

ARTICLES

A ROAD MAP TO NET-ZERO EMISSIONS FOR FOSSIL FUEL DEVELOPMENT ON PUBLIC LANDS

by Jamie Gibbs Pleune, John C. Ruple, and Nada Wolff Culver

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SUMMARY

In producing over 274 million barrels of oil, 3.3 billion cubic feet of natural gas, and 302 million tons of coal each year, the Bureau of Land Management's (BLM's) decisions significantly impact U.S. and global greenhouse gas emissions; fossil fuels produced on federal land account for almost 24 percent of all U.S. CO₂ emissions. This Article provides a legal road map for BLM to require all new oil and gas development to achieve net-zero emissions as a condition of operation. It argues that BLM has a legal duty to mitigate the risk of catastrophic climate change in its permitting decisions. The road map is based on the existing legal structure and explains how BLM can begin charting a course toward carbon-neutral energy development without waiting for congressional action.

“Let me be very clear today . . . The world does have a carbon budget. It’s finite and it’s running out fast, and we need a rapid transition to net-zero.”¹ The chief executive officer of BP, Bernard Looney, might be an unexpected climate spokesman, but his statement reflects scientific consensus. In 2019, the Intergovernmental Panel on Climate Change (IPCC) issued a special report emphasizing the importance of limiting global warming to 1.5° Celsius (C).² Limiting global warming

requires adhering to a carbon budget that is being depleted as time passes.³ For this reason, the World Economic Forum’s Global Risks Report identified “[f]ailure of climate change mitigation and adaptation” [as] the number one risk by impact and the number two by likelihood over the next ten years.⁴

Regarding fossil fuel development on federal lands, the Bureau of Land Management (BLM) sits amidst a myriad of tensions that pull at the fabric of a carbon budget.⁵ Almost one-quarter of all U.S. carbon dioxide (CO₂) emis-

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1. Robert Perkins, *BP Sets Target for “Net Zero” Carbon Footprint by 2050*, PLATTS OILGRAM NEWS, Feb. 13, 2020.
2. *Summary for Policymakers, in* GLOBAL WARMING OF 1.5°C. AN IPCC SPECIAL REPORT ON THE IMPACTS OF GLOBAL WARMING OF 1.5°C ABOVE PRE-INDUSTRIAL LEVELS AND RELATED GLOBAL GREENHOUSE GAS EMISSION PATHWAYS, IN THE CONTEXT OF STRENGTHENING THE GLOBAL RESPONSE TO THE THREAT OF CLIMATE CHANGE, SUSTAINABLE DEVELOPMENT, AND

EFFORTS TO ERADICATE POVERTY (Valérie Masson-Delmotte et al. eds., IPCC 2018) [hereinafter *IPCC Summary for Policymakers*].

3. *Id.* at 12, para. C.1.3.
4. WORLD ECONOMIC FORUM, THE GLOBAL RISKS REPORT 2020, at 12, 34 (2020), available at http://www3.weforum.org/docs/WEF_Global_Risk_Report_2020.pdf.
5. Recognizing that there are multiple types of greenhouse gases (GHGs) with differing properties, this Article generally refers to GHG emissions as a whole, without distinguishing between the different gases. However, where a specific statistic or reference identifies a particular gas or refers to carbon dioxide equivalent (CO₂e), the specificity is reflected in this Article. For more information about the different properties of GHGs and for a definition of CO₂e, see U.S. Environmental Protection Agency (EPA), *Greenhouse Gas Emissions: Overview of Greenhouse Gases*, <https://www.epa.gov/ghgemissions/overview-greenhouse-gases> (last updated May 28, 2020).

sions come from fossil fuels extracted from public lands.⁶ Although BLM has acknowledged climate change risks in the past, under the Donald Trump Administration, the agency has rolled back methane reduction strategies,⁷ encouraged coal leasing,⁸ and expedited fossil fuel production on federal land—all resulting in increased CO₂ emissions.⁹ Even before these rollbacks were implemented, the United States was not on track to reach the carbon budget targets that it had submitted to the United Nations.¹⁰

Regardless of the Trump Administration's hostility to the United Nations Framework Convention on Climate Change,¹¹ BLM has a statutory duty set forth in the Federal Land Policy and Management Act (FLPMA)¹² to coordinate management of various resources “without permanent impairment of the productivity of the land and the quality of the environment.”¹³ Continuing to permit fossil fuel development without adhering to a carbon budget violates this statutory duty.

Until there is a federal carbon budget in place ensuring that increased greenhouse gas (GHG) emissions from federal leases will not exacerbate climate change, BLM should not authorize an increase in GHG emissions. Instead, BLM should use its broad regulatory authority over federal mineral leases to impose a net-zero obligation on all new development activity, including new wells on existing leases. Requiring net-zero emissions from all new fossil fuel development activity would be one way to create a predictable and transparent method of balancing the interests of current lease holders with the necessity of adhering to a science-based carbon budget.

The existing legal framework provides a method of implementing this budgetary restriction in a fair, transpar-

ent, justifiable, and efficient manner. Using the permitting process to require mitigation of GHG emissions would align with BLM's statutory duties and strike a more appropriate balance of resource uses to meet “the present and future needs of the American people.”¹⁴

This Article is a summary of a longer, more detailed forthcoming exploration of BLM's statutory responsibility and authority to mitigate GHG emissions from fossil fuel production, focusing on oil and gas leasing for context. It argues that BLM must address climate change in its decisions. It also proposes a legal strategy for BLM to require that all new oil and gas wells, including those on existing leases, achieve net-zero GHG emissions (for upstream and downstream emissions) as a condition of operational approval. While the following discussion focuses on the oil and gas permitting process, the same principles could apply to other permitting decisions.

I. There Is Scientific Consensus About the Urgency of Reducing GHG Emissions

Climate change is happening¹⁵; it is worse than we expected¹⁶; and it will get even worse if we fail to act decisively.¹⁷ These facts prompted the IPCC to issue a special report emphasizing the importance of limiting global warming to 1.5°C.¹⁸ Summarizing the best available science, the IPCC recognizes that human activities have already caused 1°C of global warming, and will likely reach 1.5°C within the next few decades.¹⁹ On the current global emissions trajectory, warming will reach at least 3°C by the end of the century.²⁰ Allowing global warming to exceed 1.5°C will likely cause irreversible harm to planetary functions that support ecosystems, biodiversity, and human civilizations.²¹

Increasing the atmospheric concentration of CO₂ (and other heat-trapping gases, like methane) caused this rise in temperature.²² Between 1958 and 2019, the average annual CO₂ concentration skyrocketed from 315 parts per million (ppm) to more than 400 ppm.²³ According to the U.S.

