



U.S. Department of the Interior
Bureau of Land Management

Oklahoma Field Office Oil and Gas Lease Sale, June 2022
Environmental Assessment
Dewey County, Oklahoma
Quarter 1 2022
DOI-BLM-NM-0040-2021-0033-EA

U.S. Department of the Interior
Bureau of Land Management:
Oklahoma Field Office
201 Stephenson Parkway, Suite 1200
Norman, Oklahoma 73072
405-579-7100

The BLM's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

DOI-BLM-NM-0040-2021-0033-EA

TABLE OF CONTENTS

List of Acronyms and Abbreviations	iii
Chapter 1. Introduction	1
1.1 Background	1
1.2 Purpose and Need.....	2
1.3 Decision to Be Made	2
1.4 BLM Land Use Plan Conformance and Relationship to Statutes, Regulations, and Other Plans	2
1.4.1 BLM Land Use Plan Conformance	2
1.4.2 Relationship to Statutes, Regulations, Policies, and Other Plans	3
1.5 Public Involvement and Issues	4
1.5.1 Internal Scoping.....	4
1.5.2 External Scoping.....	4
1.5.3 Draft EA Public Comment and Response	5
1.5.4 Public Protest Period	6
1.5.5 Issues	6
Chapter 2. Proposed Action and Alternatives	15
2.1 Proposed Action	15
2.2 No Action Alternative	15
Chapter 3. Affected Environment and Environmental Impacts	16
3.1 Introduction	16
3.2 Analysis Methodology	16
3.2.1 Methodology for Estimating Number of Oil and Gas Wells and Production Volumes.....	16
3.2.2 Methodology for Estimating Surface Disturbance	17
3.3 Reasonably Foreseeable Environmental Trends and Planned Actions.....	18
3.4 No Action Alternative for all Issues.....	19
3.5 Issues Analyzed in Brief.....	19
AIB-1 Cultural Resources.....	20
AIB-2 Native American Concerns.....	21
AIB-3 Quality of Life	22
AIB-4 Environmental Justice.....	23
3.6 Issue Analyzed in Detail.....	25
3.6.1 Issue 1: Greenhouse Gases and Climate Change.....	26
Chapter 4. Consultation and Coordination.....	37
4.1 Endangered Species Act Consultation.....	37
4.2 Tribal Consultation.....	38
4.3 State Historic Preservation Office and Tribal Historic Preservation Office Consultation	39
Chapter 5. List of Preparers	39
Chapter 6. Literature Cited	41

Appendices

Appendix A. Maps	45
Appendix B. Oklahoma Field Office Lease Notice and Stipulation Summary.....	47
Appendix C. Summary of the Typical Phases of Oil and Gas Development	49

Figures

Figure 3.1. Estimated Annual GHG Emissions Profile over the Life of a Lease.....	30
--	----

Tables

Table 1.1. Relationship to Statutes, Regulations, Policies, and Other Plans	3
Table 1.2. Issue Analyses and Documentation Incorporated by Reference from the March 2019 Final EA.....	8
Table 1.3. Issues Determined to be Not Present	13
Table 2.1. Nominated Lease Parcel Description.....	15
Table 3.1. Estimated Well Count and Production for the Nominated Lease Parcel	17
Table 3.2. Minority and Low-Income Populations in Area of Analysis.....	23
Table 3.3. Summary Comparison of Conclusions from Analysis of Other Issues to Environmental Justice.....	25
Table 3.4. Global and U.S. GHG Emissions from 2015 through 2019.....	27
Table 3.5. 2020 Federal Fossil Fuel GHG Emissions and Percent Federal Contribution.....	27
Table 3.6. State GHG Emissions	28
Table 3.7. Estimated Life-of-Lease Emissions (On-Site) from Well Development and Production Operations.....	29
Table 3.8. Estimated Life-of-Lease Indirect Emissions from the End-Use Combustion of Produced Oil and Gas	29
Table 3.9. Estimated Direct and Indirect Emissions from the Lease Parcel on an Annual and Life- of-Lease Basis.....	29
Table 3.10. Comparison of Lease Sale Annual Emissions with Emissions from Other Sources	30
Table 3.11. Comparison of Life-of-Lease Emissions with Other Federal Oil and Gas Emissions from Existing Wells, Development of Approved APDs, and Other Leasing Actions in the State and Nation.....	31
Table 3.12. SC-GHG Associated with Future Potential Development	33
Table 3.13. Reasonably Foreseeable Projected Emissions	34
Table 5.1. List of EA Preparers.....	39

LIST OF ACRONYMS AND ABBREVIATIONS

AIB	analyzed in brief
APD	Application for Permit to Drill
bbl	barrel(s)
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMP	best management practice
bpd	barrels per day
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH ₄	methane
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
COA	condition of approval
DNA	Determination of NEPA Adequacy
DOI	U.S. Department of the Interior
EA	Environmental Assessment
EJ	environmental justice
EOI	Expression of Interest
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act of 1973
EUR	estimated ultimate recovery
FLPMA	Federal Land Policy and Management Act of 1976
GHG	greenhouse gas
GHGRP	Greenhouse Gas Reporting Program
GIS	geographic information system
GWP	global warming potential
HAP	hazardous air pollutant
HUC	Hydrologic Unit Code
IDT	interdisciplinary team
IEA	International Energy Agency
IPaC	Information for Planning and Consultation
IPCC	Intergovernmental Panel on Climate Change

IWG	Interagency Working Group on the Social Cost of Greenhouse Gases
LWC	Lands with Wilderness Characteristics
m	meters
mcf	thousand cubic feet
MLA	Mineral Leasing Act of 1920
MLAA	Mineral Leasing Act for Acquired Lands
Mt	megatonnes
N/A	not applicable
N ₂ O	nitrous oxide
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act of 1966
NMSO	New Mexico State Office
NORM	naturally occurring radioactive material
NSO	No Surface Occupancy
OAC	Oklahoma Administrative Code
OAS	Oklahoma Archaeological Society
OFO	Oklahoma Field Office
OGCD	Oil and Gas Conservation Division
PIM	Permanent Instruction Memorandum
PL	Public Law
PM ₁₀	particulate matter equal to or less than 10 microns in diameter
RFD	reasonably foreseeable development
RFFA	reasonably foreseeable future action
RMP	resource management plan
SC-CH ₄	social cost of methane
SC-CO ₂	social cost of carbon dioxide
SC-GHG	social cost of greenhouse gas
SC-N ₂ O	social cost of nitrous oxide
SHPO	State Historic Preservation Office
STEO	short-term energy outlook
TCP	traditional cultural property
THPO	Tribal Historic Preservation Office
UNEP	United Nations Environment Programme
USACE	U.S. Army Corps of Engineers

USC	United States Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WMA	Wildlife Management Area

CHAPTER 1. INTRODUCTION

1.1 BACKGROUND

This Environmental Assessment (EA) documents the Bureau of Land Management (BLM) Oklahoma Field Office (OFO) review of one parcel (14.92 acres) nominated for auction in the OFO Quarter 1¹ 2022 Competitive Oil and Gas Lease Sale (the Proposed Action). The nominated parcel (parcel 39) is located in Dewey County, Oklahoma (see parcel maps in Appendix A). The nominated parcel consists of federal minerals managed by the BLM, and surface lands administered by the U.S. Army Corps of Engineers (USACE) and managed by the ODWC as the Canton Lake Wildlife Management Area (WMA). For detailed information on the leasing process, see the following website:

<https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/leasing/parcel-nominations>.

The Proposed Action for this lease sale is essentially similar to the leasing action analyzed in the OFO March 2019 Competitive Oil and Gas Lease Sale Final EA (DOI-BLM-NM-0040-2019-0002-EA) (herein called the March 2019 EA; available at: <https://eplanning.blm.gov/eplanning-ui/project/115490/510>) based on similar analysis areas, geographic locations, and resource conditions. Of the nine parcels analyzed in the March 2019 EA, five parcels were located within the same county and geographic area (i.e., Canton Lake WMA) as the Quarter 1 2022 nominated lease parcel (parcel 39). In addition, the Quarter 1 2022 nominated lease parcel 39 is nested within one of the parcels (parcel 51) analyzed in the March 2019 EA. The stipulations and lease notices attached to parcels analyzed in the March 2019 EA would also apply to the Quarter 1 2022 nominated lease parcel (see Table 2.1 and Appendix B). In addition, one additional lease notice not included in the March 2019 EA would apply to the nominated lease parcel (OFO-4-LN Migratory Birds and Birds of Conservation Concern). Based on current industry trends and drilling technologies, surface disturbance resulting from development of parcels would occur within 2 miles of the parcel boundary. The entire area of future potential development (2-mile buffer) for the Quarter 1 2022 nominated lease parcel 39 (9,950.77 acres) is within the area of future potential development for parcel 51 analyzed in the March 2019 Final EA.

Therefore, the analysis presented in this EA incorporates by reference the previous analysis from the March 2019 EA, and only includes new analysis specific to the Quarter 1 2022 lease sale where new information or circumstances rendered the March 2019 analysis inadequate (e.g., more recent National Environmental Policy Act of 1969 [NEPA] guidance, or issues that were not analyzed in the March 2019 EA). Additionally, the Proposed Action, leasing parcel 39, was previously analyzed in a Determination of NEPA Adequacy (DNA) Worksheet prepared for the OFO April 2021 Competitive Oil and Gas Lease Sale, which was released for public comment in December 2020 (<https://eplanning.blm.gov/eplanning-ui/project/2002124/510>). The April 2021 DNA Worksheet also tiered to the existing NEPA documents prepared for the OFO March 2019 EA and demonstrated how the March 2019 EA met all NEPA adequacy criteria. The April 2021 lease sale was subsequently postponed by Secretarial Order 3395, *Temporary Suspension of Delegated Authority*, issued January 20, 2021, and the nominated lease sale parcel was incorporated into the Quarter 1 2022 Competitive Oil and Gas Lease Sale. Since the time of publication of the April 2021 DNA (in December 2020), new NEPA guidance was issued regarding climate change and greenhouse gas (GHG) emissions (Secretarial Order 3399) and environmental justice (Presidential Memorandum M-21-28); these directives have since informed the approach for analyzing impacts to the social cost of carbon and environmental justice in BLM NEPA documents. Additionally, the March 2019 EA did not analyze potential impacts of the Proposed Action to quality of life, and

¹ Note, through the start of the Protest Period of the Sale Notice associated with this EA, this sale has been referred to as the “Quarter 1” or “Q1” Competitive Oil and Gas Lease Sale. The BLM is now referring to this same sale as the June 2022 Lease Sale although callouts throughout this document have not been updated to reflect this name change due to the number of callouts that exist.

previous Tribal and State Historic Preservation Office (SHPO) consultations performed for the March 2019 EA could not be used to satisfy consultation requirements to the Quarter 1 2022 lease sale. For these reasons, the BLM determined that a DNA was no longer the appropriate level of NEPA analysis and therefore has prepared this EA to expand these analyses beyond the information included in the April 2021 DNA and the March 2019 EA to which the DNA is tiered.

1.2 PURPOSE AND NEED

The BLM's purpose is to respond to an Expression of Interest (EOI) to lease federal oil and gas resources through a competitive leasing process. The need for the action is established by the BLM's responsibility under the Mineral Leasing Act of 1920 (MLA), as amended, to promote the exploration and development of oil and gas on the public domain.

1.3 DECISION TO BE MADE

The BLM Authorized Officer will decide whether to make available for lease the nominated parcel with or without constraints, in the form of lease stipulations, as provided for in the approved land use plan. If the decision is to make the lands available for lease and subsequently issue a lease, standard terms and conditions under Section 6 of the BLM Lease Form (Form 3100-11, Offer to Lease and Lease for Oil and Gas), herein referred to as standard lease terms and conditions, would apply. The BLM Authorized Officer also has the authority to defer the parcel, based on the analysis of potential effects presented in this EA. The Decision Record will identify whether the BLM decided to lease the nominated lease parcel and the rationale for the decision.

1.4 BLM LAND USE PLAN CONFORMANCE AND RELATIONSHIP TO STATUTES, REGULATIONS, AND OTHER PLANS

1.4.1 BLM Land Use Plan Conformance

The BLM's mandate, as derived from various laws, including the MLA and the Federal Land Policy and Management Act of 1976 (FLPMA), as amended, is to promote the exploration and development of oil and gas on the public domain. Additionally, the Federal Onshore Oil and Gas Leasing Reform Act of 1987 states that lease sales shall be held for each state where eligible lands are available at least quarterly and more frequently if the Secretary of the Interior determines such sales are necessary.

Under the FLPMA, the BLM must manage public lands, resources, and resource values according to its multiple-use sustained-yield mandate in a manner that will best meet the present and future needs of the public, and in accordance with an approved land use plan or resource management plan (RMP). For split-estate lands where the mineral estate is an interest owned by the United States, the BLM has no authority over use of the surface estate; however, the BLM is required to declare how the federal mineral estate will be managed, including identification of all appropriate lease stipulations (43 Code of Federal Regulations [CFR] 3101.1 and 43 CFR 1601.0-7(b); BLM Handbook H-1601-1 and H-1624-1 [BLM 2005, 2018a]). This Proposed Action is in conformance with the March 2020 Oklahoma, Kansas, and Texas BLM Approved RMP, with Record of Decision (BLM 2020a).

The nominated lease parcel falls within an area that is open to leasing under the RMP, subject to certain stipulations. The nominated lease parcel, lease parcel surface ownership, lease parcel legal description and total acreage, and lease stipulations and notices that apply are detailed in Table 2.1. Stipulation and lease notice descriptions are detailed in Appendix B.

1.4.2 Relationship to Statutes, Regulations, Policies, and Other Plans

Purchasers of oil and gas leases are required to comply with all applicable federal, state, and local laws and regulations, including obtaining all necessary permits prior to any lease development activities. A listing of directly relevant statutes, regulations, policies, and plans is provided in Table 1.1.

