MINING OUR FUTURE CRITICAL MINERALS: DOES DARKNESS AWAIT US?

by Sam Kalen

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SUMMARY

We are told the transition to a zero-carbon economy will depend upon the United States’ ability to assure a sufficient supply of rare earths and minerals such as cobalt, nickel, or lithium. The Biden Administration is intent on promoting some new form of a critical mineral policy, and calls for reforming the 1872 Mining Law have persisted for well over one hundred years. This Article is designed to provoke a meaningful conversation about a critical minerals policy informed by our past. It cautions against a myopic focus on critical minerals, and suggests that moving forward demands reforming the 1872 law. That reform could incorporate streamlining efforts tethered to a modern public land planning process that mirrors the approval of renewable energy projects on public lands. Arresting climate change and ensuring an adequate supply of inputs to a new green economy necessitates sacrifices, but our treasured public land resources should not succumb to hasty decisions.

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We have become great in a material sense because of the lavish use of our resources, and we have just reason to be proud of our growth. But the time has come to inquire seriously what will happen when our forests are gone, when the coal, the iron, the oil, and the gas are exhausted, when the soils shall have been still further impoverished and washed into the streams, polluting the rivers, denuding the fields, and obstructing navigation. These questions do not relate only to the next century or to the next generation. One distinguishing characteristic of really civilized men is foresight; we have to, as a nation, exercise foresight for this nation in the future; and if we don’t exercise that foresight, dark will be the future!

—Theodore Roosevelt

The threat of climate change is so devastating that occasionally we seemingly accept that the end of arresting its threat justifies employing some troublesome means. We might conjure in our minds the poignant lectures by Harvard philosopher Michael Sandel on the nature of justice—his utilitarian dialogues on how best to assess whether to elevate the end or appreciate the significance of the means. If the earth’s growing population, barreling toward nine billion inhabitants, cannot unify and reduce carbon dioxide (CO₂) levels in the atmosphere and prevent global average temperatures from rising another 2 or potentially 4 degrees Celsius, the already devastating disruptions will only grow more dramatic. The world will confront an undoubtedly peerless end, one that seemingly warrants accepting that this propitious moment demands considerable sacrifice. Possibly employing troublesome means. But how far, and with what sacrifices?

With the transition toward a net-zero carbon economy, the demand for materials essential for that transition, and that also might be mined from public lands, is poised to present a challenge for public land managers. As the International Energy Agency (IEA) recently reported, the acceleration of the world’s deployment of wind, solar, and electric vehicles (EVs) could subject “these rapidly growing...
markets for key minerals” used in these industries to “price volatility, geopolitical influence and even disruptions to supply.” Indeed, when IEA announced its findings, the agency’s executive director warned that, if we leave unaddressed the threat to sufficient production of copper, lithium, nickel, cobalt, and rare earth elements, the transition toward a clean energy future might be “slower and more costly—and therefore hamper international efforts to tackle climate change.”

Conventional cars, for instance, might not require measurable amounts of graphite, manganese, nickel, cobalt, and lithium, while conversely they are essential—by today’s technology—for electric cars, and EVs require almost double the amount of copper. A similar pattern exists for the wind, solar, and nuclear industries when compared to the coal and natural gas industries. Computer chip shortages, for instance, reportedly have retarded new automobile manufacturing. And computer chips require critical minerals. Even the possible commercialization of carbon capture, utilization, and storage technology, where CO₂ is captured and stored in underground geological formations, may depend upon the cost and availability of critical minerals.

Depending upon the pace of the energy transition, IEA suggests we are on track for either doubling or quadrupling our “overall mineral requirements for clean energy technologies by 2040.” The World Bank projects that the demand for graphite, lithium, and cobalt might increase by up to 500% by 2050. The U.S. State Department goes even further, suggesting it might go up by 1,000% by then. But where these minerals will come from is problematic.

The country confronts a Hobson’s choice: engage with the geopolitical winds and continue to rely heavily on imports from countries or ramp up domestic production where and when feasible. The State Department warns that “[o]ver 80 percent of the global supply chain of rare earth elements, important minerals for electric vehicles and wind turbine components, is controlled by one country,” while similar constraints exist for other minerals. Presently, China, for instance, produces almost all of the world’s rare earths used in EV batteries (such as neodymium, terbium, and dysprosium).

More than 50% of the world’s production of cobalt, an essential ingredient in the batteries powering our growing reliance on EVs, is from the Democratic Republic of the Congo. The roughly 94 million tons of nickel reserves in the world occur primarily outside the United States, particularly in Indonesia, Australia, Brazil, Russia, Cuba, and the Philippines. Lithium too is primarily produced today in Australia and South America—currently in Chile (Bolivia has large deposits that are not being mined, as well). Cadmium telluride solar cells are the second most common photovoltaic technology, yet China, Korea, and Japan account for 64% of current cadmium production.

Although the United States possesses large deposits of lithium and rare earths, as well as copper—albeit Chile outproduces and enjoys larger deposits than the United States—a considerable amount of its rare earths or critical minerals are located in sensitive areas, particularly on

7. Id.
11. Id.
12. See id.
15. See Elsa Dominish et al., Institute for Sustainable Futures, Reconfiguring Critical Minerals Sourcing for Renewable Energy IV (2019). See also Wayne M. Morrison & Rachel Tang, Congressional Research Service, China’s Rare Earth Industry and Export Regime: Economic and Trade Implications for the United States (2012). While rare earths are not necessarily located primarily in China (production occurs in the United States, Myanmar, and Australia—with Lynas operating the Mt. Weld mine in Western Australia as the largest producer outside of China), China’s dominance led it to impose a troublesome tax and quota on exports, prompting a U.S. trade dispute before the World Trade Organization, ultimately resulting in the lifting of the export tax in 2015. See generally Yuzhou Shen et al., China’s Public Policies Toward Rare Earths, 1975-2018, 53 Min. Econ. 127 (2020), available at https://link.springer.com/article/10.1007% 2Fs13563-019-00214-2; Congressional Research Service, In Focus: Trade Dispute With China and Rare Earth Elements (2019); Tom Daly, China Hikes Half-Year Rare Earth Export Quotas to Record Level, Reuters, Feb. 19, 2021, https://www.reuters.com/article/us-china-rareearth/china-hikes-half-year-rare-earth-export-quotas-to-record-level-idUSKBN2AJ1BO.
public lands. And thus the choice: do we accede to the geopolitics of import reliance (I choose “reliance” over “dependence”) or embark on what might be called “mineral independence,” and develop the country’s resources under the mantra of doing so more responsibly than we have in the past?

This Article engages that question, offering insights into whether or how we ought to approach that trade-off. Rep. Mark Amodei (R-Nev.), for instance, would favor accelerating the permitting process for critical minerals. As one reporter commented, “[h]is bill comes as both major political parties look to enact their visions for mining reform in light of a potential supply crunch for minerals used to manufacture clean energy technologies.”