6. U.S. GEOLOGICAL SURVEY, FEDERAL LANDS GREENHOUSE GAS EMISSIONS AND SEQUESTRATION IN THE UNITED STATES: ESTIMATES FOR 2005-14, at 1, 8 (2018), available at <https://pubs.usgs.gov/sir/2018/5131/sir20185131.pdf>. This number includes upstream (extraction-based) and downstream (user-based) emissions.
7. See Waste Prevention, Production Subject to Royalties, and Resource Conservation; Rescission or Revision of Certain Requirements, 43 C.F.R. pt. 3160 (2018), <https://www.govinfo.gov/content/pkg/FR-2018-09-28/pdf/2018-20689.pdf> (announcing rescission of Barack Obama-era rule that clarified BLM's authority to set royalty rates at or above 12.5%).
8. Exec. Order No. 13783, Promoting Energy Independence and Economic Growth, 82 Fed. Reg. 16093 (Mar. 31, 2017) [hereinafter E.O. No. 13783] (rescinding Executive Orders and Plans related to responding to climate change and instructing all agencies to “suspend, revise, or rescind” agency actions arising from instructions related to addressing climate change); Exec. Order No. 13868, Promoting Energy Infrastructure and Economic Growth, 84 Fed. Reg. 15495 (Apr. 10, 2019); Secretarial Order No. 3348, Concerning the Federal Coal Moratorium (Mar. 29, 2017).
9. See, e.g., E.O. No. 13783, *supra* note 8.
10. UNITED NATIONS ENVIRONMENT PROGRAMME, EMISSIONS GAP REPORT 2019, at 20 (2019), available at <https://wedocs.unep.org/bitstream/handle/20.500.11822/30797/EGR2019.pdf?sequence=1&isAllowed=y> (noting that the U.S. target emission reductions were 26%-28% from 2005 levels by 2025 and expressing concern that the Trump Administration has reduced anticipated emission reductions from power plants and frozen requirements for GHG reductions in vehicle emissions and fuel economy standards, in addition to encouraging increased fossil fuel production on public land); see *id.* at 26 (explaining that “continuation of current global policies would lead to a global mean temperature rise of 3.5°C by 2100” with a range of 3.4°C to 3.9°C and a 66% probability).
11. Lisa Friedman, *Trump Serves Notice to Quit Paris Climate Agreement*, N.Y. TIMES, Nov. 4, 2019.
12. 43 U.S.C. §§1701-1785, ELR STAT. FLPMA §§102-603.
13. 42 U.S.C. §1702(c).

14. *Id.* (defining “multiple use” to include “management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people”).
15. U.S. GLOBAL CHANGE RESEARCH PROGRAM, CLIMATE SCIENCE SPECIAL REPORT: FOURTH NATIONAL CLIMATE ASSESSMENT, VOLUME 1, at 36 (2017), available at https://science2017.globalchange.gov/downloads/CSSR2017_FullReport.pdf (summarizing “thousands of studies conducted by tens of thousands of scientists” to conclude that “evidence of a changing climate abounds from the top of the atmosphere to the depths of the oceans”).
16. WORLD ECONOMIC FORUM, *supra* note 4, at 33 (reporting that climate change is “striking harder and more rapidly than many expected”).
17. See generally *IPCC Summary for Policymakers*, *supra* note 2.
18. *Id.*
19. *Id.* at 4, para. A.1.
20. UNITED NATIONS ENVIRONMENT PROGRAMME, *supra* note 10, at 27.
21. *IPCC Summary for Policymakers*, *supra* note 2, at 5, para. A.3.1.
22. *Executive Summary*, in INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS 1990-2018, at ES-1, ES-2 (U.S. Environmental Protection Agency 2020) [hereinafter *EPA Executive Summary*], available at <https://www.epa.gov/sites/production/files/2020-04/documents/us-ghg-inventory-2020-chapter-executive-summary.pdf>.
23. *Global Carbon Dioxide Growth in 2018 Reached 4th Highest on Record*, NAT'L OCEANIC & ATMOSPHERIC ADMIN., Mar. 22, 2019, <https://www.noaa.gov/news/global-carbon-dioxide-growth-in-2018-reached-4th-highest-on-record>; CO₂ at NOAA's Mauna Loa Observatory Reaches New Milestone:

Environmental Protection Agency (EPA), the concentration of CO₂ has increased 46% from pre-industrial levels, and the concentration of methane has increased 165% during this time.²⁴

Continuing to increase GHG emissions will further degrade atmospheric composition and exacerbate climate change. A global pathway, with no or limited overshoot of 1.5°C, would require a 45% decline in global anthropogenic GHG emissions by 2030, reaching net zero around 2050.²⁵ “This equates to a remaining carbon budget of less than 10 more years of emissions at their current level.”²⁶

The observed and forecasted negative effects of climate change are externalities that will be amplified the longer they are ignored, which has implications that BLM should consider during the fossil fuel permitting process.²⁷ In other words, there is no time to lose in moving toward net-zero emissions in order to achieve a 1.5°C emissions pathway. Along that pathway, every source of GHG emissions is significant.

II. BLM Is Legally Obligated to Address Climate Change in Leasing and Permitting

FLPMA establishes a standard of care for BLM’s management of federal land. BLM must make “judicious use” of federal lands without “permanent impairment” to the productivity and quality of the environment.²⁸ BLM “shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands.”²⁹

The U.S. Congress requires BLM to manage for a multi-generational investment horizon, employing a balance that “will best meet the present and future needs of the American people.”³⁰ Congress also identified discrete ecological values that should not be permanently impaired. For example, FLPMA’s statement of purpose instructs BLM to protect “the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values.”³¹

Tops 400 ppm, NAT’L OCEANIC & ATMOSPHERIC ADMIN. GLOBAL MONITORING DIVISION, May 10, 2013, <https://www.esrl.noaa.gov/gmd/news/7074.html> (reporting milestone of exceeding daily mean of 400 ppm).

24. *EPA Executive Summary*, *supra* note 22, at ES-2.

25. *IPCC Summary for Policymakers*, *supra* note 2, at 12, para. C.1.

26. WORLD ECONOMIC FORUM, *supra* note 4, at 35 (citing Robert McSweeney & Rosamund Pearce, *Analysis: Just Four Years Left of the 1.5°C Carbon Budget*, CARBON BRIEF, Apr. 5, 2017, <https://www.carbonbrief.org/analysis-four-years-left-one-point-five-carbon-budget>).

27. See Jayni Foley Hein, *Federal Lands and Fossil Fuels: Maximizing Social Welfare in Federal Energy Leasing*, 42 HARV. ENVTL. L. REV. 1, 8-23 (2018) (describing externalities of fossil fuel development that are unaccounted for in the current leasing structure).

28. 43 U.S.C. §1702(c) (defining “multiple use”).

29. *Id.* §1732(b); see also Michael Burger, *A Carbon Fee as Mitigation for Fossil Fuel Extraction on Federal Lands*, 42 COLUM. J. ENVTL. L. 295, 316-26 (2017) (exploring BLM’s statutory duty under FLPMA to mitigate climate change impacts).

30. 43 U.S.C. §1702(c) (also requiring a combination of balanced and diverse resource uses “that takes into account the long-term needs of future generations”).

31. *Id.* §1701(a)(8).

Notably, the list of assets to be stewarded by BLM includes “atmospheric values.” Congress understood at least some of the risks and challenges of anthropogenic climate change when it used those words. Nine years before FLPMA was passed, the Lyndon Johnson Administration issued a White House report detailing the risk of global warming caused by fossil fuel emissions and predicting now familiar impacts: melting of the Antarctic ice cap, rising of sea level, and warming of sea water.³² When Congress included “atmospheric values” in the list of resources that BLM must protect, it had already received evidence that fossil fuel development could threaten everything that depends on a safe and stable atmosphere.