Table 1.1. Relationship to Statutes, Regulations, Policies, and Other Plans

Relevant Statute, Regulation, Policy, or Plan	Relationship to the Proposed Action
Federal Land Policy and Management Act (FLPMA)	The FLPMA established guidelines to provide for the management, protection, development, and enhancement of public lands (Public Law [PL] 94-579). Section 103I of the FLPMA defines public lands as any lands and interest in lands owned by the United States. For split-estate lands where the mineral estate is an interest owned by the United States, the BLM has no authority over use of the surface by the surface owner; however, the BLM is required to disclose potential effects connected to the authorization to lease and develop federal mineral estate and to declare in the RMP how federal mineral estate is managed, including identification of all appropriate lease stipulations (43 CFR 3101.1 and 43 CFR 1601.0-7(b); BLM Handbook H-1601-1 and H-1624-1 [BLM 2005, 2018a]).
Mineral Leasing Act of 1920 (MLA)	The MLA establishes that deposits of oil and gas owned by the United States are subject to disposition in the form and manner provided by the MLA under the rules and regulations prescribed by the Secretary of the Interior, where consistent with the FLPMA, the National Environmental Policy Act of 1969, as amended (NEPA; PL 91-90, 42 United States Code [USC] 4321 et seq.), and other applicable laws, regulations, and policies.
43 CFR 3100	These regulations govern onshore oil and gas leasing, development, and production of federal minerals.
Federal Onshore Oil and Gas Leasing Reform Act of 1987	This Act directs the BLM to conduct quarterly oil and gas lease sales whenever eligible lands are available for leasing.
BLM Permanent Instruction Memorandum (PIM) No. 2018-014, Directional Drilling into Federal Mineral Estate from Well Pads on Non-Federal Location (2018)	BLM PIM No. 2018-014 establishes policies and procedures for processing federal Applications for Permit to Drill (APDs) proposing to drill into and produce federal minerals from well pads on entirely non-federal locations. These policies and procedures provide guidance on the application of NEPA, the Endangered Species Act of 1973, and the National Historic Preservation Act of 1966. Future potential development of the nominated lease parcel may occur on entirely non-federal locations. As a result, APDs related to future potential development on this parcel may be subject to the policies and procedures outlined in the PIM.
Endangered Species Act of 1973 (ESA)	The ESA requires all federal departments and agencies to conserve threatened, endangered, and critical and sensitive species and the habitats on which they depend as well as consult with the U.S. Fish and Wildlife Service on all actions authorized, funded, or carried out by the agency to ensure that the action will not likely jeopardize the continued existence of any threatened and endangered species or adversely modify critical habitat.
Mineral Leasing Act for Acquired Lands (MLAA)	The MLAA allows for mineral leasing on "acquired lands." The MLAA defines "acquired lands" as including "all lands heretofore or hereafter acquired by the United States to which the 'mineral leasing laws' have not been extended, including such lands acquired under the provisions of sections 480, 500, 513 to 519, 521, 552, and 563 of Title 16" (30 USC 351). The MLAA states that acquired lands "may be leased by the Secretary under the same conditions as contained in the leasing provisions of the mineral leasing laws, subject to the provisions hereof" (30 USC 352).

Relevant Statute, Regulation, Policy, or Plan	Relationship to the Proposed Action
National Historic Preservation Act of 1966 (NHPA)	Leasing is considered an undertaking pursuant to 54 USC 300101 et seq., commonly known as the NHPA, and 54 USC 306108, commonly known as Section 106 of the NHPA (Section 106). Agencies may follow a phased approach to Section 106 compliance. At the leasing level, existing records reviews and consultation drive identification of historic properties. Class III field inventories are an important part of identification at the lease-development level. See the text of stipulation WO-NHPA in Appendix B for details.

1.5 PUBLIC INVOLVEMENT AND ISSUES

1.5.1 Internal Scoping

The BLM OFO interdisciplinary team (IDT) conducted internal scoping to identify issues, potential alternatives, and data needs by reviewing the leasing actions within the context of the applicable RMP under NEPA framework. An IDT meeting was held at the BLM OFO on October 10, 2020, as were weekly meetings with additional BLM IDT members during the parcel review process. Additionally, other resource-specific meetings with resource specialists were held to aid in refining issues related to the proposed lease sale.

1.5.2 External Scoping

A project summary page for the OFO Quarter 1 2022 Competitive Oil and Gas Lease Sale was posted on the BLM's National NEPA Register website (<https://eplanning.blm.gov>). The nominated lease parcel information was posted on that website for a public scoping period from August 31 to October 1, 2021.

The BLM OFO received six comment letters via ePlanning and eight hand-delivered submittals (including two petitions) during the scoping period for the Quarter 1 2022 Competitive Oil and Gas Lease Sale. The majority of comment letters received raised concerns about multiple lease sales across the New Mexico State Office area and were not specific to the OFO Quarter 1 2022 lease sale. Concerns and comments presented by the public and non-governmental organizations are summarized below:

- Concerns regarding the effects of lease sales on GHG emissions and climate change
- Concerns regarding air quality and compliance with the Clean Air Act
- Request for an extension of the public scoping period
- Concerns regarding the BLM leasing process and how it relates to Executive Order 14008 and the preliminary injunction order issued by the U.S. District Court for the Western District of Louisiana (Louisiana v. Biden, No. 2:21-cv-778-TAD-KK, 2021 WL 2446010 [W.D. La. June 15, 2021])
- Concerns regarding the adequacy of an EA for compliance with NEPA
- Concerns regarding compliance with BLM Instruction Memorandum 2021-027
- Concerns regarding archaeological sites and Native American places of significance
- Concerns regarding tribal consultation
- Concerns regarding habitat for big game species
- Request to defer parcels in Priority Habitat Management Areas and General Habitat Management Areas for Greater Sage-Grouse
- Concerns regarding RMP revisions and cumulative impacts of leasing

- Request to defer parcels on lands with no or low potential for oil and gas development and those that overlap with inventoried lands with wilderness characteristics
- Request to incorporate climate costs and fair market value of leasing
- Request to require full-cost bonding
- Concerns regarding public health and environmental justice
- Concerns regarding impacts to groundwater quality and quantity from hydraulic fracturing and injection wells
- Concerns regarding impacts from leasing on surface waters
- Requests to consider and recommendations for a reasonable range of alternatives
- Request to impose climate change impacts requirements and GHG emissions mitigation on leasing
- Request for BLM to consult with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) pursuant to Section 7 of the Endangered Species Act

1.5.3 Draft EA Public Comment and Response

The draft Quarter 1 2022 Competitive Oil and Gas Lease Sale EA was made available for a public comment period from October 29 to November 8, 2021. The BLM received three comment letters regarding the OFO Quarter 1 2022 Competitive Oil and Gas Lease Sale and responded to substantive comments (Appendix C).

In November 2021, the U.S. Department of the Interior released its *Report on the Federal Oil and Gas Leasing Program* (DOI 2021), which outlined specific recommendations to address documented deficiencies in the program to meet three programmatic goals:

- Providing a fair return to the American public and states from federal management of public lands and waters, including for development of energy resources
- Designing more responsible leasing and development processes that prioritize areas that are most suitable for development and ensure lessees and operators have the financial and technical capacity to comply with all applicable laws and regulations
- Creating a more transparent, inclusive, and just approach to leasing and permitting that provides meaningful opportunity for public engagement and tribal consultation

The report also recommends that, “as an overarching policy, BLM should ensure that oil and gas is not prioritized over other land uses, consistent with BLM’s mandate of multiple-use and sustained yield. The BLM should carefully consider what lands make the most sense to lease in terms of expected yields of oil and gas, prospects of earning a fair return for U.S. taxpayers, and conflicts with other uses, such as outdoor recreation and wildlife habitat. The BLM should always ensure it is considering the views of local communities, tribes, businesses, state and local governments, and other stakeholders.” While the leasing decisions for this lease sale are based on the BLM’s discretion regarding its analysis and review of the record, they are also consistent with the recommendations in the report, as well as numerous reports issued by the Governmental Accountability Office and Congressional Budget Office, including ensuring public participation and tribal consultation, addressing conflicts with other resources, avoiding lands with low potential for oil and gas development, focusing leasing near existing development, and ensuring a fair return to taxpayers. This lease sale and NEPA process included a 30-day scoping period, 30-day comment period for the EA (which was extended by an additional 10 days), and 30-day protest period. The BLM has also ensured applicable tribal consultation is current. The BLM’s leasing decisions take into account

comments received during this process and will further evaluate points raised in any protests received. As a result of public comments received on the sale, and consistent with recommendations in the November 2021 report, BLM NM undertook additional review and has not identified any additional parcels that warrant deferral. Details of this review are included in Appendix D.

1.5.4 Recent Court Decisions

On February 11, 2022, the United States District Court for the Western District of Louisiana issued an order that, in general, enjoined the Department, among other agencies, from taking action in connection with Section 5 of Executive Order 13990 and the Interagency Working Group (“IWG”) established by that Order relating to the measurement of the Social Cost of Greenhouse Gases.

Because this proposed sale relies upon the IWG and Section 5 of the Executive Order, the District Court’s injunction precluded the Department from advancing this and similar proposed sales. On March 16, 2022, the Court of Appeals for the Fifth Circuit stayed the injunction pending appeal. *Louisiana by & through Landry v. Biden*, No. 22-30087, 2022 WL 866282 (5th Cir. Mar. 16, 2022).

Previously, on January 27, 2022, the United States District Court for the District of Columbia issued a decision in *Friends of the Earth v. Haaland*, vacating offshore oil and gas lease sale 257 because the Department did not quantify the effects of that sale on emissions from the foreign consumption of oil and gas, despite (in the Court’s view) possessing the tools and methodology to do so. 2022 WL 254526 (D.D.C. Jan. 27, 2021). Given the analysis presently available to BLM, *Friends of the Earth* does not affect BLM’s analysis of this proposed lease sale.

Unlike the Bureau of Ocean Energy Management (“BOEM”)—the agency responsible for sale 257—the Bureau of Land Management has not traditionally used simulation tools like MarketSim (the tool at issue in *Friends of the Earth* and used by BOEM in preparation for sale 257) when evaluating effects on foreign consumption from proposed BLM State Office lease sales. Indeed, the *Friends of the Earth* Court recognized that it had previously upheld BLM’s decision not to consider foreign effects where BLM had “refused to quantify emissions resulting from particular lease parcels, and thus could not conceptualize the extent to which the lease sales would contribute to the local, regional, and global climate change.” 2022 WL 254526, at *13 n.13 (quotation omitted). Likewise, the Court ruled against BOEM for forgoing the foreign consumption analysis for sale 257 in part because BOEM shortly thereafter applied that analysis to a draft NEPA analysis for proposed offshore sale 258. The court’s reasoning does not apply to BLM, which, as noted above, lacks access to any historic or imminent foreign effects analysis at the level of individual BLM State Office lease sales. If and when BLM undertakes this or similar analysis in the future, it may be appropriate to include and consider that analysis when proposing onshore lease sales.

1.5.5 Public Protest Period

The Oil and Gas Lease Sale Notice will be made available for a 30-day protest period. If there are any protests, the BLM shall resolve protests prior to issuing leases.

1.5.6 Issues

The Council on Environmental Quality (CEQ) regulations at 40 CFR 1500.4(i) direct that the scoping process should be used “not only to identify significant environmental issues deserving of study, but also to deemphasize insignificant issues, narrowing the scope of the [NEPA] process accordingly.” 40 CFR 1501.9 (f)(1) indicates the lead agency “shall identify and eliminate from detailed study the issues that are not significant or have been covered by prior environmental review(s), narrowing the discussion of these

issues in the statement to a brief presentation of why they will not have a significant effect on the human environment or providing a reference to their coverage elsewhere.”

Table 1.2 cites and summarizes issue analysis and other documentation from the March 2019 EA (DOI- BLM-NM-0040-2019-0002-EA). Analysis of these issues beyond incorporation by reference from the prior EA is not needed in this EA for reasons explained in Section 1.1. Table 1.3 provides a list of resources that are not present within the nominated lease parcel or surrounding areas and therefore do not warrant analysis in this EA. Resource issues for which the Proposed Action would result in new or different effects than those of the March 2019 EA are evaluated in brief (Section 3.5) or evaluated in detail (Section 3.6).

Through internal scoping, four issues were identified, considered, and analyzed in brief (AIB) during review of the Proposed Action. These issues are presented in Chapter 3, Section 3.5. In addition, one issue was identified for detailed analysis in this EA and is presented in Chapter 3, Section 3.6:

- How would future potential development of the nominated lease parcel contribute to GHG emissions and climate change?

Table 1.2. Issue Analyses and Documentation Incorporated by Reference from the March 2019 Final EA

Resource or Concern	Rationale for not Analyzing in EA
Air Quality	<p>Impacts to air quality from future potential lease development were previously analyzed in the March 2019 EA (Section 3.5, Issue 1). Impacts associated with future potential development of the nominated lease parcel would be essentially similar to those disclosed in the March 2019 EA due to similar analysis area geographic location(s) and resource conditions. In 2021, the BLM released an updated <i>2020 Air Resources Technical Report for Oil and Gas Development in New Mexico, Oklahoma, Texas and Kansas</i> (BLM 2021a); although the March 2019 EA relied on a previous version of the Air Resources Technical Report, the results of the 2020 version did not significantly change the analysis presented in the March 2019 EA. Therefore, the BLM has determined that differences in potential impacts between the March 2019 nominated lease parcels and Quarter 1 2022 nominated lease parcel are not substantial. There is no new information or circumstances that would substantively change the analysis or the conclusions from those presented in the March 2019 EA.</p> <p>Future potential development of the nominated lease parcel would incrementally increase criteria pollutant emissions in Dewey County (BLM 2019:20). Emissions are anticipated to be at their highest level during the construction and completion phases and are not expected to result in exceedances of National Ambient Air Quality Standards or state air quality standards for Dewey County (BLM 2019:21). The same best management practices outlined in the March 2019 EA (BLM 2019:22) would apply to the Quarter 1 2022 nominated lease parcel, which would include fugitive dust controls to minimize construction-based emissions.</p>
Water Quantity/Use	<p>Impacts to useable water quantities from future potential lease development were previously analyzed in the March 2019 EA (Section 3.5, Issue 3). Impacts associated with future potential development of the nominated lease parcel would be essentially similar to those disclosed in the March 2019 EA due to similar analysis area geographic location(s) and resource conditions. Any differences in potential impacts between the March 2019 nominated lease parcels and Quarter 1 2022 nominated lease parcel are not substantial. There is no new information or circumstances that would substantively change the analysis or the conclusions from those presented in the March 2019 EA. Future potential development of the nominated lease parcel would require a total of approximately 9 acre-feet of water for the drilling and completion of one well over a 6- to 8-week time frame (BLM 2019:33), which would represent a negligible increase in total water demand for the watershed planning basin (BLM 2019:34). By the year 2060, projected water demands for the basin may result in surface water shortages that require a shift into groundwater use for drilling and well completion. The same potential mitigation measures outlined in the March 2019 EA (BLM 2019:35–36) would apply to the Quarter 1 2022 nominated lease parcel, such as following Oklahoma Water Resources Board recommended measures and practices for recycling and reuse of flowback fluids.</p>
Groundwater Quality	<p>Impacts to groundwater quality from future potential lease development were previously analyzed in the March 2019 EA (Section 3.4, AIB-14). Impacts associated with future potential development of the nominated lease parcel would be essentially similar to those disclosed in the March 2019 EA due to similar analysis area geographic location(s) and resource conditions. Any differences in potential impacts between the March 2019 nominated lease parcels and Quarter 1 2022 nominated lease parcel are not substantial. There is no new information or circumstances that would substantively change the analysis or the conclusions from those presented in the March 2019 EA. Future potential development of the nominated lease parcel would pose risks to groundwater from potential contamination of freshwater aquifers from well integrity failures, spills, or loss of fluids during the drilling and completion processes. Well completion activities would be subject to standard industry practices and other regulatory requirements related to hydraulic fracturing under 43 CFR 3160 and Oklahoma Administrative Code (OAC) 165:10-3-10 (a). The regulatory program and standard terms and conditions would greatly reduce the risks to groundwater from the projected future well development.</p>

