: <https://www.eia.gov/todayinenergy/detail.php?id=54079>
- [16] U.S. Energy Information Administration, "Permian Basin Wolfcamp Shale Play: Geology review," Nov. 2018. [Online]. Available: https://www.eia.gov/maps/pdf/Wolfcamp_EIA_Report_Nov2018.pdf



- [17] U.S. Bureau of Labor Statistics, "CPI Inflation Calculator." Conversion from 1928 to 2026 dollars is approximate. [Online]. Available: https://www.bls.gov/data/inflation_calculator.htm
- [18] New Mexico Bureau of Geology and Mineral Resources, "Future Petroleum Provinces in New Mexico: Discovering New Reserves." [Online]. Available: <https://geoinfo.nmt.edu/publications/atlas/PetroleumProvinces/>
- [19] New Mexico Association of Counties, "Eddy County." [Online]. Available: <https://www.nmcounties.org/counties/eddy-county/>
- [20] U.S. Bureau of Land Management, "Department of the Interior oil and gas lease sale in New Mexico and Texas generates over \$4 billion," press release, May 20, 2026. [Online]. Available: <https://www.blm.gov/press-release/department-interior-oil-and-gas-lease-sale-new-mexico-and-texas-generates-over-4>
- [21] "BLM generates \$4 billion from New Mexico and Texas oil and gas leases," *Albuquerque Journal*, May 22, 2026. [Online]. Available: <https://www.abqjournal.com/business/blm-reports-4-billion-from-texas-new-mexico-oil-and-gas-leases/3047882>
- [22] "The Bureau of Land Management announces historic oil and gas lease sale in New Mexico and Texas," KCBD, May 23, 2026. [Online]. Available: <https://www.kcbd.com/2026/05/23/bureau-land-management-announces-historic-oil-gas-lease-sale-new-mexico-texas/>
- [23] "Federal oil lease sale nets record \$4B in NM, Texas," *Hobbs News-Sun*, May 2026. [Online]. Available: <https://www.hobbsnews.com/federal-oil-lease-sale-nets-record-4b-in-nm-texas/>
- [24] Efficient Markets, "Efficient Markets Hosts Record-Breaking Federal Oil and Gas Lease Sale, Generating Over \$4 Billion in Sales," press release, May 21, 2026. [Online]. Available: <https://www.efficientmarkets.com/efficient-markets-hosts-record-breaking-federal-oil-and-gas-lease-sale-generating-over-4-billion-in-sales/>
- [25] U.S. Bureau of Land Management, "BLM Oil and Gas Lease Sale in New Mexico, Oklahoma, and Texas Generates Over \$139 Million in Revenue," press release, Aug. 2026. [Online]. Available: <https://www.blm.gov/press-release/blm-oil-and-gas-lease-sale-new-mexico-oklahoma-and-texas-generates-over-139-million>
- [26] Efficient Markets, "\$326MM in Bonus Bids and a Record \$218K per Acre Define the January 6, 2026 BLM New Mexico Lease Sale," Jan. 8, 2026. [Online]. Available: <https://www.efficientmarkets.com/326mm-in-bonus-bids-and-a-record-218k-per-acre-define-the-january-6-2026-blm-new-mexico-lease-sale/>
- [27] U.S. Bureau of Land Management, "BLM's Second-Quarter 2026 Oil and Gas Lease Sales Generate \$4.1 Billion," press release, July 16, 2026. [Online]. Available: <https://www.blm.gov/press-release/blms-second-quarter-2026-oil-and-gas-lease-sales-generate-41-billion>
- [28] U.S. Energy Information Administration, "New Mexico Field Production of Crude Oil (Thousand Barrels)," series MCRFPNM1, monthly, released Aug. 31, 2026. Annual and daily figures computed by *The Ledger*. [Online]. Available: <https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MCRFPNM1&f=M>
- [29] American Petroleum Institute, "New Mexico's crude oil production has continued to set new records with growth concentrated on federal lands in Lea and Eddy Counties," Energy Insights, 2025. [Online]. Available: <https://www.api.org/energy-insights/charts-analysis/new-mexico-crude-oil-production-has-continued-to-set-new-records>
- [30] New Mexico State Land Office, "N.M. State Land Office sets new records with first oil and gas lease auction at 25% royalty rate," July 15, 2025. [Online]. Available: <https://www.nmstatelands.org/2025/07/15/n-m-state-land-office-sets-new-records-with-first-oil-and-gas-lease-auction-at-25-royalty-rate/>