More importantly, Congress understood that there would be multiple, unforeseen challenges in striking the right balance of multiple uses. Congress defined “multiple use” to include a “combination of balanced and diverse resources that takes into account the long-term needs of future generations.”³³ This broad language granted BLM regulatory flexibility to respond to new scientific evidence and the changing societal needs. As the U.S. Supreme Court recognized when interpreting the Clean Air Act (CAA),³⁴ even if the Congress that drafted FLPMA “might not have appreciated the possibility that burning fossil fuels could lead to global warming, they did understand that without regulatory flexibility, changing circumstances and scientific developments would soon render [the Act] obsolete.”³⁵ Broad language “reflects an intentional effort to confer the flexibility necessary to forestall such obsolescence.”³⁶

Regardless of whether Congress explicitly understood that continued fossil fuel development would permanently impair atmospheric values and harm future generations, FLPMA’s broad language reflects an intentional effort to confer flexibility necessary to respond to changing circumstances and scientific developments. Scientific consensus regarding climate change indicates that adhering to a 1.5°C carbon budget is necessary to avoid permanent impairment to the atmospheric composition and to other natural systems that support civilization, and to forestall widespread extinctions. Congress instructed BLM to respond to changing circumstances by managing with a multigenerational horizon.³⁷ The sweepingly broad language used by Congress in FLPMA grants BLM the regulatory flexibility to fulfill its statutory mandate by responding to the new circumstances presented by climate change, and to alter its oil and gas leasing practices to utilize federal resources in a manner “that will best meet the present and future needs of the American people.”³⁸

32. ENVIRONMENTAL POLLUTION PANEL, PRESIDENT’S SCIENCE ADVISORY COMMITTEE, THE WHITE HOUSE, RESTORING THE QUALITY OF OUR ENVIRONMENT app. Y4, at 123-26 (1965).

33. 43 U.S.C. §1702(c).

34. 42 U.S.C. §§7401-7671q, ELR STAT. CAA §§101-618.

35. *Massachusetts v. Environmental Prot. Agency*, 549 U.S. 497, 532, 37 ELR 20075 (2007).

36. *Id.*

37. 43 U.S.C. §1702(c) (defining “multiple use” to include “a combination that will best meet the present and future needs of the American people” and a combination of uses that “takes into account the long-term needs of future generations”).

38. *Id.*

III. Unbridled Fossil Fuel Development Violates FLPMA's Standard of Care

BLM has acknowledged that increasing GHG emissions may permanently impair ecological systems, including the atmosphere.³⁹ In January 2016, BLM completed a scoping report on the federal coal leasing program.⁴⁰ The scoping report summarized the scientific consensus, including recent studies that “confirm and further strengthen the conclusion that greenhouse gases endanger public welfare, and emphasize the urgency of reducing greenhouse gas emissions.”⁴¹ BLM acknowledged that the atmospheric composition “may be approaching a critical climate threshold beyond which rapid and potentially permanent—at least on a human timescale—changes . . . may occur.”⁴² Abrupt and irreversible ecological impacts, including species extinctions, “are expected to be exacerbated by climate change.”⁴³ Finally, BLM acknowledged that without mitigation, GHG concentrations will climb to ever-increasing levels.⁴⁴

These studies illustrate that exacerbating climate change will violate BLM's statutory duty to manage various resources “without permanent impairment of the productivity of the land and the quality of the environment.”⁴⁵ “Crossing a critical climate threshold” that compromises atmospheric stability will permanently impair the atmospheric values upon which current and future generations depend.

Similarly, changes resulting in widespread extinction constitute permanent impairment because extinction is irreversible. Additionally, widespread extinctions damage the productivity of the land because the land cannot produce or rely upon extinct species. Exacerbating the risk of these types of harms by allowing increased fossil fuel development without mitigating GHG emissions does not meet BLM's statutory duty to establish “coordinated management of the various resources without permanent impairment of the productivity of the land and quality of the environment.”⁴⁶

Despite acknowledging the risks of unabated GHG emissions, BLM continues to ignore the massive combined effect of its permitting decisions. BLM administers oil and gas leases covering 25.5 million acres, and these lands include more than 96,000 producible oil and gas wells.⁴⁷

In producing more than 274 million barrels of oil, 3.3 billion cubic feet of natural gas, and 302 million tons of coal each year,⁴⁸ the combined effects of BLM's management decisions significantly affect U.S. and global emissions, a fact that BLM has avoided acknowledging formally.⁴⁹

BLM's current approach to oil and gas leasing, which often allows an unmitigated increase in GHG emissions, is inconsistent with FLPMA's mandate to avoid permanently impairing ecological values, including the atmosphere. It also violates BLM's duty to manage resources with a multigenerational investment horizon. Although agencies have broad discretion in how to respond to climate change, that discretion does not extend to whether to address climate change. The science of climate change is not a policy preference—it is part of a body of evidence that arises in the context of every fossil fuel permitting decision.

A comprehensive and insightful review of climate-related cases between 2015 and 2020 published by the nonpartisan Environmental Law Institute reveals that “vast judicial agreement exists on the causes, extent, urgency, and consequences of climate change.”⁵⁰ This observation “holds true across U.S. federal and state courts, across different types of proceedings, and across jurisdictions,” including international jurisdictions.⁵¹ The report takes care to point out that even the parties, including government agencies like BLM, appeared to agree on basic climate science, even if they disagreed on the legal implications.⁵²

Where agencies under the Trump Administration are reversing Barack Obama-era policies on climate change, courts have reminded the agencies that inconvenient facts survive changes of administration. “An agency cannot simply disregard contrary or inconvenient factual determinations that it made in the past, any more than it can ignore inconvenient facts when it writes on a blank slate.”⁵³ Agency decisions that “simply discarded prior factual findings related to climate change” have been found arbitrary and capricious.⁵⁴

39. BLM, U.S. DEPARTMENT OF THE INTERIOR (DOI), FEDERAL COAL PROGRAM: PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT—SCOPING REPORT 5-46 to 5-50 (2017) [hereinafter BLM, FEDERAL COAL PROGRAM PEIS SCOPING REPORT].

40. *Id.*

41. *Id.* at 5-50.

42. *Id.* (quoting NATIONAL RESEARCH COUNCIL, UNDERSTANDING EARTH'S DEEP PAST: LESSONS FOR OUR CLIMATE FUTURE 2 (2011), available at <https://www.nap.edu/catalog/13111/understanding-earth-s-deep-past-lessons-for-our-climate-future>).

43. BLM, FEDERAL COAL PROGRAM PEIS SCOPING REPORT, *supra* note 39, at 5-51.

44. *Id.* at 5-50.

45. 42 U.S.C. §1702(c).

46. *Id.*

47. BLM, U.S. Department of the Interior, *Oil and Gas Statistics*, <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/oil-and-gas-statistics> (last visited July 23, 2020).

48. Office of Natural Resources Revenue, U.S. Department of the Interior, *Production Data*, <https://revenue.doi.gov/?tab=tab-production> (last visited July 23, 2020).