Resource or Concern	Rationale for not Analyzing in EA
Surface Water Quality	<p>Impacts to surface waters from future potential lease development were previously analyzed in the March 2019 EA (Section 3.4, AIB-5). Impacts associated with future potential development of the nominated lease parcel would be essentially similar to those disclosed in the March 2019 EA due to similar analysis area geographic location(s) and resource conditions. Any differences in potential impacts between the March 2019 nominated lease parcels and Quarter 1 2022 nominated lease parcel are not substantial. There is no new information or circumstances that would substantively change the analysis or the conclusions from those presented in the March 2019 EA. Although surface waters within the nominated lease parcel would be protected from direct disturbance due to the No Surface Occupancy (NSO) stipulation for Canton Lake, surface disturbance associated with future potential development of the nominated lease parcel could impact surface waters outside of the nominated lease parcel, within approximately 2 miles. In addition, stormwater runoff could carry sediment downslope to nearby wetlands. Stormwater runoff would be limited by following industry standard operating procedures. Site-specific impacts may be analyzed further under NEPA at the lease development stage when development details are known (BLM 2019, page:12).</p>
Prime Farmlands	<p>Impacts to prime and unique farmlands from future potential lease development were previously analyzed in the March 2019 EA (Section 3.4, AIB-3). Impacts associated with future potential development of the nominated lease parcel would be essentially similar to those disclosed in the March 2019 EA due to similar analysis area geographic location(s) and resource conditions. Any differences in potential impacts between the March 2019 nominated lease parcels and Quarter 1 2022 nominated lease parcel are not substantial. There is no new information or circumstances that would substantively change the analysis or the conclusions from those presented in the March 2019 EA. Surface disturbance associated with future potential development of the nominated lease parcel would occur within approximately 2 miles of the lease parcel and may occur on prime farmlands, which would incrementally reduce the total area of prime farmlands in the local area. Plugging and abandoning the well and final reclamation may result in the reestablishment of prime farmland characteristics (or similar) to the affected area (BLM 2019:11).</p>
Invasive Plants/Noxious Weeds	<p>Impacts to invasive plants and noxious weeds from future potential lease development were previously analyzed in the March 2019 EA (Section 3.4, AIB-4). Impacts associated with future potential development of the nominated lease parcel would be essentially similar to those disclosed in the March 2019 EA due to similar analysis area geographic location(s) and resource conditions. Any differences in potential impacts between the March 2019 nominated lease parcels and Quarter 1 2022 nominated lease parcel are not substantial. There is no new information or circumstances that would substantively change the analysis or the conclusions from those presented in the March 2019 EA. Surface disturbance associated with future potential development of the nominated lease parcel would remove existing vegetation and provide opportunities for the establishment or spread of invasive plants or noxious weeds. Once reclamation occurs, vegetation would be reestablished. The same regulatory requirements outlined in the March 2019 EA (BLM 2019:11) would apply to the Quarter 1 2022 nominated lease parcel, which would include compliance with the Oklahoma Noxious Weed Law and Rules (OAC 35:30-34-2) and industry standard operating procedures (BLM 2019:11-12).</p>

Resource or Concern	Rationale for not Analyzing in EA
Threatened and Endangered Species	<p>Impacts to threatened and endangered species from future potential lease development were previously analyzed in the March 2019 EA (Section 3.4, AIB-8, and Section 4.1). Impacts associated with future potential development of the nominated lease parcel would be essentially similar to those disclosed in the March 2019 EA due to similar analysis area geographic location(s) and resource conditions. Any differences in potential impacts between the March 2019 nominated lease parcels and Quarter 1 2022 nominated lease parcel are not substantial. There is no new information or circumstances that would substantively change the analysis or the conclusions from those presented in the March 2019 EA. Surface disturbance associated with future potential development of the nominated lease parcel could occur affect potentially suitable habitat for the interior least tern (<i>Sterna antillarum athalassos</i>), piping plover (<i>Charadrius melodus</i>), red knot (<i>Calidris canutus</i>), and whooping crane (<i>Grus americana</i>). Surface disturbance would also result in a decrease in habitat quality from human presence and loss of vegetation. Following reclamation, these effects would decrease over time (BLM 2019:14). The nominated lease parcel would be subject to an NSO stipulation for Canton Lake, which would prevent any surface disturbance within the Canton Lake WMA. Future potential development within potentially suitable habitat is discouraged due to regulatory requirements of the Clean Water Act and the Endangered Species Act (ESA). In addition, standard industry operating procedures are to construct well pads in upland areas, outside the aforementioned habitat types. Section 4.1 of the March 2019 EA concludes that there would be "no effect" on any federally listed species or designated critical habitat; therefore, further consultation is not required.</p> <p>The BLM completed a review of species listings within the vicinity of the nominated lease parcel 39 using the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system in August 2021 under Consultation Code 02EKOK00-2021-SLI-2654 (accessed August 30, 2021), and no additional species were identified that were not already analyzed in the March 2019 EA. The BLM would initiate Section 7 consultation with the USFWS in compliance with the ESA for species not previously analyzed in the 2020 Oklahoma, Kansas and Texas BLM RMP Biological Assessment (BLM and Bureau of Indian Affairs 2019a) if, during site selection, federally listed species are found to have a potential to be present or impacted during lease development, if applicable. No further consultation with the USFWS is required at this stage.</p>
Migratory Birds	<p>Impacts to migratory birds from future potential lease development were previously analyzed in the March 2019 EA (Section 3.4, AIB-9). Impacts associated with future potential development of the nominated lease parcel would be essentially similar to those disclosed in the March 2019 EA due to similar analysis area geographic location(s) and resource conditions. Any differences in potential impacts between the March 2019 nominated lease parcels and Quarter 1 2022 nominated lease parcel are not substantial. There is no new information or circumstances that would substantively change the analysis or the conclusions from those presented in the March 2019 EA. Surface disturbance from future potential development of nominated lease parcel would result in a decrease in habitat quality from human presence, loss of vegetation, noise, and visual intrusion. Following reclamation, these effects would decrease over time. The nominated lease parcel would be subject to an NSO stipulation for Canton Lake, which would prevent any surface disturbance within the Canton Lake WMA. Compliance with the Migratory Bird Treaty Act would be required for any future potential development.</p>
General Wildlife	<p>Impacts to wildlife and big game species from future potential lease development were previously analyzed in the March 2019 EA (Section 3.4, AIB-17). Impacts associated with future potential development of the nominated lease parcel would be essentially similar to those disclosed in the March 2019 EA due to similar analysis area geographic location(s) and resource conditions. Any differences in potential impacts between the March 2019 nominated lease parcels and Quarter 1 2022 nominated lease parcel are not substantial. There is no new information or circumstances that would substantively change the analysis or the conclusions from those presented in the March 2019 EA. Surface disturbance associated with future potential development of the nominated lease parcel would occur within approximately 2 miles of the lease parcel, and would have the potential to affect wildlife habitat due to noise and visual intrusions associated with oil and gas activities. There are currently 89 existing wells in the subject area contributing the same types of recreational effects. Site-specific impacts may be analyzed further under NEPA at the APD stage when development details are known.</p>

Resource or Concern	Rationale for not Analyzing in EA
Recreation	<p>Impacts to recreational use and access from future potential lease development were previously analyzed in the March 2019 EA (Section 3.4, AIB-17). Impacts associated with future potential development of the nominated lease parcel would be essentially similar to those disclosed in the March 2019 EA due to similar analysis area geographic location(s) and resource conditions. Any differences in potential impacts between the March 2019 nominated lease parcels and Quarter 1 2022 nominated lease parcel are not substantial. There is no new information or circumstances that would substantively change the analysis or the conclusions from those presented in the March 2019 EA. Surface disturbance associated with future potential development of the nominated lease parcel would occur within approximately 2 miles of the lease parcel and would have the potential to affect the public's overall recreational experience due to noise and visual intrusions associated with oil and gas activities. There are currently 89 existing wells in the subject area contributing the same types of recreational effects. Site-specific impacts may be analyzed further under NEPA at the APD stage when development details are known.</p>
Paleontology	<p>Impacts to paleontological resources from future potential lease development were previously analyzed in the March 2019 EA (Section 3.4, AIB-13). Impacts associated with future potential development of the nominated lease parcel would be essentially similar to those disclosed in the March 2019 EA due to similar analysis area geographic location(s) and resource conditions. Any differences in potential impacts between the March 2019 nominated lease parcels and Quarter 1 2022 nominated lease parcel are not substantial. There is no new information or circumstances that would substantively change the analysis or the conclusions from those presented in the March 2019 EA. Surface disturbance from future potential development of nominated lease parcel would result in rock material potentially containing fossils being removed. Site-specific impacts may be analyzed further under NEPA at the lease development stage when development details are known. For locations where the BLM determines future development of this parcel may have a potential to cause ground disturbance in areas with Potential Fossil Yield Classification 4 or 5 ratings, on-the-ground survey would be recommended, as well as paleontological monitors during ground-disturbing activities. Therefore, any impacts on paleontological resources of scientific interest would be reduced or avoided.</p>
Socioeconomics	<p>Impacts to socioeconomics from future potential lease development were previously analyzed in the March 2019 EA (Section 3.4, AIB-12). Impacts associated with future potential development of the nominated lease parcel would be essentially similar to those disclosed in the March 2019 EA due to similar analysis area geographic location(s) and resource conditions. Any differences in potential impacts between the March 2019 nominated lease parcels and Quarter 1 2022 nominated lease parcel are not substantial. There is no new information or circumstances that would substantively change the analysis or the conclusions from those presented in the March 2019 EA. While the act of leasing federal minerals itself would not result in direct social impacts, subsequent development of the lease may generate impacts on communities and individuals in the vicinity of the lease (e.g., employment opportunities related to the oil and gas and service support industries in the region) as well as impacts on federal, state, and county governments related to taxes, royalty payments, and other revenue streams. Future potential development of the nominated lease parcel may also be perceived as having a negative effect on quality-of-life considerations for people who value undeveloped landscapes, opportunities for isolation, and activities such as wildlife viewing and cattle ranching (see Section 3.5, AIB-3).</p> <p>The social cost of greenhouse gas emissions (SC-GHG) associated with future potential development of the nominated lease parcel is analyzed in Section 3.6, Issue 1. While the socioeconomics AIB from the March 2019 EA focused on regional impacts within affected counties, the SC-GHG estimates provided in this EA (Section 3.6, Issue 1) are intended to measure the potential socioeconomic impacts of future potential development on global society as a whole, in terms of changes in net agricultural productivity, human health effects, property damage, risk of conflict, and loss or degradation of ecosystem services.</p>

Resource or Concern	Rationale for not Analyzing in EA
Human Health and Safety	<p>Impacts to human health and safety from future potential lease development were previously analyzed in the March 2019 EA (Section 3.4, AIB-18). Impacts associated with future potential development of the nominated lease parcel would be essentially similar to those disclosed in the March 2019 EA due to similar analysis area geographic location(s) and resource conditions. Any differences in potential impacts between the March 2019 nominated lease parcels and Quarter 1 2022 nominated lease parcel are not substantial. There is no new information or circumstances that would substantively change the analysis or the conclusions from those presented in the March 2019 EA. Future potential development of the nominated lease parcel would incrementally contribute to the human health and safety risks which already exist as a result of the existing oil and gas development in the surrounding area; these include: fire starts; spills of hazardous materials, hydrocarbons, produced water or hydraulic fracturing fluid and corresponding potential contamination of air, soil, or water; exposure to naturally occurring radioactive material (NORM) in drill cuttings or produced water (see Appendix E); traffic congestion and collisions from commercial vehicles and heavy use, infrequent industrial accidents; presence of hydrogen sulfide (H₂S); or increased levels of fugitive dust (PM₁₀). Human health effects associated with emissions of air pollutants are described in the March 2019 EA air quality analysis (Section 3.5) and are further discussed in the 2020 <i>Air Resources Technical Report for Oil and Gas Development in New Mexico, Oklahoma, Texas, and Kansas</i> (BLM 2021a). Compliance with federal and state laws, regulations, and policy would help to reduce these risks and respond to incidents.</p> <p>In response to public comments received for the Q1 2022 lease sales (see Appendix C), the following links provide additional information regarding air pollution health effects:</p> <p>Criteria pollutants:</p> <ul style="list-style-type: none"> • Ozone (https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution) (U.S. Environmental Protection Agency [EPA] 2021a) • Particulates (https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm) (EPA 2021b) • Nitrogen dioxide (https://www.epa.gov/no2-pollution/basic-information-about-no2#Effects) (EPA 2021c) • Carbon monoxide (https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution#Effects) (EPA 2021d) • Lead (https://www.epa.gov/lead-air-pollution/basic-information-about-lead-air-pollution#health) (2021e) • Sulfur dioxide (https://www.epa.gov/so2-pollution/sulfur-dioxide-basics#effects) (2021f) • Hazardous air pollutants (https://www.epa.gov/haps/health-effects-notebook-hazardous-air-pollutants) (2021g)
Induced Seismicity	<p>Impacts to induced seismicity from future potential lease development were previously analyzed in the March 2019 EA (Section 3.4, AIB-1 and AIB-2). Impacts associated with future potential development of the nominated lease parcel would be essentially similar to those disclosed in the March 2019 EA due to similar analysis area geographic location(s) and resource conditions. Any differences in potential impacts between the March 2019 nominated lease parcels and Quarter 1 2022 nominated lease parcel are not substantial. There is no new information or circumstances that would substantively change the analysis or the conclusions from those presented in the March 2019 EA. Future potential development of the nominated lease parcel would include hydraulic fracturing and the need to dispose of produced water over the total life of the well. The Oklahoma Corporation Commission Oil and Gas Conservation Division (OGCD) has established policies, directives, and standard industry practices to address induced seismicity concerns associated with hydraulic fracturing and disposal wells. Due to OGCD policies, standard industry practices, and the decrease in seismic events since implementation of the above-mentioned directives, the March 2019 EA concluded that further analysis of this issue would not result in a reasoned choice among alternatives (BLM 2019:10–11).</p>