Others, notably U.S. House of Representatives Natural Resources Chair Rep. Raúl Grijalva (D-Ariz.), advocate for long-overdue reform of the Hardrock Mining Law, an 1872 law that allows for mining many critical minerals on open public lands without affording any monetary return to the United States. Those who favor mining law reform, including this author, shy away from promoting activities under the Mining Law until reform occurs. Either way, with attention shifting toward critical minerals necessary to support a transition to a zero-carbon economy, how this debate unfolds during our energy transition could inform or possibly affect that transition.

To engage this debate, Part I of the Article portrays how an appreciation for critical minerals has entered mainstream conversations, followed by a discussion in Part II of how the 1872 Mining Law often operates as the statutory regime for mining critical minerals on federal public lands. For present purposes, I employ the phrase critical minerals to embrace broadly the resources presently deployed in energy transition technologies, whether identified as rare earth elements or critical materials. This is not to suggest, however, that we should accept such a broad category or that all critical minerals ought to be treated similarly. This second part also describes the nation’s struggle to develop a meaningful national policy toward critical minerals, including reforming the anarchistic 1872 Mining Law.

Next, Part III suggests that mining law reform ought to be tethered to a thoughtful path forward for how to promote critical mineral production on public lands. My argument favors protecting our public lands from precipitous decisions and accepting that mining should occur only where and when appropriate, after deliberate planning: effective land management planning can identify lands suitable for mining and assist in streamlining the process for subsequent review of mining plans of operation. Planning should occur, however, only once the U.S. Congress reforms the 1872 Mining Law and abandons the 19th-century location system and, instead, establishes a leasing system for hard-rock and critical minerals. These changes could foster, for the first time, a meaningful and effective national critical minerals policy capable of assisting the market and technological changes presently indispensable for the transition to a green economy. Part IV, therefore, concludes that the time for change is upon us.

I. Critical Minerals Enter Center Stage

Dialogues surrounding critical minerals have intensified during the past decade. In 2015, when I testified before Congress on a proposed critical minerals bill, it seemed like the conversation had not yet engulfed conventional consideration. It remained divorced from the mainstream, for example housed in the 2013 creation of the Critical Materials Institute, led by Ames Laboratory as part of the U.S. Department of Energy (DOE). In 2017, Sen. Lisa Murkowski (R-Alaska) lamented how she felt like a “voice in the wilderness” when touting the need to address critical minerals.

That has now changed. The attention afforded mining critical minerals, the environmental concerns, and associated permitting processes, presents a paradox, one for instance where Senator Murkowski has questioned “whether the administration is willing to accept what is going to be necessary in order to achieve this goal to have these secure supply chains,” when it may “require approval of mining projects.” The chief executive officer for the

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Thacker Pass mine lamented how it took his project nine years to wind through the permitting process, for example. One mining industry report opines that it can take on average 10 years to permit a new mine, arguably costing a company millions.

In his first year, President Donald Trump issued Executive Order No. 13817, A Federal Strategy to Ensure Secure and Reliable Supplies of Critical Materials. Pursuant to that order, the U.S. Geological Survey (USGS), in May 2018, published a list of 35 mineral commodities it considered vital to the economic and national security interests of the United States—for instance, materials whose supply is mostly dependent on imports. President Trump then followed his initial Executive Order with yet another directive, Executive Order No. 13953 issued in September 2020. He observed how the 35 critical minerals “are necessary inputs for the products of our military, national infrastructure, and economy,” and while they are “indispensable to our country, we presently lack the capacity to produce them in processed form in the quantities we need.” In fact, “American producers depend on foreign countries to supply and process them”—with more than 50% of 31 of those materials being imported annually and with 14 of the materials not even being domestically produced.

President Trump singled out how the United States now imports 80% of its rare earth elements, such as barite, graphite, and gallium from China, while in the 1980s, the United States had been the major supplier for those minerals. China’s production of lithium, moreover, has become an environmental and international human rights issue. He then used his ostensible emergency powers to declare that this supply chain risk poses a national emergency and that the United States ought to “enhance its mining and producing capacity,” even, he added, “for minerals not identified as critical and not included within” his national emergency order. And in the waning days of the Trump Administration, Congress directed that the USGS review and, if necessary, revise its methodology and list of critical minerals at least every five years.

Indeed, DOE under President Trump concluded that “[p]ermitting is a large barrier to increasing production from primary sources. The complex regulatory landscape often leads to lengthy permitting timelines.” This ostensible permitting hurdle purportedly justified the Trump Administration adding non-energy minerals to the list of projects capable of being “fast tracked” under the Fixing America’s Surface Transportation (FAST) Act, administered by the Federal Permitting Improvement Steering Council (FPISC); and it precipitated a parade of congressional proposals to facilitate the production of critical minerals.

In early 2021, as the mantle passed to President Joe Biden, he issued an Executive Order on reviewing domestic supply chain risks, including for rare earths and materials such as lithium used in large-capacity batteries for electric motors and generators. His Executive Order employed the same definition of “critical materials” used by President Trump in Executive Order No. 13953. Six months later, the Administration released its corresponding report Building Resilient Supply Chains, Revitalizing American Manufacturing, and Fostering Broad-Based Growth.

The report highlights the United States’ growing demand for several minerals, such as lithium, graphite, nickel, copper, and cobalt, all presumably integral in either the development of batteries for the next generation of zero emission vehicles or for our economic stability and growth. It observed how the “United States has limited raw material production capacity and virtually no processing capacity” for the lithium-based battery supply chain. Although there are lithium deposits and some extraction here in the United States, most of the processing and other raw materials necessary for lithium-ion batteries occurs overseas.

The report noted how trade policies might, as with the recent trade skirmishes with China involving the solar energy and energy security issues.
industry, impact clean energy programs. It further recommended that the United States increase production of these minerals, albeit touting the need for stronger environmental controls (including strengthening agency regulations), a comprehensive sustainability standard, and consultation programs with affected stakeholders, particularly Tribal Nations. The latter is elemental and potentially determinative, as many energy transition materials, such as nickel, lithium, cobalt, and copper, are located near Native American reservations and traditional cultural properties.

II. A New Mining Era?

Traditional mining projects often evoke vocal opposition. Pebble Mine in Alaska, which would have threatened an iconic wild sockeye salmon run in Bristol Bay, is all but moribund. Both the Rosemont and Resolution Copper mines in Arizona have received considerable notoriety— and little suggests the former is likely to secure sufficient authority to proceed anytime soon, while the latter required congressional involvement. So with uranium mining near the Grand Canyon; a road project across the iconic Gates of the Arctic National Park and Preserve that would tap copper deposits in the Brooks Range; a gold mine in the Mojave Desert that could threaten cultural sites and other resources; or mining the copper and nickel prospects near the Boundary Waters Canoe Area Wilderness. Not surprisingly, therefore, companies like Battery Mineral Resources, that explore for and develop cobalt, lithium, and graphite here in the United States and elsewhere, including on public lands, occasionally encounter resistance when they propose mining plans on public lands.