49. See, e.g., Center for Biological Diversity, Petition for a Moratorium on the Leasing of Federal Public Land Fossil Fuels Under the Mineral Leasing Act, 30 U.S.C. §§226, 241 Before the U.S. Department of the Interior (July 12, 2016), https://www.biologicaldiversity.org/campaigns/keep_it_in_the_ground/pdfs/Petition_for_a_Moratorium_on_the_Leasing_of_Federal_Public_Land_Fossil_Fuels.pdf (submitted on July 12, 2016, and still unaddressed or acknowledged); U.S. Climate Change Litigation, *Petition for a Moratorium on the Leasing of Federal Public Land Fossil Fuels*, <http://climatecasechart.com/case/petition-for-a-moratorium-on-the-leasing-of-federal-public-land-fossil-fuels/> (last visited July 23, 2020) (providing monthly updates on status of ongoing climate-related proceedings).

50. MARIA L. BANDA, ENVIRONMENTAL LAW INSTITUTE, CLIMATE SCIENCE IN THE COURTS: A REVIEW OF U.S. AND INTERNATIONAL JUDICIAL PRONOUNCEMENTS vi (2020).

51. *Id.*

52. *Id.*

53. *Indigenous Env'tl. Network v. U.S. Dep't of State*, 347 F. Supp. 3d 561, 584, 48 ELR 20191 (D. Mont. 2018), *rev'd as moot*, No. 18-36068 (9th Cir. June 6, 2019).

54. *Id.* at 583 (holding that Trump Administration reversal of prior record of decision (ROD) denying Keystone XL pipeline was arbitrary and capricious because the new ROD provided no justification for the changed decision other than deleting the climate change-related content of the previous ROD); see also *Defenders of Wildlife v. Jewell*, 176 F. Supp. 3d 975, 999, 46 ELR 20070 (D. Mont. 2016) (finding the U.S. Fish and Wildlife Service

It does not matter that BLM discussed the risks of “crossing a critical climate threshold” in the context of coal mining, rather than oil and gas development. The same facts apply to any fossil fuel. From tar sands to oil shale to oil and gas development, the scientific studies referenced in BLM’s scoping report were the preeminent studies reflecting the most current scientific understanding of a global problem that is urgent and ubiquitous and caused by a class of fuel. In the scoping report, BLM properly recognized that these studies forecast a risk of permanent impairment caused by crossing a critical climate threshold. More recent studies, like the IPCC special report emphasizing the importance of limiting global warming to 1.5°C, further strengthen BLM’s recognition in the scoping report that exacerbating climate change may cause abrupt and irreversible changes, including widespread extinctions.

A hallmark of administrative law is the requirement that agencies engage in “reasoned decisionmaking.”⁵⁵ As the Supreme Court recently pointed out, “the Government should turn square corners in dealing with the people.”⁵⁶ One of those square corners is the requirement to “examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made.”⁵⁷ Whether GHG emissions come from coal mining or oil and gas development, the relevant data indicate that continuing to increase GHG emissions exacerbates the risk of crossing a critical climate threshold and causing permanent impairment to the quality of the environment and the productivity of the land. Ignoring this relevant data when making permitting decisions is arbitrary and capricious.

IV. BLM Can Require That All New Fossil Fuel Activity Achieve Net-Zero Emissions

BLM has broad authority under FLPMA, the National Environmental Policy Act (NEPA),⁵⁸ and the Mineral Leasing Act (MLA) to mitigate GHG emissions. Until recently, both BLM and the U.S. Department of the Interior (DOI) embraced mitigation measures responding to climate change and landscape-scale management that included landscape-scale mitigation.⁵⁹ BLM’s current

policy rejecting compensatory mitigation is inconsistent with precedent, contrary to statutory authority, and lacks the force of law.⁶⁰ Because Trump Administration policies represent a policy choice, not a legal boundary of BLM’s authority, they should not detract from an informed discussion of BLM’s legal authority to require mitigation of GHG emissions.

Mitigation authority infuses BLM regulations. BLM has regulatory authority to make decisions and set standards that avoid impairment of other resources, consistent with its duties under FLPMA.⁶¹ For example, in combination with FLPMA, NEPA requires BLM to consider and, in some cases, implement alternatives that mitigate adverse impacts caused by a proposal. DOI regulations implementing NEPA, which apply to BLM, require that every proposed action include an analysis “of the effects of the proposed action or alternative as well as analysis of the effects of any appropriate mitigation measures or best management practices that are considered.”⁶² The MLA also grants BLM broad authority to determine what lands to lease, and to manage leases in the public interest.⁶³ BLM mineral leasing regulations expressly reserve authority to impose “reasonable measures as may be required . . . to minimize adverse impacts.”⁶⁴

Specific to onshore oil and gas leases, BLM has regulatory authority “to require that all operations be conducted in a manner which protects other natural resources and the environmental quality.”⁶⁵ Emphasizing this authority, oil and gas leasing regulations also impose a duty on operators to comply with mitigation-focused restrictions. Operators must conduct “all operations in a manner . . . [that] protects other natural resources and environmental quality; which protects life and property.”⁶⁶ Additionally, operators “shall conduct operations in a manner which protects the

arbitrarily and capriciously ignored climate science in favor of political pressures in its decision to reverse prior decision to list wolverine as endangered).

55. Department of Homeland Sec. v. Regents of the Univ. of Cal., No. 18-587, 2020 U.S. LEXIS 3254, at *20 (June 18, 2020) (noting that the procedural requirements of administrative law establish the mechanism “by which federal agencies are accountable to the public and their actions subject to review”).

56. *Id.* at *32.

57. Motor Vehicles Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43, 13 ELR 20672 (1983).

58. 42 U.S.C. §§4321-4370h, ELR STAT. NEPA §§2-209.

59. See, e.g., Secretarial Order No. 3330, Improving Mitigation Policies and Practices of the Department of the Interior (Oct. 31, 2013), *revoked* by Secretarial Order No. 3349 (Mar. 29, 2017); BLM MANUAL MS 1794 MITIGATION (2016), and BLM MITIGATION HANDBOOK H-1794-1 (2016), *rescinded* by Secretarial Order No. 3360 (Dec. 22, 2017); see also ENERGY AND CLIMATE CHANGE TASK FORCE, U.S. DEPARTMENT OF THE INTERIOR, A STRATEGY FOR IMPROVING THE MITIGATION POLICIES AND PRACTICES

OF THE DEPARTMENT OF THE INTERIOR: A REPORT TO THE SECRETARY OF THE INTERIOR (2014); JESSICA HALOFSKY ET AL., U.S. GLOBAL CHANGE RESEARCH PROGRAM, CLIMATE CHANGE ADAPTATION IN UNITED STATES FEDERAL NATURAL RESOURCE SCIENCE AND MANAGEMENT AGENCIES: A SYNTHESIS (2015) (describing climate adaptation efforts by federal agencies including BLM).

60. Justin R. Pidot, *Compensatory Mitigation and Public Lands*, 61 B.C. L. REV. 1046, 1062 (2020); Justin R. Pidot, *The Bureau of Land Management’s Infirm Compensatory Mitigation Policy*, 30 FORDHAM ENVTL. L. REV. 1 (2019).