Resource or Concern	Rationale for not Analyzing in EA
Fluid Minerals	Impacts to fluid mineral availability from future potential lease development were previously analyzed in the March 2019 EA (Section 3.4, AIB-11). Impacts associated with future potential development of the nominated lease parcel would be essentially similar to those disclosed in the March 2019 EA due to similar analysis area geographic location(s) and resource conditions. Any differences in potential impacts between the March 2019 nominated lease parcels and Quarter 1 2022 nominated lease parcel are not substantial. There is no new information or circumstances that would substantively change the analysis or the conclusions from those presented in the March 2019 EA. The future estimated production of oil and gas from the nominated lease would result in irretrievable loss of these resources. However, the OFO 2020 RMP committed these resources for oil and gas leasing.
Visual Resources	Visual impacts to recreational users were previously analyzed in the March 2019 EA, under the AIB for recreation (EA Section 3.4, AIB-17). Impacts associated with future potential development would have the potential to affect the public's overall recreational experience due to visual intrusions, but would be consistent with the overall existing level of oil and gas development on adjacent lands that currently contribute to the same types of visual effects. There are no BLM-managed Class I, II, or III visual resource management areas within the nominated lease parcel or within 2 miles of the parcel boundary. In addition, the nominated lease parcel is located in a remote location with few nearby residences (there are four residences within 1 mile of the nominated parcel) and adjacent lands already have a high degree of existing oil and gas development.

Table 1.3. Issues Determined to be Not Present

Resource or Concern	Rationale for not Analyzing in EA †
Lands with Wilderness Characteristics (LWC)	There are no LWCs present within the nominated lease parcel or within 2 miles.
Special Designations-Wilderness areas, Wilderness Study Area, Wild & Scenic Rivers, National Trails, Research Natural Areas, Wildlife Areas, Areas of Critical Environmental Concern, or other Special Management Areas	There are no special designations within the nominated lease parcel or within 2 miles.
Soils and Erosion	There are no steep slopes or sensitive soils within the nominated lease parcel.
Grazing	There are no grazing allotments within the nominated lease parcel, and no private grazing operations are evident from aerial imagery.
BLM Sensitive Species	BLM sensitive species are only managed on BLM-administered surface lands. The nominated lease parcel and areas within 2 miles do not contain any BLM-administered surface land.

† Due to the NSO stipulation attached to the nominated lease parcel, the BLM assumes development of the nominated lease parcel using horizontal drilling techniques could occur within approximately 2 miles of the parcel boundary (see Section 3.2.2).

The BLM's royalty rates for competitive oil and gas lease sales is another issue identified during scoping but is not analyzed in this EA. As the steward of onshore federal energy resources, including deposits of oil and gas, the BLM is responsible for balancing conservation, energy production, and generating a fair return to the public for the extraction of public resources. Revenue from federal oil and gas development is distributed to several federal programs, as well as the states in which the oil and gas development occurs. At the same time, energy development can pose significant risks to the environment. The BLM is charged with balancing these competing considerations in a manner that best serves the public interest.

For all competitively issued leases, the MLA requires a royalty "at a rate of not less than 12.5% in amount or value of the production removed or sold from the lease" (30 United States Code [USC] 226(b)(1)(A); see also 30 USC 352) (applying that requirement to leases on acquired land). Although the BLM is authorized by the MLA and its implementing regulations (43 CFR 3103.3-1(a)(2)(ii)) to specify a royalty rate higher than 12.5% for competitive leases, the MLA sets a flat 12.5% royalty rate for noncompetitive leases (30 USC 226(c); 30 USC 352) (acquired lands).

Historically, the BLM has conducted competitive lease sales by offering leases at the statutory minimum royalty rate of 12.5%. However, recent analyses suggest that offering leases at this royalty rate does not provide a fair return to the public for the extraction of federal oil and gas resources. These analyses include the U.S. Department of the Interior's November 2021 *Report on the Federal Oil and Gas Leasing Program*, Government Accountability Office publications, a report from the Congressional Budget Office, and an analysis produced by the consulting firm IHS Markit for the U.S. Department of the Interior in 2019. Key takeaways from these reports include:

- The 12.5% royalty rate typically applied to federal leases is substantially lower than the prevailing royalty rates for leases on state and private lands.
- Increasing royalty rates on federal leases, to more closely align with rates on private and state lands, is not expected to drive development away from federal lands to neighboring state and private lands.
- Increasing the royalty rates on federal leases could decrease production on federal lands by a small amount (or not at all) but will also increase net federal revenues and the commensurate share of those revenues to states.

While current minimum royalty rates for leases sold at competitive sale are 12.5%, the BLM has the discretion to set royalty rates for individual lease sales. Section 2 of the standard lease form terms (3100-11) states that royalty rates are:

- a) noncompetitive lease, 12.5 %;
- b) competitive lease, 12.5 %;
- c) other, see attachment of standard lease form; or
- d) as specified in regulations at the time this lease is issued.

For this sale, the BLM is updating the sale notice and including an attachment to the standard lease form applying an 18.75% royalty rate.

CHAPTER 2. PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

Under the Proposed Action, the BLM would offer for lease federal minerals associated with one nominated lease parcel. Surface management, the legal land description of the nominated lease parcel totaling 14.92 acres, and lease stipulations and notices attached to the lease parcel are included in Table 2.1. Appendix A contains parcel maps. Appendix B provides a summary of stipulations and lease notices. Under the Proposed Action, the BLM Authorized Officer has the authority to lease the parcel, or to defer the parcel, based on the analysis of potential effects presented in this EA and the March 2019 EA, which is incorporated by reference.

Table 2.1. Nominated Lease Parcel Description

Parcel Number (acres)*	Surface Management	Legal Land Description	Lease Notices and Stipulations
39 (14.92 acres)	USACE	T. 20 N., R. 15 W., INDIAN MER Sec. 35 ACCRETION & RIPARIAN ACREAGE TO LOTS 1-6 SEE EXH A FOR METES & BOUNDS W/MAP. Dewey County Expression of Interest (EOI) # NM00016300	CE-SS 1-A USACE Special Stipulations for Canton Lake No Surface Occupancy NM-11 LN BLM Lease Notice for Special Cultural Resource WO-ESA 7 BLM Lease Notice for Endangered Species Act Section 7 Consultation WO-NHPA BLM Lease Notice for Cultural Resources and Tribal Consultation Stipulation OFO-4-LN BLM Lease Notice for Migratory Birds and Birds of Conservation Concern

* All acreages contained in the EA analysis were calculated using geographic information system (GIS) data sets for resources and parcels, which may differ slightly from the acreage contained in legal description here. Difference in total acres between parcels can vary due to geoprocessing operations where slivers of area are created when two or more data sets intersect. Any inaccuracies are negligible and do not change the overall impact analysis conclusions presented in this EA.

The drilling of wells is not permitted until the leaseholder submits, and the BLM approves (subsequent to additional site-specific NEPA analysis), a complete Application for Permit to Drill (APD) package (Form 3160-3) following the requirements specified under Onshore Oil and Gas Orders listed in 43 CFR 3162 (BLM 2017). The BLM has authority, per standard terms and conditions of the leases, to attach conditions of approval (COAs) to the APD that reduce or avoid impacts on public lands, resources, and/or resource values. Under 43 CFR 3101-1-2, such reasonable measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures. Measures shall be deemed consistent with lease rights granted provided that they do not require relocation of proposed operations by more than 200 meters (m), require that operations be sited off the leasehold, or prohibit new surface-disturbing operations for a period in excess of 60 days in any lease year.

2.2 NO ACTION ALTERNATIVE

Under the No Action Alternative, the BLM would not offer the nominated parcel for competitive leasing in the Quarter 1 2022 Competitive Oil and Gas Lease Sale. As a result, there would not be any development of the parcel at this time. The parcel would have the potential to be nominated again for a future oil and gas lease sale.

CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

3.1 INTRODUCTION

Chapter 3 contains the impacts analysis related to the issues. Section 3.2 describes the analysis assumptions related to future potential development of the nominated lease parcel. Section 3.3 presents an overview of reasonably foreseeable environmental trends and planned actions considered in the impact analysis. Section 3.4 describes the effects of the No Action Alternative for all issues. Section 3.5 presents the issues that are analyzed in brief, and Section 3.6 presents the issue that is analyzed in detail.

3.2 ANALYSIS METHODOLOGY

While leasing in itself would not directly authorize any oil and gas development or production, future oil and gas development and production is a reasonable outcome of a granted lease right. Because there is currently no development proposal for the nominated lease parcel, site-specific details are unknown. Given the small size of the nominated parcel and the fact that it is nested within the boundaries of another parcel (parcel 51), which was previously leased in the March 2019 Competitive Oil and Gas lease Sale, it is possible that the federal minerals underlying the nominated lease parcel would be accessed using an existing well and that no new wells would be developed solely for the nominated lease parcel. However, for the purpose of disclosing the potential impacts of the proposed leasing action, this analysis conservatively assumes that future potential development of the nominated lease parcel would include the development of up to one well. Sections 3.2.1 and 3.2.2 outline the methodology for estimating number of wells, potential production volumes, and surface disturbance associated with the future potential development of the nominated lease parcel. Estimates of future potential development are based on known historical data and reasonable assumptions.

3.2.1 Methodology for Estimating Number of Oil and Gas Wells and Production Volumes

Reasonably foreseeable quantitative well development estimates were derived from the well densities that were analyzed in the *Oklahoma, Kansas and Texas Final Joint Environmental Impact Statement/Proposed BLM Resource Management Plan and Proposed BIA Integrated Resource Management Plan* (OFO RMP final environmental impact statement) (BLM and Bureau of Indian Affairs [BIA] 2019b). To calculate the volumes of oil, natural gas, and water expected to be produced from the parcel, the projected number of wells (calculated as described above) was multiplied by the estimated ultimate recoveries (EURs) of oil, natural gas, and produced water per well. These EURs are generated by performing decline curve analyses of existing production within the OFO planning area.

The projected number of wells and associated oil, gas, and produced water production for the nominated lease parcel are summarized in Table 3.1.

Table 3.1. Estimated Well Count and Production for the Nominated Lease Parcel

Parcel Number (acres)*	State	Surface Ownership	Total Horizontal Wells†	Surface Disturbance (acres)	Oil Production (bbl)	Gas Production (mcf)	Produced Water Production (bbl)
39 (14.92)	OK	USACE	1	8.06	84,000	961,000	1,382,000

Note: bbl = barrels; mcf = thousand cubic feet

* All acreages contained in the EA analysis were calculated using geographic information system (GIS) data sets for resources and the parcel, which may differ slightly from the acreages contained in legal description here and in Table 2.1. Difference in total acres for the parcel can vary due to geoprocessing operations where slivers of area are created when two or more data sets intersect. Any inaccuracies are negligible and do not change the overall impact analysis conclusions presented in this EA.

†In cases where the methodology used for estimating the number of wells per nominated lease parcel resulted in a fractional value of less than one well per nominated lease parcel (because of low anticipated drilling rate) the fractional value was adjusted upward to the next whole number to represent a rational outcome of the number of potential wells that could be drilled and developed on the nominated lease parcel, as well as to provide meaningful inputs to the oil, gas, and produced water production projections.

3.2.2 Methodology for Estimating Surface Disturbance

It is unknown when, where, and to what extent subsequent well sites, roads, and associated infrastructure would be proposed in the event the BLM decides to lease the nominated parcel. Future potential development of the nominated lease parcel could include the following phases (Appendix E provides a summary of the phases of oil and gas development):

- Construction of new access roads or expansion of existing roads
- Pad construction
- Drilling a well
- Hydraulically fracturing a well
- Installation of pipeline
- Production, including vehicle traffic; hauling of produced fluids such as oil or produced water; compression to move gas through pipeline systems; potential venting from storage tanks; regular well monitoring; and work-over tasks for the life of the well
- Well plugging and abandonment
- Reclamation and remediation

Based on surface disturbance values identified in the 2016 Reasonably Foreseeable Development (RFD) scenario for Kansas, Oklahoma, and Texas (BLM 2016), the BLM estimates 4.5 acres of surface disturbance per new horizontal well pad, 2.7 acres per new vertical well pad, and 3.56 acres of surface disturbance for each well pad's associated access road and pipeline infrastructure. Assuming future potential development of one horizontal well, along with any associated access roads and pipelines, 8.06 total acres of new surface disturbance is anticipated (see Table 3.1). The nominated lease sale parcel would be subject to USACE's NSO stipulation for Canton Lake, which prohibits on-lease development; therefore, future potential development of the nominated lease parcel would occur off-lease. Current industry trends and drilling technologies allow for horizontal wellbores of up to approximately 10,000 feet. As a result, development of the nominated lease parcel using horizontal drilling techniques could occur within approximately 2 miles of the parcel boundary. Disturbance would remain on the landscape until final abandonment and reclamation of facilities (generally assumed to occur after 20 years). Where development and production occurs off-lease on split-estate due to the application of a NSO lease stipulation, the BLM highly recommends to the use of best management practices (BMPs) and implementation of interim landscape reclamation as soon as practicable to mitigate long-term surface disturbance effects.

3.3 REASONABLY FORESEEABLE ENVIRONMENTAL TRENDS AND PLANNED ACTIONS

The March 2019 EA identifies the following reasonably foreseeable environmental trends and planned actions that may affect the resources analyzed in this EA. The *Oklahoma, Kansas, and Texas Final Joint Environmental Impact Statement/BLM Resource Management Plan and BIA Integrated Resource Management Plan* (BLM and BIA 2019b) was released subsequent to the completion of the March 2019 EA, and did not identify any new or changed environmental trends or planned actions.