One of the largest lithium projects in the United States is Thacker Pass in Humboldt County, Nevada, an open pit mine covering about 5,700 acres of public lands (the entire project is 17,933 acres), and its footprint undoubtedly will impact the landscape, water resources, and golden eagles, as well as any resources contaminated by the disposal of the resulting sulfuric acid waste. The Bureau of Land Management (BLM) proudly touted the project as one that would “provide a long term solution for the growing need for lithium while providing economic benefits for Humboldt County.”

59. Press Release, supra note 58.
Opponents of the mine counter how the mine’s impact and the environmental statutes were “swept under the rug” by BLM when it approved the project.60 Similarly, another lithium mine in Nevada precipitated an inquiry into the likely impact on a rare wildflower that some believe should be protected under the Endangered Species Act (ESA).61 And *High Country News* presciently observed how these types of mines reflect “a new era of Western extraction.”62

With Western extraction, though, comes public land challenges. Critical minerals are often locatable minerals on public lands occurred under the 1872 Mining Law. After all, as of 2018, roughly 83% of solid mineral mining on public lands occurred under the 1872 Mining Law.63 This now anachronistic law affords the location of a valid mining claim.71


### 63. Report of the Public Lands Commission, Created by the Act of March 3, 1879, Relating to the Public Lands in the Western Por -


66. Perhaps, one of the most noted public land law historians, Samuel P. Hayes succinctly observed that “[f]ederal policies encouraged rapid exploitation of [public] resources by encouraging land to pass easily from federal ownership into private hands,” adding that lax enforcement of these laws and the ability of claimants to file false affidavits allowed for even more ready acquisition of valuable minerals under the *Mining Law of 1872*. See John D. Leshy, A History of Public Land Policy (1965); Morton Keller, Affairs of State: Public Life in Late Nineteenth Century America 384-94 (1977).


### 66. An Act to Amend “An Act Granting the Right of Way to Ditch and Canal Owners Over the Public Lands, and for Other Purposes,” 16 Stat. 217 (1870); An Act to Promote the Development of the Mining Resources of the United States, 17 Stat. 91 (1872).


Location consists of performing the requisite acts justifying granting a right of exclusive possession vested in the locator.\textsuperscript{72} To perfect a location, “a claimant must comply with the requirements of the General Mining Law, other applicable Federal laws, and applicable state laws.”\textsuperscript{73} Once a miner establishes a valid claim, they enjoy certain exclusive possessory rights.\textsuperscript{74}

But two cardinal rules persist: mining claims can only be located on open public lands, BLM and U.S. Forest Service lands not otherwise withdrawn, and the Act only applies to valuable mineral deposits—lands containing locatable minerals that a prudent person would develop because the minerals can be mined and marketed at a profit.\textsuperscript{75} Locatable minerals generally include not only metallic minerals, such as gold, silver, and lead, but also nonmetallic minerals, such as certain forms of limestone, bentonite, fluor spar, block pumice, and asbestos.\textsuperscript{76} And while a pernicious aspect of the 1872 Mining Law remains generally undisturbed, Congress effectively halted the patenting process.\textsuperscript{77}

The 1872 Mining Law stands alone in its vigil, starkly isolated from the nation’s other federal resource programs. From 1917 on, Forest System lands acquired by the United States have been leased rather than subject to federal ownership and that fossil fuels, such as oil, gas, oil shale, phosphates, sodium, sulfates, chlorides, carbonates, borates, bitumen, silicates, and coal, would be leased at fair market value.\textsuperscript{78} Congress through the MLA sought to prevent the “development of monopolies, to discourage holding mineral rights without development for speculative purposes, and to provide a return to the U.S. Treasury for the exploitation of public resources.”\textsuperscript{79}

Seven years later, as John Leshy notes, Congress required that minerals from public lands conveyed to states could only be leased by states to aid the “common or public schools,” or risk forfeiture back to the United States.\textsuperscript{80} The 1978 Outer Continental Shelf Lands Act Amendments too continued the MLA’s program of leasing oil and gas in offshore public lands,\textsuperscript{81} and today the offshore program includes almost 1.8 million acres of leased lands for renewable energy development.\textsuperscript{82} The Materials Act of 1947, amended by the 1955 Multiple Surface Use Act, opted for allowing the sale to the highest bidder of mineral resources (not the underlying lands), such as vegetative materials, and gravel, stone, clay, or common varieties of pumice, pumicite, and cinders.\textsuperscript{83}

The 1947 Mineral Leasing Act for Acquired Lands applied a leasing program to resources that otherwise would have been locatable minerals, if the lands passed into federal ownership by acquisition or receipt.\textsuperscript{84} BLM similarly enjoys the authority to administer geothermal leasing on 245 million acres of federal property.\textsuperscript{85} And it can offer right-of-way leases at fair market value for onshore renewables as well, such as for wind and solar development on public lands.\textsuperscript{86} Helium, a critical mineral not only employed in modern technological economy,\textsuperscript{87} but one that experi-

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\textsuperscript{72} American Colloid Co., 128 BLA 257, 263 (1994) (Mullen, J., concurring).

\textsuperscript{73} Id. Since 1976, the Federal Land Policy and Management Act added additional filing requirements. 43 U.S.C. §1744(a), (b); see also United States v. Locke, 471 U.S. 84 (1985) (risking forfeiture).

\textsuperscript{74} See Hafen, 30 Fed. Cl. at 473.

\textsuperscript{75} United States v. Coleman, 390 U.S. 599 (1968); see also Layman v. Ellis, 52 L.D. 714 (1929) (early articulation that the deposit must be profitable); Ferrell v. Hoge, 29 L.D. 12, 13 (1899) (“That non-mineral land cannot be disposed of under the mining laws is a cardinal rule in the administration of the public land laws.”); Castle v. Wimble, 19 L.D. 455 (1894) (enough gold to justify further development).

\textsuperscript{76} Prior to the 1920 Mineral Leasing Act, the Placer Act of 1897 allowed locating oil shale claims. 29 Stat. 526 (1897) (petroleum and other mineral oils). The 1897 Act obviated DOI’s decision to the contrary in Union Oil Co., 23 L.D. 223 (1896). Pre-1920 claims survived if a claimant satisfied the Mining Law requirements. See Andrus v. Shell Oil Co., 446 U.S. 657, 10 ELR 20457 (1980).


\textsuperscript{80} JAMES RASBAND ET AL., NATURAL RESOURCES LAW AND POLICY 1187 (3d ed. 2016).

\textsuperscript{81} Leshy, supra note 67, at 38; see Pub. L. No. 570, 44 Stat. 1026-27 (1927).