61. See *Mineral Policy Ctr. v. Norton*, 292 F. Supp. 2d 30, 42 (D.D.C. 2003) (“FLPMA, by its plain terms, vests the Secretary of the Interior with the authority—indeed the obligation—to disapprove of an otherwise permissible mining operation because the operation, though necessary for mining, would unduly harm or degrade the public land.”).

62. 43 C.F.R. §46.130(a) (2019).

63. See, e.g., 30 U.S.C. §226(a) (the secretary “may” lease lands believed to have oil and gas deposits); *id.* §226(b) (the secretary may by regulation establish a higher national minimum bid if necessary); *id.* §226(m) (BLM may require lessees to operate under a reasonable cooperative or unit plan; the secretary may prescribe a plan that may alter or modify the rate of prospecting and development; the secretary may order communitization and apportionment of leases that cannot be appropriately spaced; and the secretary may authorize subsurface storage of oil or gas to promote conservation of natural resources); see also Michael Burger & Jessica Wentz, *Downstream and Upstream Greenhouse Gas Emissions: The Proper Scope of NEPA Review*, 41 HARV. ENVTL. L. REV. 109, 117-19 (2017).

64. 43 C.F.R. §3101.1-2 (2019).

65. *Id.* §3161.2.

66. *Id.* §3162.1(a).

mineral resources, other natural resources, and environmental quality.”⁶⁷

In other words, BLM has both options and the authority to act. Many statutory and regulatory provisions grant BLM authority to regulate mineral leasing operations in a manner that protects environmental quality. Undergirding those regulations, FLPMA requires BLM to manage multiple uses (including mineral development) without permanent impairment to the quality of the environment or the productivity of the land.⁶⁸

BLM has already used this authority to incorporate GHG mitigation requirements into best management practices (BMPs) for oil and gas production. For example, BLM recently published an environmental assessment related to the sale of 283 parcels previously sold in a Wyoming oil and gas lease sale.⁶⁹ In *WildEarth Guardians v. Zinke*, the federal court for the District of Columbia concluded that BLM had sold the parcels without taking a “hard look” at the GHG emissions that would result from the sale.⁷⁰ In its post-remand environmental assessment, BLM relied, in part, upon its mitigation authority at the development stage to conclude that issuing the leases had no significant environmental impact.⁷¹

Specific to mitigation of impacts from GHG emissions, BLM identified three sources of authority for mitigating GHG impacts before an oil and gas well received a permit to drill. “Analysis and approval of future development of the lease parcels may include application of BMPs within BLM’s authority, as Conditions of Approval (COAs) to reduce or mitigate GHG emissions.”⁷² BLM also clarified that additional GHG mitigation measures could be incorporated as “applicant-committed measures” or “added to necessary State of Wyoming air quality permits.”⁷³ These measures included requiring vapor recovery systems; conversion to electric, solar, or mechanical pumps; and use of “green completions” that avoid use of open pits and capture gas.⁷⁴

Other BLM offices have also identified the possibility of imposing GHG mitigation measures as BMPs or as COAs. For example, the Colorado BLM published the Comprehensive Air Resource Protection Protocol identifying emission mitigation strategies that include GHG emissions.⁷⁵ These measures also include minimizing or eliminating

flaring of natural gas and using closed-loop systems to capture gas, using electric or renewable energy to power compressors, and capture and control of emissions from storage tanks and separation vessels.⁷⁶ The protocol further explains that where identified mitigation measures cannot be reasonably implemented, BLM may require emission offsets instead.⁷⁷

BLM has relied on its authority under both the MLA and FLPMA to require mitigation measures.⁷⁸ In summary, BLM has already implemented procedures and reasoning relying on its authority to incorporate GHG mitigation measures at the application for permit to drill (APD) stage. Augmenting these measures to ensure that they are evenhandedly enforced and consistent with a carbon budget is also within BLM’s authority.

A. *BLM Has Statutory, Regulatory, and Contractual Authority to Impose Mitigation Measures at Every Stage*

Thousands of oil and gas leases, subject to hundreds of land use plans, are already in effect at every stage of the development process. The following discussion clarifies that BLM has authority to impose a net-zero requirement at each of these stages. This clarification is important for assessing BLM’s authority to quickly and evenhandedly implement a net-zero requirement on all new oil and gas activity.

Oil and gas leasing decisions occur in three stages: (1) land use planning; (2) leasing; and (3) APD approval. Each stage triggers NEPA, and BLM has authority to mitigate adverse environmental impacts at each stage.⁷⁹

During stage one, BLM drafts resource management plans (RMPs) encompassing vast landscapes.⁸⁰ BLM must periodically update land use plans,⁸¹ and BLM’s regulations include a duty to revise land use plans based on “new data” and “a change in circumstances.”⁸² The IPCC special report presents “new data” indicating that climate change is already occurring, that the effects are more dramatic than expected, and that these new, observation-based data caution against exceeding 1.5°C in global warming. This information constitutes a change in circumstances and warrants revising or amending land use plans that authorize unmitigated fossil fuel development.

Using the land use planning process, BLM could adopt a universal stipulation or programmatically amend existing land use plans to include a best practice that is applicable to

67. *Id.* §3162.5-1(a).

68. *See supra* Parts II and III.

69. BLM, U.S. DEPARTMENT OF THE INTERIOR, SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT FOR THE MAY 2015-AUGUST 2016 SOLD AND ISSUED LEASES DOI-BLM-WY-0000-2019-0007-EA 7 (2019) [hereinafter BLM, EA FOR SOLD WYOMING LEASES], https://eplanning.blm.gov/public_projects/nepa/121368/170685/207328/20190412.WYSupplementalEA.WEGvZinke.Final.pdf.

70. 368 F. Supp. 3d 41, 85, 49 ELR 20041 (D.D.C. 2019).

71. BLM, EA FOR SOLD WYOMING LEASES, *supra* note 69, at 26 (explaining that the “sale of parcels and issuance of oil and gas leases is an administrative action, without direct impacts to surface resources” and subject to further environmental analysis that could avoid adverse impacts by imposing mitigation requirements prior to any surface disturbance that would produce environmental impacts, including emissions).

72. *Id.* at 35.

73. *Id.*

74. *Id.* at 35-36.

75. COLORADO BLM, COMPREHENSIVE AIR RESOURCE PROTECTION PROTOCOL (CARPP) 15-20 (2015).

76. *Id.*

77. *Id.* at 11.

78. *Id.* at 4-5; BLM, EA FOR SOLD WYOMING LEASES, *supra* note 69, at 9; *see also* Waste Prevention, Production Subject to Royalties, and Resource Conservation, 81 Fed. Reg. 83008, 83019-20 (Nov. 18, 2016).

79. *See New Mexico ex rel. Richardson v. Bureau of Land Mgmt.*, 565 F.3d 683, 716 (10th Cir. 2009); *Pennaco Energy, Inc. v. U.S. Dep’t of Interior*, 377 F.3d 1147, 1151, 34 ELR 20072 (10th Cir. 2004); *Southern Utah Wilderness All. v. Norton*, 457 F. Supp. 2d 1253, 1255 (D. Utah 2006).

80. *Southern Utah Wilderness Alliance*, 457 F. Supp. 2d at 1255.