- Past and present surface disturbance within the 270 million-acre OFO planning area (BLM and BIA 2019b) includes the following:
 - Approximately 41,000 miles of gathering and transmission pipelines and other rights-of-way.
 - Coal production in LeFlore, Haskell, Craig, and Okmulgee Counties, Oklahoma. There are eight federal coal leases in Oklahoma, composed of approximately 13,000 acres of BLM-administered minerals. There are twenty-four active coal mines: one underground and five surface mines in Oklahoma; two surface mines in Kansas; and 16 surface mines in Texas.
 - Approximately 150 acres of helium gas development.
200+ wind energy projects, the largest of which are located in Oklahoma—Osage Wind Project (8,400 acres); Chilocco Wind Energy Project (3,000 acres); and Skeleton Creek Wind, Solar, and Battery Storage Projects (2,500 acres).
 - Approximately 400 acres of grazing allotments in Oklahoma.
 - Roads, highways, and urban development (including Dallas, San Antonio, and Houston, Texas; Oklahoma City and Tulsa, Oklahoma; and Wichita and Topeka, Kansas).
- Other activities and trends affecting public and private lands likely to occur in the planning area that could impact similar resources or resource uses as the Proposed Action are as follows (BLM and BIA 2019b):
 - Oil and gas reasonably foreseeable future action (RFFAs): The 2016 RFD scenario predicts that, over the next 20 years, the approximate number of federal and trust wells to be drilled will range from 775 to 3,054 wells. Additionally, the 2016 RFD scenario estimates surface disturbance would range from approximately 3,500 to approximately 13,750 acres (BLM 2016).
 - Coal mining: Overall coal development is anticipated to continue at current levels, but it is likely to include more underground mining and less surface disturbance.
 - Mineral materials: Estimated total surface will range from 80 to 120 acres for an average of approximately 100 acres for three to five projects over the next 28 years.
 - Wind, geothermal, and solar energy development: Wind energy development will increase substantially during the planning period, especially in Texas, where state policies have proactively encouraged wind energy development. Surface disturbance is estimated at up to 66 acres per square mile for wind, up to 8 acres per megawatt capacity for a geothermal power plant, and 80 acres total for solar development.
 - Transmission lines, pipelines, and other rights-of-way: RFFAs include multiple reservoirs and interstate water pipelines, including the Plains and Eastern Clean Line proposed transmission line project (700 miles crossing Oklahoma) and Grain Belt Express proposed transmission line project (includes 370 miles in Kansas). There are also several gas pipelines and compressor stations in the permitting or construction phase in the planning area in Texas.
 - Urban growth is expected to increase, particularly near Oklahoma City, Tulsa, Wichita, Amarillo, Dallas, San Antonio, Houston, and Austin.
 - Road, highway, and infrastructure construction is expected to continue.

- Grazing is assumed to continue at current rates, especially on private lands.
- Recreation and off-road vehicle travel are expected to continue at current rates.
- Fuels treatments that include mechanical, biological, and chemical treatments and prescribed fire to reduce hazardous fuels and undesirable vegetation will likely continue on public and private lands. Manual, biological, chemical, and mechanical treatments of noxious weeds and invasive plants are also likely to continue in the foreseeable future.

In addition to the environmental trends or planned actions identified above, climate change is also considered a reasonably foreseeable environmental trend that may affect the resources analyzed in this EA. Climate change, as further discussed in Section 3.6.1, is a global process that is affected by the sum total of GHGs in the Earth's atmosphere. The incremental contribution to global GHGs from a single proposed land management action cannot be accurately translated into its potential effect on global climate change or any localized effects in the area specific to the action. Currently, global climate models are unable to forecast local or regional effects on resources. However, there are general projections regarding potential impacts on natural resources and plant and animal species that may be attributed to climate change from GHG emissions over time. Although climate change is a global issue, the observed and projected impacts of climate change vary at national and regional scales (Karl 2009). Climate models project robust differences in regional changes related to precipitation patterns, average temperatures, and frequency or severity of drought (Intergovernmental Panel on Climate Change [IPCC] 2013). Impacts of climate change on regionally variable ecosystem processes have also been observed and have been used to make general projections regarding potential future effects of climate change on natural resources and plant and animal species for different regions (Karl 2009). The OFO planning area is part of the Great Plains region (including Texas, Oklahoma, and Kansas), which is expected to be affected in both the short and long term by variations in global and regional environmental conditions related to climate change.

3.4 NO ACTION ALTERNATIVE FOR ALL ISSUES

Under the No Action Alternative, the BLM would not lease the nominated lease parcel and the existing conditions and trends related to each issue would continue. Potential impacts associated with future potential development of the nominated lease parcel would not occur under this alternative, current land and resource uses would continue, and the federal mineral acreage would remain open to future oil and gas lease development. Oil and gas development on previously leased BLM-managed lands surrounding the nominated parcel and adjacent privately owned lands would continue. No natural gas or crude oil from the nominated lease parcel would be produced, and no royalties would accrue to federal or state treasuries. A choice on the part of the BLM not to lease the nominated lease parcel would eliminate one oil and gas development opportunity in the BLM OFO. The parcel would have the potential to be nominated again for a future oil and gas lease sale. Reducing total oil and gas development opportunities in the area is likely to incrementally reduce local and regional employment and revenue opportunities related to the oil and gas and service support industries over time. This is because the oil and gas sector of the economy relies on both ongoing operational activities (development of existing leases) and new development opportunities (acquisition and development of new leases) to continue to provide local and regional jobs and revenue on a sustained basis. In the OFO planning area, development of federal leases is approximately 0.3% of total oil and gas development activities (BLM 2016).

3.5 ISSUES ANALYZED IN BRIEF

Following internal and external scoping, four issues were identified, considered, and analyzed in brief by members of the IDT in review of the Proposed Action. Each of these issues is outlined below with a concise discussion regarding the context and intensity of the impact related to each issue. For all issues analyzed in brief that follow, it is assumed that effects of reasonably foreseeable environmental trends and

planned actions to relevant elements of the environment would be consistent with the landscape disturbance acreages disclosed in Section 3.3.

For the purposes of this analysis, short-term effects are considered those that cease after well construction and completion (30–60 days) or cease after interim reclamation (2–5 years). Long-term effects are considered those associated with operation (for example, noise) or otherwise extend beyond the short-term time period (for example, surface disturbance subject to interim or final reclamation). As such, some long-term effects would cease immediately upon the end of operations (e.g., visual and noise impacts associated with well infrastructure), whereas other long-term effects would remain until successful landscape reclamation is accomplished (e.g., vegetation disturbance) dependent on the nature of the effect. Note that the time frame for successful reclamation would vary by vegetation type and other facts such as the amount and timing of annual precipitation.

AIB-1 Cultural Resources

How would future potential development of the nominated lease parcel impact cultural resources?

Cultural resources is a broad term including anything from isolated artifacts to complex cultural sites; cultural resources may or may not be considered historic properties as defined in the National Historic Preservation Act of 1966 (NHPA). Leasing and future potential development of the nominated lease parcel is anticipated to result in approximately 8.06 acres of disturbance. If leased, the nominated lease parcel will be subject to USACE's NSO stipulation for Canton Lake and would therefore be developed off-lease. As a result, surface disturbance related to any future potential development of the nominated lease parcel may occur within a 2-mile radius around the parcel boundary, which may result in loss or damage to cultural resources. The Area of Potential Effect (APE) is the nominated parcel plus a 2-mile buffer. While development will not occur within the parcel, development may occur adjacent to the parcel where effects to cultural resources could still occur. The BLM OFO reviewed cultural databases at the Oklahoma Archeological Survey topographical maps, the Oklahoma Historical Society and SHPO, Oklahoma Landmarks Inventory, and internal BLM data sources and found two previously recorded sites reported within a 2-mile radius of the parcel. Tribal consultation has not brought forth any other information regarding cultural resources. However, it is possible that other, undocumented cultural resources exist in the APE.

Future potential development would be analyzed further through separate NEPA and NHPA Section 106 processes, as directed by regulations and current policy, including Permanent Instruction Memorandum (PIM) 2018-014. Where the BLM determines its decisions regarding these future developments or undertakings have a potential to cause effects on historic properties, on-the-ground survey would be recommended. In that scenario, it is anticipated that adverse effects on those cultural resources considered historic Properties would be avoided, minimized, or mitigated through NHPA Section 106. The nominated lease parcel is subject to lease notices WO-NHPA and NM-11-LN for any on-parcel development (see Appendix B).

Surface disturbance associated with reasonably foreseeable environmental trends and planned actions within the OFO may impact cultural resources. Such impacts may include, but are not limited to, loss of or damage to cultural resources or contextual information (such as distribution of cultural resources) due to the development of oil and gas facilities and related industrial development, increased vehicular traffic, unauthorized ground disturbances, inadvertent oil and produced water spills, erosion, and unauthorized collection. The magnitude of impacts associated with reasonably foreseeable environmental trends and planned actions would generally depend upon the location of reasonably foreseeable development relative to the location of cultural resources and the degree to which the setting has already been affected. As with the effects of future potential development, effects from reasonably foreseeable

development on federal lands or with a federal nexus would require separate NHPA processes to avoid, minimize, and/or mitigate effects on Historic Properties.

AIB-2 Native American Concerns

How would future potential development of the nominated lease parcel impact Native American resource concerns?

The BLM initiated government-to-government consultation under NEPA and Tribal Historic Preservation Office (THPO) consultation under NHPA Section 106 on October 7, 2020 (for the postponed April 2021 lease sale, see Section 1.1) with the Apache Tribe of Oklahoma, Caddo Nation, Cheyenne and Arapaho Tribes of Oklahoma, Comanche Nation, Kiowa Tribe of Oklahoma, Muscogee (Creek) Nation, Northern Arapaho Tribe, Northern Cheyenne Tribe, Osage Nation, Seminole Nation, Thlopthlocco Tribal Town, United Keetoowah Band of Cherokee, Wichita & Affiliated Tribes, and Wyandotte Nation regarding the presence of and potential effects on Native American resource concerns within 2 miles of the nominated lease parcel (see Chapter 4).

The Northern Cheyenne THPO responded via email to the first Section 106 consultation letter on November 4, 2020, stating their determination was no effect. However, the THPO responded to NEPA consultation on November 12, 2020, requesting the Class I file search information and, if no known sites are within the parcel, a site density report for an area of 0.25 mile outside the APE. On November 19, the BLM responded providing the response given from the Northern Cheyenne THPO and the original letter sent to the THPO with information regarding the literature search.

On February 12, 2021, the Osage Nation's THPO requested that the OFO send any reports that had not been commented on since October 2020. The BLM sent the Osage Nation the April 2021 report on February 25, 2021, stating that the BLM would add any comments to the NEPA record. On March 29, 2021, the Osage Nation THPO responded that the project most likely will not adversely affect any sacred properties and/or properties of cultural significance and that the NHPA finding is no properties affected. The Osage Nation also said they look forward to future Section 106 consultation if the April 2020 Lease Sale moves to the APD stage. No other Native American resource concerns have been identified on the subject lease parcel; however, consultation is ongoing.

The BLM re-initiated government-to-government consultation under NEPA and THPO consultation under NHPA Section 106 on September 9, 2021, with the Apache Tribe of Oklahoma, Caddo Nation, Cheyenne and Arapaho Tribes of Oklahoma, Comanche Nation, Kiowa Tribe of Oklahoma, Muscogee (Creek) Nation, Northern Arapaho Tribe, Northern Cheyenne Tribe, Osage Nation, Quapaw Tribe, Seminole Nation, Southern Ute Tribe, Thlopthlocco Tribal Town, United Keetoowah Band of Cherokee, Wichita & Affiliated Tribes, and Wyandotte Nation regarding the presence of and potential effects on Native American resource concerns within 2 miles of the nominated lease parcel (see Chapter 4). No responses from the tribes or THPOs have been received for the re-initiation letters. NEPA consultation is considered ongoing.

Surface disturbance associated with reasonably foreseeable environmental trends and planned oil and gas operations within the OFO have the potential to adversely impact traditional cultural and religious properties located within the vicinity. Such impacts may include, but are not limited to, temporary or long-term loss of or damage to Native American areas of concern, increased vehicular traffic, inadvertent oil and produced water spills, or erosion. The magnitude of impacts associated with reasonably foreseeable environmental trends and planned actions would generally depend upon the location of reasonably foreseeable development relative to areas of concern to Native American tribes. Reasonably foreseeable development on federal lands or lands with a federal nexus would undergo the same type of consultation process discussed above. In addition, on federal or tribal lands, the BLM may apply COAs to

avoid, minimize, and/or mitigate effects on traditional cultural properties Traditional Cultural Properties (TCPs) or sacred sites.

AIB-3 Quality of Life

How would future potential development of the nominated lease parcel impact quality of life for residences near the nominated lease parcel?

The OFO planning area has been subject to historic and ongoing minerals development activities that generate increased human activity, traffic, noise, dust, odor, light pollution, and visual effects (the summary of the phases of oil and gas development in Appendix E). Historic and ongoing mineral development is also a notable component of the regional economy, contributing to regional employment, taxes, and royalty payments for residents and communities. All of these activities have potential to affect quality of life of nearby residences, depending on the intensity of development activities and proximity to residences. Surface disturbance associated with reasonably foreseeable environmental trends and planned actions would likely increase the effects of the activities discussed above. Collective effects from noise, dust, odor, and light disturbance associated with reasonably foreseeable environmental trends and planned actions would affect the quality of life for residence and livestock facilities within or adjacent to the parcel. Future potential development of the nominated lease parcel would comprise approximately one well and 8.06 acres of surface disturbance, which represents 0.06% to 0.23% of the total projected surface disturbance associated with reasonably foreseeable oil and gas development (3,500 to 13,750 acres) identified in the RFD. The nominated lease parcel is located in a remote area with few nearby residences. There are no residences within the nominated parcel itself, and the nearest residence is located approximately 0.31 mile away. Based on review of aerial imagery, four residences are located within 1 mile of the nominated lease parcel. Lands adjacent and within the vicinity of the nominated lease parcel are rural and sparsely populated and include areas of concentrated oil and gas development. The concentrated areas of existing oil and gas development primarily occur outside of the Canton Lake Wildlife Management Area, but within close proximity (approximately 1–2 miles to the north and south) to the parcel boundary. While the majority of the effects to the nearest residences would be short term and would cease during operations (e.g., increased human activity, traffic, noise, dust, and odor during drilling and completion phases), the residences would continue to experience long-term noise and visual impacts, including light pollution, that have potential to affect quality of life if they are located in areas in which oil and gas development is not currently nearby or visible. See the socioeconomics analysis in Table 1.2 for a discussion of potential beneficial socioeconomic impacts on communities and individuals in the vicinity of the lease.