- [31] New Mexico State Land Office, "N.M. State Land Office Earns Over a Quarter of a Billion Dollars in Single Oil and Gas Lease Sale with 25% Royalty Rate," Aug. 19, 2025. [Online]. Available: <https://www.nmstatelands.org/2025/08/19/n-m-state-land-office-earns-over-a-quarter-of-a-billion-dollars-in-single-oil-and-gas-lease-sale-with-25-royalty-rate-championed-by-commissioner-garcia-richard/>
- [32] N.M. Stat. Ann. § 14-9-1, "Instruments affecting real estate; recording." [Online]. Available: <https://law.justia.com/codes/new-mexico/chapter-14/article-9/section-14-9-1>
- [33] Oliva Gibbs LLP, "New Mexico State Lease Recording Requirements," Oct. 1, 2025 (discussing N.M. Stat. Ann. §§ 14-9-1 to 14-9-3 and 70-1-1). [Online]. Available: <https://oglawyers.com/blog/new-mexico-state-lease-recording-requirements-2/>
- [34] Enverus Intelligence Research, "New Mexico geothermal lease sale resets federal acreage pricing," press release, July 28, 2026. [Online]. Available: <https://www.enverus.com/newsroom/new-mexico-geothermal-lease-sale-resets-federal-acreage-pricing/>
- [35] "Record-setting geothermal bid signals rising interest in federal leases," *Utility Dive*, Aug. 13, 2026. [Online]. Available: <https://www.utilitydive.com/news/record-setting-geothermal-bid-signals-rising-interest-in-federal-leases/827834/>
- [36] C. Cariaga, "BLM receives record-breaking \$24m in winning bids in Utah geothermal lease sale," *ThinkGeoEnergy*, Aug. 19, 2026. [Online]. Available: <https://www.thinkgeoenergy.com/blm-receives-record-breaking-24m-in-winning-bids-in-utah-geothermal-lease-sale/>
- [37] C. Cariaga, "Zanskar reports exceptional results of new geothermal well at Lightning Dock, NM," *ThinkGeoEnergy*, Feb. 3, 2025. [Online]. Available: <https://www.thinkgeoenergy.com/zanskar-reports-exceptional-results-of-new-geothermal-well-at-lightning-dock-nm/>
- [38] Utah FORGE, "DOE's Latest Energy Earthshot Will Tackle Technical, Economic Challenges for Enhanced Geothermal Systems," news digest. [Online]. Available: https://utahforge.com/utah_forge_news/does-latest-energy-earthshot-will-tackle-technical-economic-challenges-for-enhanced-geothermal-systems/
- [39] "The role of Enhanced Geothermal Systems in the energy transition at Cornell: Report of a workshop held at Cornell University, Ithaca, October 23-24, 2024," arXiv:2412.11421, Dec. 2024. [Online]. Available: <https://arxiv.org/pdf/2412.11421>
- [40] Fervo Energy, "Fervo Energy Learning Curve Continues on 3rd Generation Well Design, Boosting Drilling Rates by 143% Since Its First Cape Station Well," press release, July 8, 2026. [Online]. Available: <https://fervoenergy.com/fervo-energy-learning-curve-continues-on-3rd-generation-well-design-boosting-drilling-rates-by-143-since-its-first-cape-station-well/>



- [41] Fervo Energy, "Fervo Energy Drilling Results Show Rapid Advancement of Geothermal Performance," press release, Feb. 2024. [Online]. Available: <https://fervoenergy.com/fervo-energy-drilling-results-show-rapid-advancement-of-geothermal-performance/>
- [42] Fervo Energy, "Fervo Energy Drills 15,000-FT, 500°F Geothermal Well Pushing The Envelope For EGS Deployment," press release, June 10, 2025. [Online]. Available: <https://fervoenergy.com/fervo-energy-pushes-envelope/>
- [43] C. Cariaga, "Fervo Energy sets new drilling record with 5900m geothermal well at Cape Station, Utah," *ThinkGeoEnergy*, July 23, 2026. [Online]. Available: <https://www.thinkgeoenergy.com/fervo-energy-sets-new-drilling-record-with-5900m-geothermal-well-at-cape-station-utah/>
- [44] Fervo Energy, "Cape Station," project site, 2026. [Online]. Available: <https://capestation.com/>