81. 43 U.S.C. §1732(a); *id.* §1712(a) (BLM must “develop, maintain, and, when appropriate revise land plans”); *Oregon Nat. Desert Ass’n v. Bureau of Land Mgmt.*, 625 F.3d 1092, 1096 (9th Cir. 2010).

82. 43 C.F.R. §1610.4-9 (2019); *id.* §1610.5-6; *id.* §1610.5-5.

all new leases. The lessee's GHG mitigation strategy could be submitted as part of the drilling plan and incorporated as a COA. As BLM recognized in its coal program scoping report, a net-zero requirement could be achieved by requiring the lessee to carry out (or fund) activities that proportionally offset emissions.⁸³ "This approach has been used under the Endangered Species Act and Clean Water Act as an efficient way to provide appropriate and measurable benefits to a resource that has been negatively affected through a proposed action."⁸⁴

For example, lessees could implement methane reduction strategies such as plugging abandoned wells sufficient to offset the anticipated CO₂ equivalent emissions.⁸⁵ So long as the emission reduction activities are not otherwise required by law, a company's GHG reductions could partially or fully offset the emissions from new wells. Alternatively, a lessee could offset emissions through investment in carbon sink strategies verified by a third party. Although there are still challenges to be worked out, a market already exists to utilize third-party providers who verify and manage net-zero commitments.⁸⁶

The land use planning process has been used in the past to respond to new data and changing circumstances. For example, to adopt sage-grouse protections across the bird's range in 10 western states, BLM revised or amended 98 RMPs to incorporate mitigation strategies designed to protect habitat.⁸⁷ To ensure that the mitigation measures were implemented consistently, BLM issued an instructional memorandum detailing implementation of the procedures designed to incorporate mitigation into the leasing and APD processes.⁸⁸ Using a similar approach would require a thorough NEPA assessment that should be accomplished through a programmatic environmental impact statement (PEIS). The PEIS should also address the other two stages of the leasing process.

The second stage of the leasing process occurs when BLM offers specific parcels of land for sale.⁸⁹ Leasing decisions usually tier to the RMP while affording an opportunity to take a closer look at information not considered at the much broader land planning level. At the leasing stage, BLM should conduct a more focused NEPA analysis to identify whether site-specific limitations or monitoring

and evaluation results require additional mitigation measures as part of an adaptive management strategy.⁹⁰

Even if an RMP allows a particular land use, the site-specific analysis provides an opportunity to assess whether the assumptions supporting the RMP decision remain valid, and whether there are additional or new site-specific considerations that may have a significant effect on the environment. BLM has authority to impose stipulations at the prepurchase leasing stage, including mitigation measures identified during the NEPA process.⁹¹ Because the lease is a contract, BLM has broad authority to define the terms of the contract prior to sale.⁹²

At the third stage, the lessee submits a site-specific drilling and reclamation plan as an APD that BLM must approve. BLM has authority to require mitigation at this stage, and it has already acknowledged that this authority includes imposing GHG mitigation requirements.⁹³ Consistent with the plain language of the standard lease form, the "[l]essee must conduct operations in a manner that minimizes adverse impacts to the land, air, and water, to cultural, biological, visual, and other resources, and to other land uses or users."⁹⁴ BLM retains extensive authority to require that mitigation measures, best practices, and other "reasonable measures deemed necessary" be incorporated into the drilling plan as a condition of APD approval.⁹⁵

Best practices and mitigation measures may be incorporated as part of the drilling plan, even if they were not anticipated at the time of the lease sale.⁹⁶ A lessee challenging a requirement included as a COA at the APD stage must prove by a preponderance of the evidence that the mitigation measure was erroneous.⁹⁷ Where mitigation measures are based on scientific evidence and environmental analysis, BLM's reasoned opinion is entitled to "considerable deference."⁹⁸ Thus, BLM has regulatory and contractual

83. BLM, FEDERAL COAL PROGRAM PEIS SCOPING REPORT, *supra* note 39, at 6-17 ("Alternatively, under this option, the BLM could approve transactions proposed by lessees that would achieve the desired outcome of compensatory mitigation, but for which projects were carried out by private businesses, non-profits, or state or local agencies.")

84. *Id.*

85. EPA Executive Summary, *supra* note 22, at ES-8 (abandoned oil and gas wells have steadily produced between six and seven million metric tons of CO₂e between 1990 and the present).

86. See generally Michael A. Mehling, *Governing Cooperative Approaches Under the Paris Agreement*, 46 *ECOLOGICAL L.Q.* 765 (2019).

87. See *Montana Wildlife Fed'n v. Bernhardt*, No. CV-18-69-GF-BMM, 2020 U.S. Dist. LEXIS 90571, at **6-8, 50 *ELR* 20130 (D. Mont. May 22, 2020) (discussing Instruction Memorandum No. 2016-143 (Sept. 1, 2016), which was replaced by later guidance that was invalidated in this decision for not accurately reflecting the requirements of the overarching land use plans).

88. *Id.*

89. See Bruce Pendery, *BLM's Retained Rights: How Requiring Environmental Protection Fulfills Oil and Gas Lease Obligations*, 40 *ENVTL. L.* 599, 608-09 (2010).

90. 43 C.F.R. §46.145 (2019) (directing interior bureaus to use "adaptive management" as part of the NEPA process, especially "in circumstances where long-term impacts may be uncertain and future monitoring will be needed to make adjustments in subsequent implementation decisions").

91. *Id.* §3101.1-3 ("Any party submitting a bid . . . shall be deemed to have agreed to stipulations applicable to the specific parcel."); BLM & U.S. FOREST SERVICE, SURFACE OPERATING STANDARDS AND GUIDELINES FOR OIL AND GAS EXPLORATION AND DEVELOPMENT: THE GOLD BOOK §2.3 (4th ed. 2007) ("Constraints may result from lease stipulations, the surface management agency's review and environmental analysis of the proposed operations, Notices to Lessees, Onshore Orders, or regulations.")

92. Pendery, *supra* note 89, at 642; Burger, *supra* note 29, at 319-21.

93. See *supra* notes 66-72 and accompanying text.

94. BLM, U.S. Department of the Interior, Form 3100-11, Offer to Lease and Lease for Oil and Gas §6 (Oct. 2008) [hereinafter Standard Lease Form 3100-11]; see also 43 C.F.R. §3101.1-2 (2019) (clarifying that a lessee's surface rights are subject to stipulations and "such reasonable measures as may be required by the authorized officer to minimize adverse impacts to other resource values, land uses or users not addressed in the lease stipulations at the time operations are proposed").

95. Standard Lease Form 3100-11, *supra* note 94, §6.

96. *Yates Petroleum Inc.*, 176 I.B.L.A. 144, 154 (2008) (upholding mitigation measures imposed as COAs that were more stringent than standards in the RMP).

97. *Id.*; see also *Grynberg Petroleum*, 152 I.B.L.A. 300, 307 (2000) (holding that a lessee challenging a remedial requirement imposed as a COA at the plugging and abandonment stage "must show by a preponderance of the evidence that such a requirement is excessive").

98. *Yates Petroleum Inc.*, 176 I.B.L.A. at 157 (citing authorities).

authority to impose a net-zero mitigation requirement on permits for leases that have already been sold.