The nominated lease parcel is subject to USACE's NSO stipulation for Canton Lake and therefore would be developed off-site but within approximately 2 miles of the parcel boundary. While the exact location of development is unknown, there are opportunities for future potential development to reasonably be placed in areas that are less proximal to residences to minimize quality of life issues. Under the authority granted in standard terms and conditions attached to the lease, measures to mitigate potentially adverse impacts to public lands, resources, and/or resource values may be attached as COAs to the APD. This could include measures to reduce noise, dust, odor, and light effects during construction and operations. As with reasonably foreseeable environmental trends and planned actions, effects to quality of life from these trends and actions would be examined at the APD level with consideration of site-specific locational information and development of COAs to reduce effect as needed.

AIB-4 Environmental Justice

What are the potential impacts from oil and gas leasing and future potential development on environmental justice (EJ) populations?

Environmental justice (EJ) refers to the fair treatment and meaningful involvement of people of all races, cultures, and incomes with respect to the development, implementation, and enforcement of environmental laws, regulations, programs, and policies (CEQ 1997). Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires federal agencies to determine if proposed actions would have disproportionately high and adverse environmental impacts on minority, low-income, and American Indian populations of concern. BLM policy, as contained in BLM *Land Use Planning Handbook H-1601-1* (BLM 2005) Appendix C, provides direction on how to fulfill agency responsibilities for Executive Order 12898.

The CEQ has developed guidance to assist federal agencies with their NEPA procedures so that environmental justice concerns are effectively identified and addressed. The guidance focuses on identifying communities of concern (e.g., minority and low-income populations) using census data. Low-income populations are defined as those living below the poverty threshold (see Federal Interagency Working Group on Environmental Justice and NEPA Committee 2016), as identified by the U.S. Census Bureau. Minority populations include the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic (CEQ 1997). A minority population is identified as a community of concern if either 1) the minority population of the area of analysis exceeds 50% of the population, or 2) the minority population percentage of the area of analysis is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (CEQ 1997:25). A minority population also exists “if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above-stated thresholds” (CEQ 1997:26). The BLM generally defines “meaningfully greater” as 10 percentage points above the population size of the comparison geography. A low-income population is present anywhere the percentage of the population in poverty is the same or greater than that of the reference area and, therefore, would be considered a community of concern (see Federal Interagency Working Group on Environmental Justice and NEPA Committee 2016).

The nominated lease parcel is located in Dewey County, Oklahoma. Because socioeconomic and census data are typically available at the county level, population data for Dewey County is used as the area of analysis for identifying communities of concern. The State of Oklahoma is then used as a comparison population for determining if low-income or minority populations in Dewey County exceed the thresholds described by CEQ for consideration as communities of concern (Table 3.2).

Table 3.2. Minority and Low-Income Populations in Area of Analysis

	Analysis Area	
	Dewey County	Oklahoma
Total Population of Analysis Area*	4,922	3,932,870
Minority Populations in Analysis Area	Percent of Minority Populations in Analysis Area	
Hispanic or Latino (of any race) †	7.5%	10.6%
Black or African American – one race	0.2%	7.3%
American Indian and Alaska Native – one race	4.8%	7.6%
Asian – one race	0.1%	2.2%

	Analysis Area	
	Dewey County	Oklahoma
Native Hawaiian and Other Pacific Islander – one race	0.0%	0.2%
Some other race – one race	0.1%	2.7%
Two or more races	5.8%	7.7%
Total Minority Population†	10.9%	27.7%
Poverty Prevalence in Area of Analysis	Percent of Population Below Poverty Line in Analysis Area	
All Individuals Below Poverty Line§	16.6%	15.7%
Families Below Poverty Line	10.6%	11.3%

Data Source: Headwaters Economics (2021a).

* American Community Survey 5-year estimates used. 2019 represents average characteristics from 2015 to 2019.

‡ Hispanic refers to ethnicity and is derived from the total population, not as a separate race, i.e., it is calculated differently than the other columns in this table.

† Does not include “Not Hispanic or Latino” or “Hispanic or Latino” populations, as these populations are not considered a separate race, and are not therefore excluded from the calculation of the aggregate minority populations.

§ All individuals includes those below the poverty line, regardless of whether they are included as such due to being below the individual income or family income poverty line.

After examination of the most recently available census and socioeconomic data for the area of analysis (Headwaters Economics 2021a) the BLM has determined that a community of concern is present within proximity of the nominated lease parcel (see Table 3.2). The population in poverty for Dewey County is greater than that of the State of Oklahoma, and therefore, it is considered a community of concern.

The low-income community of concern within the analysis area constitutes a population at risk who is more likely to experience adverse health outcomes due to demographic or socioeconomic factors (Headwaters Economics 2022). Aside from poverty status, other factors contributing to increased health risks for the community of concern in the analysis area include, but are not limited to, age, housing characteristics, and lack of health insurance. Although most of the indicators for populations at risk in Dewey County are comparatively less than the state of Oklahoma, certain indicators are higher than the state; these include populations of people over 65, people living in mobile homes, and people without health insurance (Headwaters Economics 2022). The percentages of these populations at risk in Dewey County exceeds those within the state of Oklahoma by 1.2% to 8.9%.

While the determination of potential adverse and disproportionate impacts from specific actions may initially be the assessment of the BLM, this assessment should not be assumed to be the position of specific, potentially impacted, communities of concern. The BLM realizes that additional adverse impacts may be identified by local communities as specific development locations and types are proposed. As a result, the following discussion assesses only the impacts for the issues identified by the BLM during scoping and public comment (see Section 1.5). The BLM would continue to work with potentially impacted communities of concern to identify and address additional EJ issues as they arise. The BLM issued a press release for the proposed Q1 2022 lease sales in Spanish, in an effort to target public involvement from communities of concern within the analysis area. The federal government cannot dictate where oil and gas reserves may exist. Consequently, there may be instances where oil and gas exploration activities disproportionately and adversely impact communities of concern due to proximity and other factors.

Oil and gas exploration activities can be active for variable amounts of time. For example, a typical horizontal well averages from 30 to 60 days from start of drilling to completion (see Appendix E) and may have a greater impact (increased dust, traffic, etc.) on resident populations in close proximity to such

drilling operations while the drilling operations are ongoing. These types of exploration activities may result in impacts that may be perceived as adverse by communities of concern if they are located near the drilling operations; however, the BLM does not know exactly where drilling operations may take place until lease development is proposed, if a nominated lease parcel is developed at all.

The BLM OFO uses stipulations and COAs to minimize effects to nearby populations, including communities of concern, during construction and operations, to the extent practicable. For purposes of the leasing action, Table 3.3 provides a summary of the adverse effects associated with the issues analyzed. Those conclusions are then assessed, by the BLM, relative to whether the projected impacts to communities of concern may be adverse and disproportionate. Note that any residence, community facility, or gathering space in an area with a community of concern has the chance of being significant to that community. As described in AIB-3, there are no residences within the nominated parcel itself, and the nearest residence is located approximately 0.31 mile away. Based on review of aerial imagery, four residences are located within 1 mile of the nominated lease parcel. Note that any residence, community facilities, or gathering spaces in an area with a community of concern have the chance of being significant to that community. Aside from known residences within 2 miles of the lease parcel, no other community facilities or gathering places have been identified within the lease parcel or within 2 miles of the lease parcel during internal or external scoping. Impacts to communities of concern may incrementally contribute to impacts associated with reasonably foreseeable environmental trends and planned actions.

Additional analysis would be conducted at the time of proposed lease development. Standard terms and conditions attached as COAs to the APD could include measures to reduce effects on nearby communities of concern. Under the Oil and Gas Leasing Regulation for Surface Use Rights (43 CFR 3101-1-2), such reasonable measures may include modification to siting or design of facilities, including relocation of proposed operations up to 656 feet (200 m). These measures would minimize potential effects that could be adverse and disproportionate to members of communities of concern.

Table 3.3. Summary Comparison of Conclusions from Analysis of Other Issues to Environmental Justice

Issues Analyzed	Summary of Potential Adverse Effects	Are potential effects disproportionate to environmental justice populations?
Greenhouse Gases and Climate Change (Issue 1, Section 3.6.1)	Future potential development of the nominated lease parcel is estimated to result in GHG emissions of 0.173 Mt CO ₂ e over the 20-year life of the lease, which is between 0.413% and 0.706% of federal fossil fuel authorization emissions in the state and between 0.002% and 0.004% of federal fossil fuel authorization emission in the nation. All GHG emissions would contribute to global GHG emissions. GHG emissions are associated with documented ongoing and reasonably foreseeable climate-related effects on natural resources, which in turn can effect human populations.	Yes. While any climate change–related effect from the future potential development of the parcel itself would be minimal, climate change is the result of collective and global actions. Any climate change–related impact would be regional in nature and may disproportionately affect communities of concern in the analysis area who are unable to relocate or take other actions to address a changing climate.
Quality of Life (AIB-3, Section 3.5)	Future potential development of the nominated lease parcel could result in localized air, noise, visual resources, and traffic and safety effects that could affect quality of life for local residences and EJ populations, particularly during construction. Continued expansion of the oil and gas industry may be perceived as having a negative effect on quality of life for people who value undeveloped landscapes.	Potential for disproportionate impacts to communities of concern. In general, quality of life impacts would be greater for the residents in close proximity to future potential development. When evaluating placement of wells at the lease development stage, standard design features and project-specific COAs would be applied to reduce effects that could be adverse and disproportionate to communities of concern.

Any climate change–related impact would be regional in nature but may disproportionately affect communities of concern in the analysis area who are already socially vulnerable and have a lower

capacity to prepare for, cope with, and recover from climate change impacts, including higher temperatures, decreased overall water availability, or increased flooding (EPA 2021j). Similarly, air pollution and associated health effects (as described in the March 2019 EA, Section 3.5.1) can disproportionately affect communities of concern in the analysis area who are already socially vulnerable and have greater difficulty accessing healthcare facilities and paying for medical treatment, or have a higher likelihood of having pre-existing health conditions (EPA 2021j).

3.6 ISSUE ANALYZED IN DETAIL

The issue identified for detailed analysis in this EA was developed in accordance with CEQ regulations and the guidelines set forth in the BLM NEPA Handbook H-1790-1 (BLM 2008) using input from internal and external scoping. Issues were retained for detailed analysis if that analysis is necessary to make a reasoned choice between alternatives; to determine significance; if there is disagreement about the best way to use a resource; or if there is conflict between resource impacts or uses.

3.6.1 Issue 1: Greenhouse Gases and Climate Change

How would future potential development of the nominated lease parcel contribute to greenhouse gas (GHG) emissions and climate change?

The proposed leasing action could lead to emissions of carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), the three most common GHGs associated with oil and gas development. These GHG emissions would be emitted from the nominated lease parcel if developed, and from the consumption of any fluid minerals that may be produced. However, the BLM cannot reasonably determine at the leasing stage whether, when, and in what manner a lease would be explored or developed. The uncertainty that exists at the time the BLM offers a lease for sale includes crucial factors that would affect actual GHG emissions and associated impacts, including but not limited to the future feasibility of developing the lease, well density, geological conditions, development type (vertical, directional, or horizontal), hydrocarbon characteristics, specific equipment used during construction, drilling, production, abandonment operations, production and transportation, and potential regulatory changes over the 10-year primary lease term.

For the purposes of this analysis, the BLM has evaluated the potential effects of the proposed leasing action on climate change by estimating and analyzing potential GHG emissions from projected oil and gas development on the parcels proposed for leasing using estimates based on past oil and gas development and available information from existing development within the state.

Additional discussion of climate change science and predicted impacts as well as the reasonably foreseeable and cumulative GHG emissions associated with BLM's oil and gas leasing actions are included in the BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends (2020) (hereinafter referred to as the Annual GHG Report) (BLM 2021b). This report presents the estimated emissions of GHGs attributable to fossil fuels produced on lands and mineral estate managed by the BLM. The Annual GHG Report is incorporated by reference as an integral part of the analysis for this proposed lease sale and is available at <https://www.blm.gov/content/ghg/>.

3.6.1.1 *Affected Environment*

CLIMATE CHANGE AND GREENHOUSE GASES

Climate change is a global process that is affected by the sum total of GHGs in the Earth's atmosphere. The incremental contribution to global GHGs from a single proposed land management action cannot be

accurately translated into its potential effect on global climate change or any localized effects in the area specific to the action. Currently, global climate models are unable to forecast local or regional effects on resources. However, there are general projections regarding potential impacts on natural resources and plant and animal species that may be attributed to climate change from GHG emissions over time. GHGs influence the global climate by increasing the amount of solar energy retained by land, water bodies, and the atmosphere. GHGs can have long atmospheric lifetimes, which allow them to become well mixed and uniformly distributed over the entirety of the Earth's surface no matter their point of origin. Therefore, potential emissions from the Proposed Action can be compared with state, national, and global GHG emission totals to provide context of their significance and potential contribution to climate change impacts.

Table 3.4 shows the total estimated GHG emissions from fossil fuels at the global and national scales over the last 5 years. Emissions are shown in megatonnes (Mt) per year of carbon dioxide equivalent (CO₂e). Table 3.5 shows the calculated GHG emissions (in Mt of CO₂e) for all federal fossil fuels (includes off-shore oil and gas production) based on current 2020 production data obtained from the Department of the Interior's Office of Natural Resources Revenue (ONRR), as well as the percent contribution from federal fossil fuels to total U.S. fossil fuel GHG emissions. Chapter 3 of the Annual GHG Report contains additional information regarding GHGs and an explanation of CO₂e. Table 3.6 shows GHG emissions data from the largest GHG emitting facilities as reported to the U.S. Environmental Protection Agency (EPA) through its Greenhouse Gas Reporting Program (GHGRP) for those states associated with this potential leasing action. Table 3.6 also shows energy-related CO₂ emissions reported by the U.S. Energy Information Administration (EIA) in its annual State Energy-Related Carbon Dioxide Emissions Tables (EIA 2021a). State energy-related CO₂ emissions include emissions from fossil fuel use across all sectors (residential, commercial, industrial, transportation, and electricity generation) and are released at the location where the fossil fuels are consumed.