\textsuperscript{82} 43 U.S.C. §§1331-1356b. While the Trump Administration DOI suggested it likely must promulgate a leasing program under the Act, Solicitor’s Opinion M-57062, Secretarial Discretion in Promulgating a National Outer Continental Shelf Oil and Gas Leasing Program (Jan. 13, 2021), that interpretation was withdrawn only a few months later during the early days of the Biden Administration. Solicitor’s Opinion M-37068, Withdrawal of M-37062 (Apr. 16, 2021). Outer Continental Shelf (OCS) marine minerals, including some critical or strategic minerals, are managed under the Outer Continental Shelf Lands Act as well. 30 C.F.R. pt. 581 (2020); see Bureau of Ocean Energy Management, U.S. DOI, Competitive Leasing of OCS Marine Minerals, https://www.boem.gov/Leasing-C-Marine-Minerals (last visited Oct. 8, 2021).


\textsuperscript{88} Helium is mined as a byproduct of natural gas extraction. See generally Michael Andre, Yes, There Is A Helium Shortage, and It Will Affect More Than Just Balloons, ZME Sci., Jan. 22, 2021, https://www.zmescience.com/other/feature-post/helium-shortage-geology-feature-08082020 (discussing its uses and processes). Wyoming currently produces the largest share of helium in the United States at ExxonMobil’s LeBarge field. For an excellent summary of helium, its uses, and challenges, see Amy E. Seneshen & David M.
enced a shortage between 2018 and 2020,\textsuperscript{89} is treated similarly to natural gas and leased on public lands.\textsuperscript{90} The norm, consequently, is ensuring a fair return to the public fisc, not free exploitation.

B. The Elusiveness of Policy Coherence

When, therefore, we consider unleashing the nation’s potential for producing critical minerals, every administration at least since President Franklin D. Roosevelt has confronted the dilemma of how to address some aspect of developing a coherent national approach toward resource utilization.\textsuperscript{91} Historian John G. Clark observes how, prior to World War II, the Natural Resources Committee arguably examined resources policy, but its recommendations failed to garner enough political appeal.\textsuperscript{92} To be sure, energy-related resources often overshadowed non-energy-related resources. For instance, in 1934, FDR established the National Power Policy Committee, tasked with developing a unified national power policy. That was followed by President Harry Truman’s National Security Resources Board in 1947, the same year Congress passed the Materials Act of 1947.\textsuperscript{93}


By 1970, Congress codified a fundamental shift in policy toward the nation’s resources. In 1964, it not only had established the Public Land Law Review Commission, but also declared that its policy toward public lands would be to retain and manage those lands and only dispose of them to the extent it would “provide the maximum benefit for the general public.”\textsuperscript{96} Congress established a national “materials policy” in 1970, passing the National Materials Policy Act of 1970, where it evinced its intent to “enhance environmental quality and conserve materials.”\textsuperscript{97}

The Act responded to a 1969 report by the Legislative Reference Service (LRS), Toward a National Materials Policy, with the LRS addressing the necessity of ensuring “an adequate supply of all types of materials needed in appropriate balance for our production requirements.”

Discussions surrounding a national mineral policy became more pronounced in the early 1950s, with the release of a report by the Materials Policy Commission (known as the Paley Commission). The 1952 Paley Commission report recommended a comprehensive minerals-fuels policy as well as a more modern approach toward nonfuels policy.\textsuperscript{98} which was followed by President Dwight D. Eisenhower’s Cabinet Committee on Energy Supplies and Resources Policy, with the U.S. Departments of Defense, Interior (DOI), Commerce, Labor, State, Treasury, and Justice. Congress too was beginning to soften its approach toward resource development, when in the 1954 Multiple Mineral Development Act it fostered the principle of multiple use.\textsuperscript{95}

In 1963, while President John F. Kennedy was establishing his Interdepartmental Energy Study Group, DOI Secretary Stewart Udall was warning of a quiet crisis in conservation.\textsuperscript{96} And it was in that year when Resources for the Future presciently observed that the United States could not expect to continue to depend upon nonfuel resources “from domestic sources beyond a relatively brief time, if at all,” and that for all but a few metals the country would likely need access to resources beyond its borders—and back then, the report examined more traditional nonfuel resources.\textsuperscript{97}


The President’s Materials Policy Commission, Resources for Freedom: A Report to the President by the President’s Materials Policy Commission (1952).

Litigation surrounding the 1972 lease, 86 Stat. 708 (1954). For a discussion of the contemporary conflicts between leasing and the 1872 Act, as well as the early iterations of multiple mineral development, see Gates, supra note 69, at 750-55.


including the development of “new materials with novel properties to satisfy the more stringent demands of advanced technologies.”\(^{100}\) And in 1970, the Public Land Law Review Commission observed that “our survival as a leading nation depends on our mineral supplies. The close relation between minerals and our national security is too apparent to require detailed explanation.”\(^{101}\) This supported a policy designed to enlist our public lands in the march toward “encourag[ing] the exploration, development, and production of minerals.”\(^{102}\)

Yet in 1980, Congress observed that the nation still “lacks a coherent national materials policy and a coordinated program to assure the availability of materials critical for national economic well-being, national defense, and industrial production.”\(^{103}\) Congress sought to promote an “economically sound and stable domestic materials industry” that included minerals, metal, and mineral recycling.\(^{104}\) Sen. Wendell Ford (D-Ky.), then chair of the U.S. Senate Subcommittee on Energy Resources and Materials Production, explained how the lack of any nonfuel mineral policy, as demonstrated by the Paley Commission in the wake of the 1950s shortages and supply interruptions during the Korean War, was creating once again a problem as a consequence of contemporary Russian and Cuban activities in Africa—potentially threatening supplies of cobalt, manganese, chromium, and platinum.\(^{105}\)

The National Materials and Mineral Policy, Research, and Development Act of 1980, therefore, declared it would be “the continuing policy of the United States to promote an adequate and stable supply of materials necessary to maintain national security, economic well-being and industrial production with appropriate attention to the long-term balance between resource production, energy use, a healthy environment, natural resources conservation, and social needs.”\(^{106}\)

But the 1980 Act failed to promote a national policy, and congressional inquiry into critical minerals continued almost immediately afterward.\(^{107}\) William Perry Pendley, who later would become a controversial figure during the Trump Administration, testified about the urgency of addressing the country’s vulnerability for critical minerals and about his involvement in numerous efforts to develop a national minerals policy, including during President Ronald Reagan’s 1980 campaign and on an advisory panel on national minerals policy—culminating in a 1982 minerals policy announcement.\(^{108}\)

In 1984, Congress noted how its “concern for critical minerals goes back many years,” when, for instance, the 1970s oil embargo alerted policymakers to vulnerabilities for “critical materials such as cobalt, chromium, or manganese.”\(^{109}\) And added that the “importance of strategic materials to the economy and to the national security of this Nation has been acknowledged but, unfortunately, largely ignored for many years.”\(^{110}\) Congress succeeded in passing the National Critical Materials Act of 1984, recognizing that the “availability of adequate supplies of strategic and critical industrial minerals and materials” is essential for our economic and national security, important for avoiding dependency upon imports, and establishing a National Critical Materials Council and critical materials reserves, as well as bolstering research and development efforts.\(^{111}\)

The new council would coordinate critical minerals policies and research, alert the public and Congress to any issues and concerns, and work on technological advancements with the public and private sectors.\(^{112}\) But only a year later, the Hill lamented that the Act was not being implemented, that “our mining and basic materials industries” were in “ruinous decline,” and that problems in South

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105. Id. at 10.