BLM cannot claim that it is “too late” to impose a stringent mitigation requirement at the APD stage, because it frequently lauds its extensive authority to mitigate environmental impacts at the APD stage.⁹⁹ BLM and industry have long used BLM’s regulatory authority at the APD stage to justify a truncated NEPA analysis at the leasing stage, while promising a more detailed analysis of mitigation measures at the APD phase.¹⁰⁰ Especially where analysis has been deferred, it is appropriate to use the NEPA process at the APD stage to explore and require mitigation opportunities.

In a similar context, a federal court in Colorado rejected BLM’s claim that it is “too late” to analyze and mitigate GHG emissions after having delayed a thorough NEPA analysis at an earlier stage of the leasing process. “Under this reasoning, it could theoretically reward agencies for skirting NEPA requirements in prior stages of oil and gas development, which does not align with the informed decision-making goals of NEPA.”¹⁰¹

In summary, if BLM and industry justify postponing the NEPA analysis at the leasing stage by promising to evaluate mitigation measures at the APD stage, then BLM cannot justify foregoing consideration of mitigation measures at the APD stage by claiming that it is now too late for that analysis. Thus, for many existing leases, BLM could reasonably require lessees to include GHG mitigation measures in the drilling plan and require net-zero emissions as a COA at the APD stage.

B. BLM Can and Should Consistently Impose GHG Mitigation Measures Sufficient to Adhere to a Science-Based Carbon Budget

GHG mitigation requirements should be universally and fairly implemented. Developing a complete and equitable implementation strategy will take time. BLM has authority to impose a moratorium on oil and gas leasing while it

develops a comprehensive GHG mitigation policy, so that unmitigated GHG emissions do not continue until the new policy and requirements are in place.¹⁰² The authority to pause onshore oil and gas leasing was discussed in detail in a 2019 article published in these pages by Prof. (and former Interior Solicitor) John Leshy, and this Article builds on the well-developed reasoning set out in that article. The MLA requires that public lands “may” be leased.¹⁰³ While the MLA, as amended by the Federal Onshore Oil and Gas Leasing Reform Act of 1987,¹⁰⁴ requires that lease sales be held quarterly, this requirement applies “where eligible lands are available” for leasing.¹⁰⁵ Accordingly, where the secretary determines that no eligible lands are available for sale, he or she is not obligated to hold lease sales.

As discussed by Professor Leshy, the secretary has historically relied on executive authority, withdrawal authority under FLPMA, and land use planning authority under FLPMA.¹⁰⁶ BLM’s authority to impose a moratorium on oil and gas leasing ultimately arises from the agency’s overarching duty articulated in FLPMA to manage multiple uses without permanent resource impairment.¹⁰⁷ Moreover, the MLA vests BLM with discretion to manage the pace and structure of mineral leasing, including suspension of operations in the interest of conservation.¹⁰⁸ Federal courts have recognized that the phrase “in the interest of conservation” used in the MLA includes the prevention of environmental harm.¹⁰⁹ BLM has relied upon these

102. United States ex rel. McLennan v. Wilbur, 283 U.S. 414, 419 (1931) (upholding moratorium on oil and gas leasing); John D. Leshy, *Interior’s Authority to Curtail Fossil Fuel Leasing*, 49 ELR 10631, 10631-32 (July 2019); Burger & Wentz, *supra* note 63, at 118-19 (discussing statutory and precedential authority to impose moratoriums on coal and oil and gas leases).

103. 30 U.S.C. §226(b)(1).

104. *Id.* §§181 et seq.

105. *Id.* §226(b)(1)(A).

106. Leshy, *supra* note 102, at 2-3.

107. Other provisions further emphasize this duty. *See, e.g.*, 43 U.S.C. §1732(b) (“In managing the public lands, the BLM shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands.”). Courts have recognized that BLM has authority to incorporate mitigation measures into project authorizations to prevent unnecessary or undue degradation. *See, e.g.*, Theodore Roosevelt Conservation P’ship v. Salazar, 661 F.3d 66, 76, 78, 41 ELR 20345 (D.C. Cir. 2011) (citing with approval *Biodiversity Conservation Alliance*, 174 I.B.L.A. 1, 5-6 (2008), which held that an environmental impact may rise to the level of unnecessary or undue degradation if it results in “something more than the usual effects anticipated from . . . development, subject to *appropriate mitigation*” (emphasis added)). Since climate change will harm all of the resources that BLM manages, incorporating mitigation measures to avoid this degradation is required by this affirmative obligation.

108. *See* 30 U.S.C. §209 (“In the event the Secretary of the Interior, in the interest of conservation, shall direct or shall assent to the suspension of operations and production under any lease granted under the terms of this Act”); 43 C.F.R. §3103.4-4(a) (2019) (“A suspension of all operations and production may be directed or consented to by the Authorized Officer only in the interest of conservation of natural resources.”); *see also* Burger & Wentz, *supra* note 63, nn. 26-27 (listing provisions in the MLA that vest BLM with discretion to manage the pace and structure of oil and gas leasing); *see also* Leshy, *supra* note 102, at 10631-32 (challenging Secretary Bernhardt’s suggestion that BLM lacks authority to impose a moratorium by reviewing the discretionary language in 30 U.S.C. §226(a) combined with precedent upholding a moratorium and subsequent legislative history of the MLA).

109. *Copper Valley Mach. Works, Inc. v. Andrus*, 653 F.2d 595, 602 (D.C. Cir. 1981); *Hoyle v. Babbitt*, 129 F.3d 1377, 1380, 28 ELR 20286 (10th Cir. 1997).

99. *See, e.g.*, *Duna Vista Resorts*, 187 I.B.L.A. 43 (2016) (arguing that it was appropriate to issue a finding of no significant impact (FONSI) at the leasing stage because BLM had authority to mitigate all potential environmental effects by imposing COAs at the APD stage, including dictating which formation the lessee could drill into); *see also* BLM, EA FOR SOLD WYOMING LEASES, *supra* note 69, at 26, 35.

100. *See, e.g.*, *San Juan Citizens All. v. Bureau of Land Mgmt.*, 326 F. Supp. 3d 1227, 48 ELR 20096 (D.N.M. 2018); *see also* *Park County Res. Council Inc. v. U.S. Dep’t of Agric.*, 817 F.2d 609, 621-22, 17 ELR 20851 (10th Cir. 1987) (holding that BLM was not required to address potential mitigation measures of lease stipulations at the leasing stage because “[i]n order to work the lease, the lessee must submit site-specific proposals to the Forest Service and BLM who can then modify those plans to address any number of environmental considerations” and “each action is subject to continuing review”), *overruled on other grounds by* *Village of Los Ranchos de Albuquerque v. Marsh*, 956 F.2d 970, 972, 22 ELR 21033 (10th Cir. 1992) (en banc).