Additional information on current state, national, and global GHG emissions as well as the methodology and parameters for estimating emissions from BLM fossil fuel authorizations and cumulative GHG emissions is included in the Annual GHG Report (see Chapters 4, 5, and 6).

Table 3.4. Global and U.S. GHG Emissions from 2015 through 2019

Scale	GHG Emissions (Mt CO ₂ /yr)				
	2015	2016	2017	2018	2019
Global	52,700	52,800	53,500	55,300	59,100
U.S.	5,249	5,153	5,083	5,244	5,107

Source: Annual GHG Report, Chap. 6, Table 6-1 (BLM 2021b)

Note: Data are reported in Mt CO₂/yr; 1 Mt (megatonne) = 1 million metric tons.

Table 3.5. 2020 Federal Fossil Fuel GHG Emissions and Percent Federal Contribution

	U.S. Total (Mt CO ₂ e/yr)	Federal Total* (Mt CO ₂ e/yr)	% Contribution of Federal Emissions
Coal	1,248.1	490.9	39.34
Oil	2,363.2	516.4	21.86
Gas	2,726.4	316.2	11.61
Total	6,337.7	1,324.3	20.9

* Federal total includes emission estimates for both on-shore and off-shore oil and gas production for 2020 based on current ONRR production data found at <https://revenue.data.doi.gov/downloads/production/>.

Table 3.6. State GHG Emissions

State	EPA - GHGRP Large Emitters (Mt CO ₂ /yr)			EIA Energy-related CO ₂ Emissions (Mt/yr)
	Total Reported	Power Plants	Petroleum and Natural Gas Systems	
Oklahoma	51.4	28.4	4.5	97.9

Sources: Annual GHG Report, Chapter 6, Table 6-3 (BLM 2021b); EIA (2021a)

The continued increase of anthropogenic GHG emissions over the past 60 years has contributed to global climate change impacts. A discussion of past, current, and projected future climate change impacts is described in Chapters 8 and 9 of the Annual GHG Report (BLM 2021b). These chapters describe currently observed climate impacts globally, nationally, and in each state, and present a range of projected impact scenarios depending on future GHG emission levels. These chapters are incorporated by reference in this analysis.

3.6.1.2 *Environmental Consequences*

PROPOSED ACTION ALTERNATIVE

While the leasing action itself does not directly generate GHG emissions, such emissions are a reasonably foreseeable consequences of oil and gas development. There are three general phases of post-lease development that would generate GHG emissions: 1) well development (well site construction, well drilling, and well completion), 2) production operations (processing, storage, and transport/distribution), and 3) end use (combustion) of the fuels produced.

The BLM cannot develop a precise emissions inventory at the leasing stage due to uncertainties, which include the type (oil, gas, or both), scale, and duration of potential development; the types of related equipment (drill rig engine tier rating, horsepower, fuel type); and the mitigation measures that future lessees may propose in their development plans. In order to estimate reasonably foreseeable on-lease emissions at the leasing stage, the BLM uses estimated well numbers based on state data for past lease development combined with per-well drilling, development, and operating emissions data from representative wells in the area. The amount of oil or gas that may be produced if the offered parcel is developed is unknown. For purposes of estimating production and end-use emissions, reasonably foreseeable wells are assumed to produce oil and gas in similar amounts as existing nearby wells. While the BLM has no authority to direct or regulate the end-use of the products for this analysis, the BLM assumes all produced oil or gas will be combusted (such as for domestic heating or energy production). The BLM acknowledges that there may be additional sources of GHG emissions along the distribution, storage, and processing chains (commonly referred to as midstream operations) associated with production from the lease parcel. These sources may include emissions of CH₄ (a more potent GHG than CO₂ in the short term) from pipeline and equipment leaks, storage, and maintenance activities. At the leasing stage, these sources of emissions are highly speculative, and the BLM has therefore chosen to assume, for the purposes of this analysis, that all produced oil or gas will be combusted. We note, however, that the potential emissions from these sources have been estimated and are accounted for in the cumulative assessment of GHGs from BLM's fossil fuel leasing program.

The emissions used in this analysis are estimated as described above using the BLM Lease Sale Emissions Tool (BLM 2021b). Emissions are presented for each of the three phases described above.

- Well development emissions occur over a short period and include emissions from heavy equipment and vehicle exhaust, drill rig engines, completion equipment, pipe venting, and any well treatments such as hydraulic fracturing that may be used.

- Production operations and end-use emissions occur over the entire production life of a well, which is assumed to be 30 years for this analysis based on the productive life of a typical oil/gas field. Production emissions may result from storage tank breathing and flashing, truck loading, pump engines, heaters and dehydrators, pneumatic instruments or controls, flaring, fugitives, and vehicle exhaust.
- End-use emissions occur from the downstream combustion of produced oil or gas. End-use emissions are estimated by multiplying the estimated ultimate recovery (EUR) of produced oil and gas with emissions factors for combustion established by the EPA (Appendix Tables C-1 and C-2 of 40 CFR Part 98, Subpart C). Additional information regarding emission factors and EUR factors is provided in the Annual GHG Report (Chapter 4).

Tables 3.7 and 3.8 list the estimated direct and indirect GHG emissions in metric tons (tonnes) for the proposed lease sale over the average 20-year production life of the lease.

Table 3.7. Estimated Life-of-Lease Emissions (On-Site) from Well Development and Production Operations

Activity	CO ₂ (tonnes)	CH ₄ (tonnes)	N ₂ O (tonnes)	CO ₂ e (100-year GWP) (tonnes)	CO ₂ e (20-year GWP) (tonnes)
Well development	1,767	1.01	0.014	1,808	1,860
Production operations	22,273	337.18	0.052	34,427	51,959

Table 3.8. Estimated Life-of-Lease Indirect Emissions from the End-Use Combustion of Produced Oil and Gas

	EUR (bbl or mcf)	CO ₂ (tonnes)	CH ₄ (tonnes)	N ₂ O (tonnes)	CO ₂ e (100-year GWP) (tonnes)	CO ₂ e (20-year GWP) (tonnes)
Oil	111,617	48,222	1.94	0.388	48,408	48,497
Gas	1,629,236	88,695	1.67	0.167	88,805	88,887
Total end use	-	136,917	3.61	0.555	137,213	137,384

Source: BLM Lease Sale Emissions Tool (BLM 2021b)

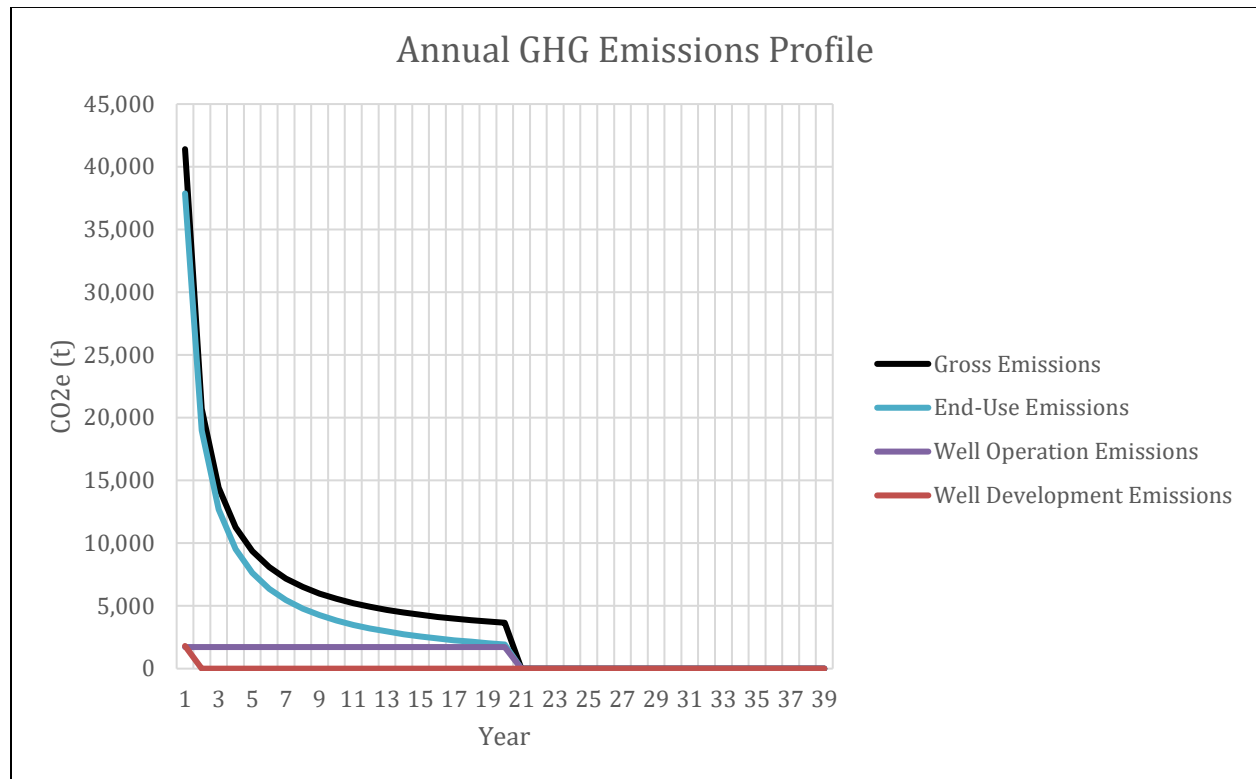
GHG emissions vary annually over the production life of a well due to declining production over time. Table 3.9 provides maximum year and average year emissions over the life of the lease. Figure 3.1 shows the estimated annual GHG emissions profile over the production life of a typical lease including well development, well operation, end-use, and gross (total of well development, well production, and end-use) emissions.

Table 3.9. Estimated Direct and Indirect Emissions from the Lease Parcel on an Annual and Life-of-Lease Basis

	CO ₂ (tonnes)	CH ₄ (tonnes)	N ₂ O (tonnes)	CO ₂ e (100-year GWP) (tonnes)	CO ₂ e (20-year GWP) (tonnes)
Max year	40,675	18.88	0.176	41,407	42,383
Average year	8,048	17.09	0.031	8,672	9,560
Life of lease	160,958	341.80	0.621	173,448	191,203

Source: BLM Lease Sale Emissions Tool (BLM 2021b)

In order to put the estimated GHG emissions for this lease sale in context, potential emissions that could result from development of the lease parcel for this sale can be compared with other common activities that generate GHG, as well as with emissions at state and national scales. The EPA GHG equivalency calculator can be used (<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>) to express the potential average year GHG emissions on a scale relatable to everyday life (EPA 2021h). For instance, the projected average annual GHG emissions from expected development following the proposed lease sale are equivalent to 1,885 gasoline-fueled passenger vehicles driven for 1 year, or the emissions that could be avoided by operating two wind turbines as an alternative energy source or offset by the carbon sequestration of 10,576 acres of forest land.



Source: BLM Lease Sale Emissions Tool (BLM 2021b)

Figure 3.1. Estimated Annual GHG Emissions Profile over the Life of a Lease

Table 3.10 compares estimated maximum and average annual lease-sale emissions to existing state GHG emissions, federal BLM fossil fuel (oil, gas, and coal) emissions, and U.S. fossil fuel and total GHG emissions reported in the EPA Inventory of U.S. GHG Emissions and Sinks: 1990-2019 (EPA 2021i).

Table 3.10. Comparison of Lease Sale Annual Emissions with Emissions from Other Sources

Reference	Annual Emissions (Mt CO ₂ e)*	Average Year (% of reference)	Max Year (% of reference)
Max year	0.041	-	-
Average year	0.009	-	-
Oklahoma federal (oil and gas)†	1.5	0.598	2.856
Oklahoma federal (oil, gas, and coal)†	1.6	0.532	2.540
U.S. federal (oil and gas)†	427.7	0.002	0.010

Reference	Annual Emissions (Mt CO ₂ e)*	Average Year (% of reference)	Max Year (% of reference)
U.S. federal (oil, gas, and coal)†	918.6	0.001	0.005
Oklahoma Annual Total ‡	134	0.006	0.031
U.S. Annual Total‡	6,576.1	0.000	0.001

* Estimates are based on 100-year GWP values provided by AR-5 (IPCC 2013).

† Federal values come from the Annual GHG Report (BLM 2021b).

‡ U.S. and Oklahoma Values comes from the EPA Inventory of U.S. GHG Emissions and Sinks: 1990–2019 (EPA 2021). Data excludes LULUCF.

Table 3.11 compares emission estimates over the 20-year life of the lease compared to the 30-year projected federal emissions in the state and nation from existing wells, the development of approved APDs, and emissions related to reasonably foreseeable lease actions.

Table 3.11. Comparison of Life-of-Lease Emissions with Other Federal Oil and Gas Emissions from Existing Wells, Development of Approved APDs, and Other Leasing Actions in the State and Nation

Reference	Emissions (100-year GWP) (Mt CO ₂ e)	Life of Lease (% of reference)
Life of lease	0.173	100.000
Reasonably foreseeable short-term federal (oil and gas)	24.560	0.706
EIA projected long-term federal (oil and gas)	42.011	0.413
U.S. short-term federal (oil and gas)	4,307.51	0.004
U.S. long-term federal (oil and gas)	13,960.99	0.002

Source: U.S. and federal emissions from BLM Lease Sale Emissions Tool and Annual GHG Report Tables 5-17 and 5-18 (BLM 2021b).

Compared with emissions from other existing and foreseeable federal oil and gas development, the life-of-lease emissions for the Proposed Action is between 0.413% and 0.706% of federal fossil fuel authorization emissions in the state and between 0.001% and 0.004% of federal fossil fuel authorization emission in the nation.

In summary, potential GHG emissions from the Proposed Action could result in GHG emissions of 0.173 Mt CO₂e over the life of the lease.

MONETIZED IMPACTS FROM GHG EMISSIONS

The social cost of carbon, social cost of nitrous oxide (SC-N₂O), and social cost of methane (SC-CH₄)—together, the social cost of greenhouse gas (SC-GHG)—are estimates of the monetized damages associated with incremental increases in GHG emissions in a given year.