111. Id. at 2.


113. Id. §§202, 204, 98 Stat. at 1249, 1250.
Africa were “underscor[ing] our import vulnerability for critical materials.”

### C. Mining Law Reform Proposals

Abuses of the 1872 Mining Law have long since engendered conversations about reforming what Charles Wilkinson aptly dubs a “lord of yesterday.”114 Lands not necessarily suitable for mining have passed into private ownership with little scrutiny. For roughly the Act’s first 50 or so years, companies employed techniques such as using dummy locators to obtain the rights to mineral lands in excess of the acreage allowed under the 1872 Mining Law. One notorious scheme involved Ralph Henry Cameron’s attempt to capitalize on tourism in the Grand Canyon by securing alleged control through the Mining Law,115 and another early 19th-century case involved an attempt to operate a saloon on a mining claim.116

While today the Federal Land Policy and Management Act (FLPMA),117 the 1897 Forest Service Organic Administration Act and subsequent Forest Service statutes,118 the Mining Claim Occupancy Act,119 and the Surface Resources Act of 1955120 all furnish ample authority to protect against both abuses and ecological harms associated with mining,121 historic mining operations continue

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113. Hearing on the Materials Act of 1984, supra note 109, at 2. Creating a separate council apart from the White House Office of Science and Technology Policy (OSTP) apparently proved problematic. Id. at 5 (testimony of deputy director of OSTP). That office, after all, released a report in May 1985, Strategic Materials: Technologies to Reduce U.S. Import Vulnerability (1985). The 1985 report addressed how South Africa, Zaire, and Russia were producing more than 50% of the world’s supply of chromium, cobalt, manganese, and platinum group metals, with little domestic production. Id. at 3, 5. It recommended promoting production in other countries to diversify the supply and reduce vulnerabilities, decreasing demand by improving manufacturing processes and enhancing recycling, and developing alternatives to the existing critical minerals. Id.


122. See infra note 148 and accompanying text.

123. See Western Watersheds Project v. U.S. Dep’t of the Interior, No. 21-cv-0013 (D. Nev. filed Feb. 26, 2021) (Thacker Pass); Center for Biological Diversity v. U.S. Fish & Wildlife Serv., 409 F. Supp. 3d 738, 48 ELR 20130 (D. Ariz. 2019) (Rosemont), appeal pending. BLM’s practice, problematic at times, presumes the validity of mining claims. William J. Perry, U.S. Dep’t of the Interior, 496 F. Supp. 3d 472, 50 ELR 20243 (D.D.C. 2020). A questionable practice, however, should not sanction agency decision-making when it is contrary to the modern policy of retaining and protecting public lands. This is not to discount BLM’s discretion in deciding whether to contest a claim’s validity, see Best v. Humboldt Placer Mining Co., 371 U.S. 334 (1963), but a woefully outmoded practice (which became evident and problematic during the Bruce Babbitt Administration prior to the annual moratorium on patenting) ought to be discontinued. Notably, the Forest Service in some instances has ensured that, when a company engages in mining an uncommon variety (i.e., a locatable) mineral it does not commensurately mine and sell a common variety (leasable) mineral. Copar Pumice Co. v. Tidwell, 603 F.3d 780, 40 ELR 20127 (10th Cir. 2010). And while it arguably did so poorly, the Forest Service examined the validity of mining claims when lands around the Grand Canyon were withdrawn from mining subject to “valid existing rights.” Havasupai Tribe v. Proveno, 906 F.3d 1155, 48 ELR 20182 (9th Cir. 2018).


125. REPORT OF THE PUBLIC LANDS COMMISSION, supra note 63, at xxxv. See id. at xxxvi (“If the capitalists of London and New York, Chicago and San Francisco, had anything to do with mine locations, they would clamor for a Relaxation.”). For a history of this commission (and others) and how John Wesley Powell’s involvement might have impacted Congress’ reaction to the report, see Mark B. Lambert, Public Land Commissions: Historical Lessons and Future Considerations (2003) (M.S. thesis, University of Montana).

126. Leshy, supra note 67, at 501.
dation of the 1960s Public Land Law Review Commission.\textsuperscript{127} In its 1970 report, One Third of the Nation’s Land, it observed how “[t]he General Mining Law of 1872 has been abused, but even without that abuse, it has many deficiencies,” and recommended a combination of elements of the leasing system and ensuring a fair return to the United States.\textsuperscript{128} When digesting the Commission’s work, the New York Times reported how “all mineral interests known to be of value should be reserved with exploration and development discretionary in the Federal government and a uniform policy adopted relative to all reserved mineral interests.”\textsuperscript{129} Reform conversations continued throughout the 1970s;\textsuperscript{130} the U.S. Government Accountability Office (GAO), for example, carried forward a recommendation for reform in 1979,\textsuperscript{131} to name just one.

The nation’s premier mining law expert, John Leshy, forcefully explained in 1987 how the law has remained in perpetual motion for decades, evading reform and yet universally acknowledged to be ill-suited to modern times.\textsuperscript{132} He, for instance, describes the history of considering critical minerals legislation in the 1980s as demonstrating a “continuing concern” for how strategic minerals were beginning to assume center stage in mining law reform debates—albeit with little substantive progress or consensus on how best to proceed.\textsuperscript{133} Mining law historian Gordon Bakken further chronicles some of the reform battles, noting how even a 1989 GAO report echoed the propriety of reforming the law.\textsuperscript{134} While accepting the need to protect legitimate mining operations, Wilkinson commented in 1992 that “any fair reform of the 1872 law is bottomed on the idea that too much of the old law has been twisted by nonminers and opportunists.”\textsuperscript{135}

Sen. Dale Bumpers (D-Ark.) observed how President Ulysses S. Grant would “turn over in his grave if he knew what had become of the mining law,” and that the law “is probably the biggest single scam that continues in effect in American today” as the senator tirelessly sought to “modify or repeal” it.\textsuperscript{136} Even Clinton Administration Interior Secretary Bruce Babbitt could not move the reform needle enough when he staged an elaborate ceremony giving away potentially $10 billion of the public’s resources for $10,000—using a pen from President Grant’s era to underscore the weighty age of the old law.\textsuperscript{137}

Perhaps, President Barack Obama Interior Secretary Ken Salazar, however, best captures the hurdle when he said that the Mining Law

has been on the books now for 137 years. Despite decade after decade of fights about how it is that we should reform the Mining Law all of those efforts have failed. Many a Senator and Congressman who has sat in these Committees has tried to make those changes. Yet getting across the finish line has proven to be very, very elusive.\textsuperscript{138}

This implosion too failed throughout the President Obama years.