- [45] Fervo Energy, "Fervo Energy Secures \$206 Million In New Financing To Accelerate Cape Station Development," press release, June 11, 2025. [Online]. Available: <https://fervoenergy.com/fervo-secures-new-financing-to-accelerate-development/>
- [46] T. De Chant, "Google invests in Fervo's \$462M round to unlock even more geothermal energy," *TechCrunch*, Dec. 10, 2025. [Online]. Available: <https://techcrunch.com/2025/12/10/google-invests-in-fervos-462m-round-to-unlock-even-more-geothermal-energy>
- [47] C. Cariaga, "Sage Geosystems validates Enhanced Geothermal approach over 120 days of operation in Texas," *ThinkGeoEnergy*, Aug. 20, 2026. [Online]. Available: <https://www.thinkgeoenergy.com/sage-geosystems-validates-enhanced-geothermal-approach-over-120-days-of-operation-in-texas/>
- [48] University of Utah, "Utah FORGE achieves crucial geothermal milestone," @theU, May 30, 2024. [Online]. Available: <https://attheu.utah.edu/science-technology/supported-with-200-million-from-doe-university-of-utah-research-peo/>
- [49] National Renewable Energy Laboratory, "Enhanced Geothermal Shot Analysis for the Geothermal Technologies Office," NREL/TP-5700-84822, Jan. 2023. [Online]. Available: <https://www.osti.gov/biblio/1922621>
- [50] K. Jones, "Introduction to the Enhanced Geothermal Shot™ Technology Pathways," U.S. Department of Energy, Geothermal Technologies Office. [Online]. Available: <https://www.energy.gov/eere/geothermal/articles/introduction-enhanced-geothermal-shottm-technology-pathways>
- [51] Efficient Markets, "BLM Utah Geothermal Energy Lease Sale Sets New Records," Apr. 11, 2025. [Online]. Available: <https://www.efficientmarkets.com/blm-utah-geothermal-energy-lease-sale-sets-new-records/>
- [52] "NEWS: BLM to hold New Mexico geothermal lease sale on June 2026," *Energy Central*, May 9, 2026. [Online]. Available: <https://www.energycentral.com/renewables/post/news-blm-to-hold-new-mexico-geothermal-lease-sale-on-june-2026-oWdS7YXT3GK6d3z>
- [53] New Mexico Legislature, House Bill 289, 57th Legislature, 1st Sess. (2025), amending N.M. Stat. Ann. § 71-9-12 (geothermal projects development fund). [Online]. Available: <https://www.nmlegis.gov/Sessions/25%20Regular/bills/house/HB0289.pdf>
- [54] New Mexico State Land Office, "State Land Office Proposes New Rule to Harness Geothermal Potential," Aug. 28, 2025. [Online]. Available: <https://www.nmstatelands.org/2025/08/28/state-land-office-proposes-new-rule-to-harness-geothermal-potential/>
- [55] U.S. Bureau of Land Management, "Geothermal Energy: Regional Information: New Mexico." [Online]. Available: <https://www.blm.gov/programs/energy-and-minerals/geothermal-energy/regional-info/new-mexico>
- [56] Texas S.B. 785, 88th Leg., R.S. (2023), adding Tex. Nat. Res. Code § 141.004 (ownership of geothermal energy and associated resources), effective June 18, 2023. Senate Research Center bill analysis. [Online]. Available: <https://capitol.texas.gov/tlodocs/88R/analysis/html/SB00785S.htm>
- [57] BoyarMiller, "Are Geothermal Title Exceptions the New Norm in Real Estate Transactions?" Sept. 22, 2025. [Online]. Available: <https://www.boyarmiller.com/are-geothermal-title-exceptions-the-new-norm-in-real-estate-transactions/>
- [58] N.M. Stat. Ann. § 71-5-3, "Definitions" (Geothermal Resources Conservation Act). [Online]. Available: https://law.justia.com/codes/new-mexico/2006/nmrc/jd_71-5-3-1966b.html
- [59] N.M. Stat. Ann. § 71-5-11, "Equitable allocation of production spacing; pooling." [Online]. Available: https://law.justia.com/codes/new-mexico/2006/nmrc/jd_71-5-11-1967b.html
- [60] "Who Holds the Rights to Geothermal Heat Sources?" *Journal of Petroleum Technology*, Society of Petroleum Engineers, Aug. 7, 2023. [Online]. Available: <https://jpt.spe.org/who-holds-the-rights-to-geothermal-heat-sources>