101. *Citizens for a Healthy Cmty. v. Bureau of Land Mgmt.*, 377 F. Supp. 3d 1223, 1237, 49 ELR 20044 (D. Colo. 2019) (holding that because downstream emissions were not considered at the leasing stage, the “earliest possible time” mandated by NEPA required that they be considered at the master development plan stage: “[s]ince it did not happen before, this stage of the development process would be the earliest possible time”).

sources of authority to adjust the pace of oil and gas leasing in the past.¹¹⁰

Imposing a moratorium on new leasing will provide an opportunity for BLM to assess the existing inventory of leased lands and determine how to address future development, including GHG mitigation.¹¹¹ It will also provide BLM an opportunity to reconsider how to allow development of oil and gas leases “without permanent impairment of the productivity of the land and the quality of the environment,” consistent with BLM’s statutory mandate.¹¹²

Regarding leases that have already been sold but not yet put into production, BLM should conduct a thorough environmental review to determine whether the cumulative effect of issuing drilling permits for the existing inventory of nonproducing leases (14,119 leases representing 12,757,922 acres)¹¹³ will have a significant impact on the environment.¹¹⁴ The analysis could be included in the PEIS or conducted independently. BLM could also use the NEPA process to evaluate whether mitigating GHG emissions through offsets would be a “reasonable measure” necessary to “minimize adverse impacts to land, air, and water, to cultural, biological, visual, and other resources, and to other land uses or users.”¹¹⁵

If the NEPA process determines that it is a “reasonable measure” in light of the risks of exacerbating climate change, then BLM could require a net-zero plan from all

lessees at the APD stage. Lessees who desired to proceed before BLM can complete a cumulative effects analysis for all sold but not yet producing leases, and could agree to voluntarily mitigate GHG emissions.¹¹⁶ Assuming that there are no other significant environmental impacts, committing to achieve net-zero emissions could justify a mitigated finding of no significant impact (FONSI), with respect to GHG emissions, and the approval of the pending APD prior to the completion of a cumulative effects analysis for similarly situated leases or prior to the completion of the PEIS.

Thus, the existing regulatory structure, combined with the reasoned decisionmaking process imposed by NEPA, provides BLM with authority and opportunity to require mitigation of adverse environmental effects caused by oil and gas operations. Because exacerbating climate change is an adverse effect caused by the combined effect of oil and gas operations that increase national GHG emissions, BLM should use its existing authority to require that all new oil and gas activity incorporate GHG mitigation strategies in drilling plans. BLM could reasonably include a net-zero emission strategy as a COA for all new oil and gas wells.

V. Conclusion

The world has a finite carbon budget that is being depleted while the United States fails to act forcefully. Failure to stay within the carbon budget will exacerbate climate change and result in “permanent impairment of the productivity of the land and quality of the environment.” Entrusted with managing the nation’s mineral estate, BLM sits at the crossroads of this transition. Continuing to authorize fossil fuel development without requiring GHG mitigation will exacerbate climate change and violate BLM’s statutory mandate.

BLM has regulatory authority over the oil and gas leasing and development process. Oil and gas regulations reflect BLM’s statutory duty to mitigate adverse effects on other resources and other land users. In light of the risks posed by exacerbating climate change, mitigating the increase in GHG emissions associated with expanded oil and gas development is reasonable and justified. Within the existing legal framework, BLM has authority to impose mitigation measures at every stage of the oil and gas leasing process. Thus, BLM could incorporate a net-zero requirement on all new leases, as well as leases that have been sold, but have not yet applied for an APD.

To fulfill its multiple use mandate, BLM should use this authority, combined with the NEPA process, to incorporate GHG mitigation measures as part of the oil

110. See Instruction Memorandum No. 2016-143, Implementation of Greater Sage-Grouse Resource Management Plan Revisions or Amendments—Oil & Gas Leasing and Development Sequential Prioritization 7 n.10 (Sept. 1, 2016).

111. See Secretarial Order No. 3338, Discretionary Programmatic Environmental Impact Statement to Modernize the Federal Coal Program (Jan. 15, 2016) (justifying a pause on the issuance of new federal coal leases to avoid “locking in for decades the future development of large quantities of coal under current rates and terms that the PEIS may ultimately determine to be less than optimal”).

112. 43 U.S.C. §1702(c).

113. BLM, U.S. Department of the Interior, *Oil and Gas Statistics*, *supra* note 46. Comparing information from Tables 1, 2, 5, and 6 reveals that in 2018, there were 38,147 leased parcels (representing 25,552,475 acres) but only 24,028 producing leases (representing 12,794,553 acres). The difference is 14,119 leases (representing 12,757,922 acres) that have not been put into production.

114. 40 C.F.R. §1501.5(a) (2020) (“An agency shall prepare an environmental assessment . . . when the significance of the effects is unknown unless the agency finds that a categorical exclusion (§1501.4) is applicable or has decided to prepare an environmental impact statement.”). Recent amendments to NEPA’s implementing regulations eliminate the term “cumulative effect.” We strongly caution against reading the new regulations as eliminating the need for a cumulative effects analysis because federal courts consistently hold that the Act requires an assessment of cumulative effects, and these cases predate regulations codifying and then defining away cumulative effects. See *generally* *Natural Res. Def. Council v. Callaway*, 524 F.2d 79, 5 ELR 20640 (2d Cir. 1975) (requiring a cumulative effects analysis for dredging the Thames River); see also *Jones v. Lynn*, 477 F.2d 885, 891, 3 ELR 20358 (1st Cir. 1973) (requiring a cumulative effects analysis), and *Swain v. Brinegar*, 517 F.2d 766, 775, 5 ELR 20354 (7th Cir. 1975) (same). The Council on Environmental Quality’s (CEQ’s) new regulations can refine regulations, but they cannot eliminate a requirement that emanates from the Act itself, which courts from multiple circuits were interpreting in the aforementioned cases. The new regulations also do not prevent consideration of cumulative effects, and any NEPA process that ignores cumulative effects will likely face swift legal challenge.

115. Standard Lease Form 3100-11, *supra* note 94, §6; see also 43 C.F.R. §3101.1-2 (2019) (clarifying that a lessee’s surface rights are subject to stipulations and “such reasonable measures as may be required by the authorized officer to minimize adverse impacts to other resource values, land uses or users not addressed in the lease stipulations at the time operations are proposed”).

116. See *Spiller v. White*, 352 F.3d 235, 241 (5th Cir. 2003) (listing circuits that endorse the practice of mitigated FONSI and explaining:

This situation occurs when an agency or involved third party agrees to employ certain mitigation measures that will lower the otherwise significant impacts of an activity on the environment to a level of insignificance. In this way, a FONSI could be issued for an activity that otherwise would require the preparation of a full-blown EIS.

Notably, CEQ’s 2020 NEPA regulations continue to recognize mitigated FONSI. 40 C.F.R. §1501.6(c).

and gas leasing and development process. BLM should require that all new oil and gas development activity incorporates GHG mitigation strategies sufficient to achieve net-zero emissions.

To ensure consistent implementation, and to comply with NEPA, BLM could impose a moratorium on oil and gas leasing until the completion of a PEIS. To determine whether leases that have been sold but have not obtained an APD should be included in the PEIS, BLM could conduct an environmental review to determine whether the cumulative effect of issuing APDs to all similarly situated,

nonproducing leases would have a significant environmental effect. Lessees could avoid waiting for the results of the environmental assessment and potential EIS by voluntarily agreeing to mitigate GHG emissions in order to obtain a mitigated FONSI (assuming there were no other significant impacts). This approach would be consistent with BLM's statutory duty to manage federal lands according to a standard of care, with a multigeneration time horizon, and without permanent impairment of the nation's ecological resources, including the atmosphere.