Today’s discussions about critical minerals might serve as a propitious moment to examine this roughly sesquicentenarian law once again. The Biden Administration already has begun to review how best to approach oil, gas, and coal development on public lands. Soon after taking office, the Administration initiated a pause on oil and gas leasing until it could ensure that leasing was consistent with modern environmental requirements and sufficiently accounted for the climate change impacts associated with continuing to develop even more fossil fuel resources.\textsuperscript{139} During the presidential campaign, reformers, such as Sen. Elizabeth Warren (D-Mass.), recommended that we just ban all mining on public lands—albeit with an exception for critical minerals.\textsuperscript{140}

Unsurprisingly, therefore, mining law reform has become inextricably linked with today’s conversations about facilitating critical mineral production. “For Democrats, who control both chambers of Congress” as well as the White House, this “heightened focus on minerals like lithium, cobalt and copper, means the time is right to completely overhaul the nation’s foundational hardrock min-

\textsuperscript{127} For a summary of the Commission’s effort and responses, see id. at 302-03.
\textsuperscript{128} Public Land Law Review Commission, supra note 101, at 124-29.
\textsuperscript{130} Leshy, supra note 67, at 304-05.
\textsuperscript{131} GAO, Mining Law Reform and Balanced Resource Management (1970) (EMD-78-93).
\textsuperscript{132} Leshy, supra note 67.
\textsuperscript{133} Id. at 308-09; see also id. at 345-46.
\textsuperscript{134} See Bakken, supra note 67, at 106-15, 126-87.
\textsuperscript{135} Wilkinson, supra note 114, at 74.
\textsuperscript{137} Tom Kenworthy, A $1 Billion Return for $275, Wash. Post, Sept. 7, 1995, at A17. To be sure, Congress has since then imposed an annual moratorium on new patents, however. See supra note 77 and accompanying text.
ing law,” reports E&E journalist James Marshall. House Natural Resources Chairman Grijalva appears committed to modernizing the Act. In April 2021, he, along with others, wrote the Administration and encouraged that it adopt stricter regulations and to more meaningfully consult with Tribal Nations and indigenous peoples. He undoubtedly, therefore, will once again promote mining law reform mirroring what he attempted in 2019.

Earthworks, for instance, identifies seven commonly accepted elements for successful mining law reform, as reflected in the congressman’s earlier proposal. At the outset, activities under the 1872 law ought to follow the pattern of other programs and be governed by a leasing and royalty program, with the United States and the public receiving a fair return off the value of the resource. Next, mining should occur only if Tribal Nations and indigenous peoples have a sufficient voice in whether, where, and when it can occur. Third, sensitive areas, whether because of their status, importance to Tribal Nations or indigenous peoples, or ecological value, ought to be protected. In 2008, Sen. Jeff Bingaman (D-N.M.) lamented that approximately 13,000 mining claims were in what he referred to as “treasured places.” This is epitomized today with the fight to save the Oak Flat area of the Tonto National Forest from Resolution Copper’s proposed mining operations.

Fourth, where mining is allowed to occur, operations must follow stringent enough environmental standards to protect against groundwater contamination, ensure adequate disposal of mine wastes, avoid unnecessary surface disturbance, and ensure compliance with sufficient reclamation requirements. The Associated Press, in 2019, reported that “[e]very day many millions of gallons of water loaded with arsenic, lead and other toxic metals flow from some of the most contaminated mining sites in the U.S. and into surrounding streams and ponds without being treated.” That year, Sen. Michael Bennet (D-Colo.) introduced a mining law reform bill and commented how the Gold King spill ought to serve as a visible reminder of the continuing difficulty with the 1872 Mining Law.

The final three elements are developing a better enforcement program, strengthening bonding and financial assurance requirements, and establishing an abandoned mine reclamation fund capable of providing resources to clean up and restore the more than 500,000 abandoned hard-rock mines. The latter is necessary because, “[u]nlike the coal industry, the metal mining industry does not pay to clean up its legacy of abandoned mines.”

III. Moving Forward With Purpose

Enter a dilemma. Profs. J.B. Ruhl and James Salzman capture it quite cogently when they observe how the necessity of swiftly employing a Green New Deal, where we shift away from fossil fuels quickly, might demand examining whether our environmental law standards and procedures unnecessarily retard needed infrastructure change. Indeed, they reflect the growing consensus that “decisive action must be taken, and now, to design New Green Laws for the Green New Deal.” The disastrous summer of 2021, after all, serves as “yet another portent of what humanity faces in coming decades if the world does not take dramatic steps to protect ecosystems and curb use of fossil fuels,” scientists warned, according to the Washington Post.

Should, therefore, those who favor curbing mining on public lands share Senator Warren’s caveat for critical minerals? This could mean acknowledging some “trade-off[s]...
between short-term and long-term environmental protection goals embodied in laws such as the National Environmental Policy Act (NEPA). Do we tinker, amend, or dramatically alter the NEPA process to ensure that critical minerals are produced not only here in the United States, but also quickly enough to satisfy the growing demand?

NEPA serves as the nation’s environmental Magna Carta. Briefly, Title 1 declares a national environmental policy and establishes goals. It requires that all policies, regulations, and laws of the United States be interpreted and administered in accordance with the policies of the Act, and separately that agencies are required to “identify and develop methods and procedures” for ensuring that “presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations.” The statute further contains what have since become its foci, the “action-forcing” mechanism, requiring the preparation of a “detailed statement,” now referred to as an environmental impact statement (EIS), for any “proposals for legislation” or “other major federal actions significantly affecting the quality of the human environment.”

Notably, mining companies and congressional reformers often target NEPA in their reform proposals, floating the objective of streamlining environmental reviews for critical mineral production plans involving activities on public lands or that otherwise require a federal authorization or approval. The Trump Administration Commerce Department offered recommendations for “streamlining the permitting and review processes related to developing mining claims or leases and enhancing access to domestic critical mineral resources.” Rep. Michael Waltz’s (R-Fla.) proposed American Critical Mineral Independence Act of 2021 ostensibly seeks to protect the U.S. demand for critical minerals from China’s dominance. It would announce a sense of Congress that “the current Federal permitting process is an impediment to mineral production and the mineral security of the United States.” And it would promote early and broad collaboration and require the establishment and adherence to a permitting time line.

For NEPA, that timetable would direct, unless otherwise agreed to by a project sponsor, that an agency must complete its review of a project proposal within 6 months. NEPA compliance, moreover, could be avoided if the principal federal agency concludes that another state or federal agency already has addressed the NEPA §102 requirements. Congressman Amodei’s broader National Strategic and Critical Minerals Production Act of 2021 follows a similar pattern, although he would embrace an unbridled definition for critical minerals. Senator Murkowski’s Strategic Energy and Minerals Initiative Act of 2021 focuses instead on promoting financing reform for critical mineral development, while directing that the federal government implement the Commerce Department’s streamlining recommendations. None of these proposals, however, endorse Representative Grijalva’s objective of marrying mining law reform to any discussion of streamlining environmental review for critical minerals.

A. Paths and Cautionary Potholes

As such, four paths forward present themselves. First, we could maintain the status quo, an outcome seemingly untenable or at least foolhardy. The need for mining law reform has been evident for decades; and undoubtedly the nation and the green economy needs, at least presently, some critical minerals. Or, second, we could simply accept the emphasis on merely making environmental reviews more efficient and faster for critical minerals. Third, we could abjure touting critical minerals entirely and simply engage in the Sisyphean task of mining law reform. Fourth and finally, we could commend Representative Grijalva’s apparent notion of securing mining law reform by accepting some measure of environmental streamlining for critical minerals.

155. Id. §4332.
156. Id. §4332(b).
159. Id. One provision would require that the principal federal agency must “consider deferring to, and relying on, baseline data, analyses, and reviews performed by State agencies with jurisdiction over the proposed critical mineral project”—arguably providing mining friendly states greater ability to influence the process.
160. Id. 161. Id. Other aspects of the bill would affect NEPA compliance as well, such as limiting an agency’s consideration of issues raised during the commenting process. This Article, though, does not summarize all aspects of this or other proposals. Critical mineral discussions, after all, even surfaced as part of the COVID-19 stimulus proposals. See James Marshall, GOP Lawmakers Plead for Minerals Bill in Stimulus, ExE News, Aug. 6, 2020, https://subscriber.politico.com/article/enews/2020/08/06/gop-lawmakers-plead-for-minerals-bill-in-stimulus-012270.
Yet, before we can meaningfully assess the appropriate path, a few fundamental cautionary notes. The arguably prevalent assumption is that today’s critical minerals—lithium, cobalt, nickel, copper, and rare earths, to name just a few—will remain “critical” over the next several years to such a degree that it is worth possibly degrading potentially sensitive landscapes and our public lands. That assumption is then coupled with a fear that geopolitical circumstances warrant U.S. independence of critical minerals from foreign sources.

History teaches us that we should be tepid about acceding too quickly to either that assumption or fear. After all, today’s critical minerals employed in EV batteries eventually might be replaced.166 We, moreover, could diminish demand for new production by developing more effective recycling programs designed to augment our needed mineral supply.167 Or we could recognize how processing capacity, not production capacity, often 

We, moreover, could diminish demand for new production by developing more effective recycling programs designed to augment our needed mineral supply.167 Or we could recognize how processing capacity, not production capacity, often chokes U.S. supply: a California rare earth mine arguably has abundant resources, but its product must be shipped to China for processing.168

Also, the nation’s history in solving the country’s energy woes over roughly the past century cautions against tying our needed mineral supply.167 Or we could recognize how processing capacity, not production capacity, often chokes U.S. supply: a California rare earth mine arguably has abundant resources, but its product must be shipped to China for processing.168

For instance, potash became essential in the manufacturing of explosives during World War I, Congress passed the Potash Leasing Act, which then was superseded by 1927 amendments to the MLA, and so today we have separate provisions for potash and associated minerals in the MLA.170 The same is true today with helium.171 If anything, the history of our responses to contemporary energy issues is illustrative. Hydroelectric generation during the 1940s and 1950s, for instance, was considered a potential dominant resource—only to be shied away from as the environmental movement gained traction in the 1960s and 1970s.172 Then, nuclear energy arrived on the scene, only to be marred shortly thereafter by untimely accidents and escalating costs.173 Politics and ill-advised programs marred our mandatory oil import program from the post-World War II era through the next several decades, all contributing to an eventual crisis that, when joined with ill-advised decisions involving natural gas production and associated regulation, led to an (arguably incoherent) energy policy in the 1970s. That policy, while accepting the importance of renewables, promoted coal utilization and production—ultimately western coal development on the nation’s public lands.174

The architects of the 1970s energy programs, as the mantra of achieving energy independence catapulted to center stage, understood the ramifications, including some of them to climate change, that could unfold with greater reliance on coal. To be sure, they anticipated the U.S. Environmental Protection Agency would, at least, regulate sufficiently to avert adverse health effects from, for instance,
sulfur standards. They, of course, were too optimistic; and they miscalculated how the future would unfold.177 Technology, markets, and a changing society all contributed to changes that our laws could not keep pace with—and that today still linger and present problems.176

These past reactions counsel that, when examining today how or whether to promote critical mineral production and embrace streamlining or mining law reform, the nation act deliberately—appreciating the existential threat of climate change but not unwisely compromising the future of our treasured public land resources. Perhaps uranium mining on public lands in Wyoming can be tolerated, while such mining near a crown jewel, the Grand Canyon, is too inimical.177 So too lithium mining in the Salton Sea may be less likely to engender widespread concern,178 while such mining at Thacker Pass near the Nevada/Oregon border seems problematic.179

And what about the fluid nature of what minerals are critical. Is uranium a critical mineral? DOI recently signaled perhaps not, while the same administration floated developing a uranium reserve—arguably without sufficient analysis of the concept of developing stockpiles.180

Lithium, seemingly a poster child for critical minerals, is widely touted for its function in EV batteries. And yet, as one source notes, “while lithium has long been touted as the future of advanced batteries, the technology’s limitations and accidents at lithium facilities have encouraged manufacturers to consider alternatives to power the battery revolution.”181 Battery manufacturers, consequently, are pursuing an array of technologies that would render lithium less necessary in the net-zero carbon economy—and while we cannot predict which one will emerge as dominant, we can be assured that lithium will soon become less critical.182

Five points, therefore, ought to drive discussions designed to facilitate greater U.S. production of critical minerals. First, the phrase “critical minerals” is overly capacious. Gold might oddly make someone’s list of critical minerals, and yet today it is primarily used for jewelry.183 Also, lumping all minerals together for similar treatment seems sloppy. Processing capacity, not resource availability, affects U.S. lithium availability. Here, we might take a page from the past: during the 1970s, GAO recommended that policy ought to reflect the unique markets for specific minerals.184 That seems even more sensible today, given the fast pace of technological change and our almost myopic treatment of Energy Uranium Reserve Program, 86 Fed. Reg. 44007 (Aug. 11, 2021).


focus on production rather than processing capacity and recycling opportunities.

Second, we ought to avoid fashioning today’s federal programs on the assumption that geopolitical considerations dictate that we unwisely risk threatening our public lands. To be sure, we will need enough supply of resources for a green economy and to avoid being overly dependent upon potentially unreliable imports. Notably, though, some critical minerals are produced in countries that are U.S. allies, such as Canada and Australia. The country’s relentless effort to develop a coherent fuel and non-fuel mineral policy demonstrates a propensity for hubris and yet shortsightedness, warranting a careful analysis of prior efforts and looking holistically at the future horizon. And the long-term future of our public lands ought to be shielded from precipitous decisions.

Third, a critical minerals policy ought to promote sustainable environmental practices and socially responsible mining. The Center for Strategic and International Studies (CSIS), for instance, describes how the U.S. industry should foster a social license to operate in the communities where mining might occur, by working with stakeholders to develop a consensus around responsible development. And environmentally responsible mining ought to serve as the touchstone: lithium mining, for instance, should occur only where its impacts are close to benign. The Salton Sea possesses large lithium deposits that reportedly can be mined in an environmentally sensitive manner.

That should be coupled with promoting responsible practices for companies importing critical minerals into the United States. The abuses flowing from cobalt mining in the Democratic Republic of the Congo are unfathomable. U.S. policy cannot tolerate such human rights abuses; our policy must ensure sound labor practices along with environmental stewardship, demand economic transparency in third-world countries where money might otherwise be siphoned off from the citizenry, and strengthen corporate disclosure requirements and Foreign Corrupt Practices Act (FCPA) protections. It also would mean developing a robust domestic recycling program: CSIS warns that, with a reduced international market for scrap materials, “a domestic market for the end-use” of critical minerals “is a critical first priority, as commodities must reach a critical mass to become profitable to recyclers.”

Fourth, we should accept that some critical mineral production here in the United States is unavoidable, but that to allow it to occur on public lands demands reforming the 1872 Mining Law. The typical details of mining law reform have been around for decades. The United States must receive a fair return for private exploitation of hardrock mineral resources. Companies ought to contribute to a fund for reclaiming old, contaminated mining sites. Mining on public lands should be a privilege, not a right—one that is within the discretion of the land managing agency to decide if, where, and when mining arguably could occur. Perhaps the only essential element not sufficiently addressed previously is ensuring that Native American Nations and indigenous peoples can decide whether mining can occur in an area that might directly or indirectly impact their reservations, resources (such as water, subsistence, or hunting and fishing rights), or traditional cultural properties.

And, finally, perhaps the time is ripe to relent and agree that some measure of streamlining is appropriate to avoid protracted permitting processes.

B. Streamlining: Meaningful or Meaningless Mantra?

Calls for streamlining the NEPA process have become a seemingly bipartisan common ground, where detractors fear treading. Since the 1980s, we have witnessed endless diatribes about alleged delays caused by NEPA and the corresponding desire to make the process quicker and more efficient. President George W. Bush established a task force for streamlining the review and approval of energy projects. In the Energy Policy Act of 2005, Congress pro-

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186. See supra note 178.


189. Ladislaw et al., supra note 185, at 4. See also Dominish et al., supra note 15, at 18.


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promoted a presumably more efficient process for the review of natural gas pipelines along with the siting of electric transmission facilities.\textsuperscript{192}

President Obama and Congress collectively agreed that the economic stimulus package to address the 2008 recession should include provisions for facilitating interagency coordination on NEPA implementation and expedition for transportation-related infrastructure projects. President Obama subsequently signed the FAST Act, furthering a growing chorus promoting NEPA streamlining.\textsuperscript{193} The FAST Act contained provisions for "streamlin[ing] the environmental review and permitting process to accelerate project approvals."\textsuperscript{194}

The Trump Administration aggressively pursued streamlining. Upon entering office, President Trump issued Executive Order No. 13766, Expediting Environmental Reviews and Approvals of High Priority Infrastructure Projects.\textsuperscript{195} He announced how his Administration would conform to a policy to streamline and expedite, in a manner consistent with law, environmental reviews and approvals for all infrastructure projects, especially projects that are a high priority for the Nation, such as improving the U.S. electric grid and telecommunications systems and repairing and upgrading critical port facilities, airports, pipelines, bridges, and highways.\textsuperscript{196}

He followed up with Executive Order No. 13783, Promoting Energy Independence and Economic Growth, directing that agencies review their regulations, policies, guidance, and orders to discern where unnecessary obstacles, delays, or costs might be impeding "siting, permitting, production, utilization, transmission, or delivery of energy resources."\textsuperscript{197} Only a few months later, he issued yet another Executive Order, Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure.\textsuperscript{198} The Executive Order posits that "[i]n efficiencies in current infrastructure project decisions, including management of environmental reviews and permit decisions or authorizations, have delayed infrastructure investments, increased project costs, and blocked the American people from enjoying improved infrastructure that would benefit our economy, society, and environment."\textsuperscript{199}

A common theme pervading these streamlining entreaties is targeting coordination and timetables for NEPA compliance. The Establishing Discipline Order emphasizes interagency coordination and completion of environmental reviews and authorizations for infrastructure projects (broadly defined) within two years.\textsuperscript{200} The Trump Administration’s embrace of having one federal decision presumably provides a forum for promoting coordination. And the Council on Environmental Quality’s (CEQ’s) attempted revamping of its 1978 regulations would promote developing shorter, quicker, and arguably less informative NEPA documents.\textsuperscript{201} Following suit, both the Trump Administration BLM and Forest Service promoted policies aimed at reducing alleged NEPA delays—favoring alternatives to developing an EIS, developing shorter documents, and routing time lines.\textsuperscript{202}

These streamlining efforts admittedly respond to some legitimate concerns about the ability to coordinate and timely produce environmental documents. To be sure, the lack of agency coordination or incentives to move the process along efficiently and timely has fostered some delay. Much of the clamor, however, appears motivated by fabricated strawmen—projecting, for instance, that NEPA litigation is unduly dilatory or that the process itself is unnecessarily time-consuming. Most NEPA decisions

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\textsuperscript{199} Id.

\textsuperscript{200} Id. at 40468.

\textsuperscript{201} Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act, 85 Fed. Reg. 43304 (July 16, 2020).

The trend concededly is away from having CEQ perform this function, but a sufficiently staffed CEQ might tilt toward ensuring the adequacy of NEPA documents, promote sounder decisionmaking that allows for monitoring and adaptation, and provide stakeholders with greater comfort that decisions are not politically driven as administrations change.


204. See Conserving and Restoring America the Beautiful, A Preliminary Report to the National Task Force Recommending a Ten-Year, Locally Led Campaign to Conserve and Restore the Lands and Waters Upon Which We All Depend, and That Bind Us Together as Americans (2021).

205. The trend concededly is away from having CEQ perform this function, but a sufficiently staffed CEQ might tilt toward ensuring the adequacy of NEPA documents, promote sounder decisionmaking that allows for monitoring and adaptation, and provide stakeholders with greater comfort that decisions are not politically driven as administrations change.
ing a net-zero carbon economy goal while simultaneously securing a supply chain capable of serving a green technological transition suggests that maintaining the status quo is potentially problematic.

Mining historian Duane A. Smith wrote in 1987 that “[m]ining and the American people have to plan for the long term, so that generations one hundred or more years from now will find ‘a future not by default, but by design.’”207 Critical minerals integral for clean energy resources and a world dominated by semiconductors suggests that, unless the United States accepts the geopolitical risks previously infecting fossil fuel dependence, the United States ought to tap some of its available resources. But mining ought to be allowed only if we can be assured, through planning, that it can occur in areas far removed from cultural resources, and in an environmentally acceptable manner with negligible impacts to landscapes and ecosystems.

207. Smith, supra note 91, at 170.