On January 20, 2021, President Biden issued Executive Order 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis* (Federal Register 86:7307). Section 1 of Executive Order 13990 establishes an administrative policy to, among other things, listen to the science, improve public health and protect our environment, ensure access to clean air and water, reduce GHG emissions, and bolster resilience to the impacts of climate change. Section 2 of the Executive Order calls for federal agencies to review existing regulations and policies issued between January 20, 2017, and January 20, 2021, for consistency with the policy articulated in the order and to take appropriate action.

Consistent with Executive Order 13990, the CEQ rescinded its 2019 “Draft National Environmental Policy Act Guidance on Considering Greenhouse Gas Emissions” and has begun the review process for updating its “Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews” issued on August 5, 2016 (2016 GHG Guidance) (Federal Register 86:10252). While CEQ works on updated guidance, it has instructed agencies to consider and use all available tools and resources in assessing GHG emissions and climate change effects, including the 2016 GHG Guidance.

Regarding the use of the social cost of carbon or other monetized costs and benefits of GHGs, the 2016 GHG Guidance noted that NEPA does not require monetizing costs and benefits (CEQ 2016). It also noted that “the weighing of the merits and drawbacks of the various alternatives need not be displayed using a monetary cost-benefit analysis and should not be when there are important qualitative considerations” (CEQ 2016).

Section 5 of Executive Order 13990 emphasized the importance for federal agencies to “capture the full costs of greenhouse gas emissions as accurately as possible, including by taking global damages into account” and established an Interagency Working Group on the Social Cost of Greenhouse Gases (IWG). In February 2021, the IWG published Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide: Interim Estimates under Executive Order 13990 (IWG 2021). This is an interim report that updated previous guidance from 2016. The final report is expected in January 2022.

In accordance with this direction, this subsection provides estimates of the monetary value of changes in GHG emissions that could result from selecting each alternative. Such analysis should not be construed to mean a cost determination is necessary to address potential impacts of GHGs associated with specific alternatives. These numbers were monetized; however, they do not constitute a complete cost-benefit analysis, nor do the SC-GHG numbers present a direct comparison with other impacts analyzed in this document. For instance, the BLM’s overall economic analysis for this lease sale does not monetize most of the major costs or benefits and does not include all revenue streams from the Proposed Action. SC- GHG is provided only as a useful measure of the benefits of GHG emissions reductions to inform agency decision-making.

For federal agencies, the best currently available estimates of the SC-GHG are the interim estimates of the social cost of carbon dioxide (SC-CO₂), SC-CH₄, and SC-N₂O developed by the IWG) on the SC-GHG. Select estimates are published in the Technical Support Document (IWG 2021) and the complete set of annual estimates are available on the Office of Management and Budget’s website (Office of Management and Budget 2021).

The IWG’s SC-GHG estimates are based on complex models describing how GHG emissions affect global temperatures, sea level rise, and other biophysical processes; how these changes affect society through, for example, agricultural, health, or other effects; and monetary estimates of the market and nonmarket values of these effects. One key parameter in the models is the discount rate, which is used to estimate the present value of the stream of future damages associated with emissions in a particular year. A higher discount rate assumes that future benefits or costs are more heavily discounted than benefits or costs occurring in the present (i.e., future benefits or costs are a less significant factor in present-day decisions). The current set of interim estimates of SC-GHG has been developed using three annual discount rates: 2.5%, 3%, and 5% (IWG 2021).

As expected with such a complex model, there are multiple sources of uncertainty inherent in the SC- GHG estimates. Some sources of uncertainty relate to physical effects of GHG emissions, human behavior, future population growth and economic changes, and potential adaptation (IWG 2021). To better understand and communicate the quantifiable uncertainty, the IWG method generates several thousand estimates of the social cost for a specific gas, emitted in a specific year, with a specific discount

rate. These estimates create a frequency distribution based on different values for key uncertain climate model parameters. The shape and characteristics of that frequency distribution demonstrate the magnitude of uncertainty relative to the average or expected outcome.

To further address uncertainty, the IWG recommends reporting four SC-GHG estimates in any analysis. Three of the SC-GHG estimates reflect the average damages from the multiple simulations at each of the three discount rates. The fourth value represents higher-than-expected economic impacts from climate change. Specifically, it represents the 95th percentile of damages estimated, applying a 3% annual discount rate for future economic effects. This is a low-probability but high-damage scenario representing an upper bound of damages within the 3% discount rate model. The estimates below follow the IWG recommendations.

The SC-GHGs associated with estimated emissions from future potential development of the lease parcels are reported in Table 3.12. These estimates represent the present value (from the perspective of 2021) of future market and nonmarket costs associated with CO₂, CH₄, and N₂O emissions from potential well development and operations, and potential end-use, as described in Subsection 3.6.1.2. Estimates are calculated based on IWG estimates of social cost per metric ton of emissions for a given emissions year and the BLM's estimates of emissions in each year. In practice, the current IWG estimates do not include all potential impacts of GHG emissions due to limitations in the underlying climate models or specification of damage functions. Consequently, this analysis accounts only for those damages that are considered in the IWG approach. They are rounded to the nearest \$1,000. The estimates assume development will start in 2022 and end-use emissions complete in 2041, based on experience with previous lease sales.

Table 3.12. SC-GHGs Associated with Future Potential Development

	SC-GHG (2020\$)			
	Average Value, 5% discount rate	Average Value, 3% discount rate	Average Value, 2.5% discount rate	95 th Percentile Value, 3% discount rate
Development and Operations	\$498,000	\$1,632,000	\$2,387,000	\$4,754,000
End-Use	\$1,852,000	\$6,752,000	\$10,151,000	\$20,277,000
Total	\$2,350,000	\$8,384,000	\$12,538,000	\$25,031,000

ESTIMATED GHG EMISSIONS FOR REASONABLY FORESEEABLE ENVIRONMENTAL TRENDS AND PLANNED ACTIONS

The analysis of GHGs contained in this EA includes estimated emissions from the parcel being offered in this lease sale as described above. In addition to this lease sale, the BLM is offering parcels in six other BLM administrative units within the first quarter of 2022. The estimated GHG emissions from parcels being offered in each of those individual sales is contained in the associated EA for each sale. When analyzing the potential impacts from multiple lease sales, it is important to note that it is the actual production of fossil fuel commodities on leased parcels that generates GHG emissions and not the offering of acres or parcels for lease in a particular grouping of lease sales. Parcels offered in a lease sale may or may not be sold and sold parcels may or may not go into production for several years if at all. Typically, lease sales in different BLM administrative units are not offered on the same date and each administrative unit has discretion to defer its sale or defer or add parcels as a result of scoping and protests. The dynamic nature of the lease sale process and independence of each administrative unit for constructing its lease sales precludes an analysis of potential GHG emissions that could occur from other lease sales that might occur in the same quarter. In addition, combining all of the offered parcels from multiple lease sales that may occur over a 3-month period, assuming all acres will be sold and produce

immediately, and estimating GHG emissions from development on the offered acreage based on these assumptions would result in an inflated, unrealistic quantity of estimated emissions that would not be useful to the decision maker and would not accurately inform the public of the magnitude of probable cumulative emissions and impacts.

An assessment of GHG emissions from BLM's fossil fuel authorizations, including coal leasing and oil and gas development is included in the BLM Specialist Report on Annual GHG Emissions (referred to as Annual Report, see Chapter 5 (BLM 2021b). The Annual Report includes estimates of reasonably foreseeable GHG emissions related to BLM lease sales anticipated during the calendar year, as well as the best estimate of emissions from ongoing production, and development of parcels sold in previous lease sales. It is, therefore, an estimate of cumulative GHG emissions from the BLM fossil fuel leasing program based on actual production and statistical trends.

The Annual Report provides an estimate of short-term and long-term GHG emissions from lease sale activity across the BLM. The short-term methodology presented in the Annual Report includes a trends analysis of 1) leased federal lands that are held by production, 2) approved APDs, and 3) leased lands from competitive lease sales occurring over the next annual reporting cycle (12 months) to provide a 30- year projection of potential emissions from federal lease actions over the next 12 months. The long-term methodology uses oil and gas production forecasts from the EIA to estimate GHG emissions out to 2050 that could occur from past, present, and future oil and gas development. For both methodologies, the emissions are calculated using life-cycle-assessment emissions and data factors. These analyses are the basis for projecting GHG emissions from lease parcels that are likely to go into production during the analysis period of the Annual Report and represent both a hard look at GHG emissions from fossil fuel leasing and the best available estimate of reasonably foreseeable cumulative emissions related to any one lease sale or set of quarterly lease sales. Table 3.13 shows the cumulative estimated GHG emissions from the development of the projected lease sale acres in 2022 using the methodology described above. The 5-year lease averages include all types of oil and gas development-related leases, including leases granted under the Mineral Leasing Act as well as other authorities, that have been issued over the last 5 years. As such the projections made from the 5-year averages represent the potential for all types of future potential oil and gas leasing activity and, although not at exact acreage levels, would account for the Proposed Action. However, the projections may also overestimate the potential emissions from the 12-month cycle of competitive oil and gas leasing activities if the projected lease sale activity does not actually occur.

Table 3.13. Reasonably Foreseeable Projected Emissions

State (BLM Administrative Unit)	Annual Report Table 4-8 Projected Lease Acres 2022	Annual Report Figure 5-1 GHG Emissions from Projected Lease Acres 2022 (Mt CO ₂ e per year)
Alabama (ES)	1	0.00
Alaska	356,021	9.33
Arkansas (ES)	536	0.04
California	184	0.02
Colorado	67,268	10.21
Idaho	1,881	0.03
Kansas (ES)	287	0.02
Kentucky (ES)	37	0.01
Louisiana (ES)	9,334	2.59

State (BLM Administrative Unit)	Annual Report Table 4-8 Projected Lease Acres 2022	Annual Report Figure 5-1 GHG Emissions from Projected Lease Acres 2022 (Mt CO ₂ e per year)
Michigan (ES)	5,006	0.17
Mississippi (ES)	2,609	0.06
Montana	60,807	2.48
Nebraska (WY)	19	0.01
Nevada	155,583	0.29
New Mexico	38,926	22.90
North Dakota (MT)	2,477	0.07
Ohio (ES)	681	0.18
Oklahoma (NM)	2,052	0.05
South Dakota (MT)	1,543	0.02
Texas (NM)	1,602	0.09
Utah	141,832	9.13
West Virginia (ES)	42	0.01
Wyoming	562,985	88.87
Total	1,411,713	146.56

NO ACTION ALTERNATIVE

Under the No Action Alternative, the parcel would not be leased, and no new foreseeable oil and gas development would occur on the subject lease parcel. Although no new GHG emissions from the development of the lease parcel would occur under the No Action Alternative, federal production levels are expected to remain static or even increase in the short-term, and non-federal oil and gas supply would likely increase if the leases are not developed.

The most recent short-term energy outlook (STEO) published by the EIA indicates that the world's oil and gas supply and consumption will increase over the next 24 months (through 2023) (EIA 2022). The latest STEO projections are not dependent on whether the BLM issues onshore leases for 2022, since these global projections were made prior to new leases being offered and are based on foreseeable short-term global supply and demand and depend on oil and gas development/operations on existing U.S. onshore leases. The latest STEO includes the following projections for the next 2 years:

- Global liquid fuels consumption will grow by 3.6 million barrels per day (bpd) in 2022 and 1.8 million bpd in 2023.
- U.S. crude oil production averaged 11.2 million bpd in 2021. Production is expected to average 11.8 million bpd in 2022 and increase to 12.4 million bpd in 2023
- U.S. liquid natural gas export capacity increases will contribute to liquid natural gas exports averaging 11.5 and 12.1 billion cubic feet per day in 2022 and 2023, respectively.
- Coal production will increase by 6% in 2022 and then increase an additional 1% to a total of 619 million short tons in 2023.

Although electricity-generating capacity from renewable energy sources is anticipated to continue to grow in 2022 and 2023, it will not have a significant impact on short-term supply and demand. EIA studies and

recent U.S. activities regarding short-term domestic “supply disruptions” or sudden increases in demand suggest that reducing domestic supply (in the near term under the current supply/demand scenario) would lead to the import of more oil and natural gas from other countries, including countries with lower environmental and emission control standards than the United States, or even cause a release from the current U.S. stockpile to meet consumer demand and maintain stable prices.

The 2021 Annual Energy Outlook (EIA 2021b) long-term energy outlook for the high U.S. domestic natural gas supply scenario describes a potential 1.2% growth in natural gas-related GHG emissions for the power sector through year 2050 and an almost 3% decline in coal-related emissions over the 30-year period. For the EIA projected low oil and gas supply scenario, power sector related GHG emissions are reduced for both natural gas and coal through the period, though at a smaller relative percentage for coal, resulting in coal-related emissions remaining higher than those associated with natural gas at year 2050 (EIA 2021c). A detailed discussion of past, present, and projected global and state GHG emissions can be found in Chapter 6 of the Annual Report.

3.6.1.3 Mitigation Strategies

GHG emissions contribute to changes in atmospheric radiative forcing resulting in climate change impacts. GHGs act to contain solar energy loss by trapping longer wave radiation emitted from the Earth's surface and act as a positive radiative forcing component. The buildup of these gases has contributed to the current changing state of the climate equilibrium toward warming. Chapters 8 and 9 of the Annual Report provide a detailed discussion of climate change science, trends, and impacts. The relationship between GHG emissions and climate impacts is complex, but a project's potential to contribute to climate change is reduced as its net emissions are reduced. When net emissions approach zero, the project has little or no contribution to climate change. Net-zero emissions can be achieved through a combination of controlling and offsetting emissions. Emission controls (e.g., vapor recovery devices, no-bleed pneumatics, leak detection and repair, etc.) can substantially limit the amount of GHGs emitted to the atmosphere, while offsets (e.g., sequestration, low carbon energy substitution, plugging abandoned or uneconomical wells, etc.) can remove GHGs from the atmosphere or reduce emissions in other areas. Chapter 10 of the Annual Report provides a more detailed discussion of GHG mitigation strategies.

The federal government includes several agencies that work responsibly in concert for implementing climate change strategies and meeting U.S. emissions reduction goals all while supporting U.S. oil and gas development and operations. The EPA is the federal agency charged with regulation of air pollutants and establishing standards for protection of human health and the environment. The EPA has issued regulations that will reduce GHG emissions from any development related to the proposed leasing action. These regulations include the New Source Performance Standard for Crude Oil and Natural Gas Facilities (49 CFR 60, subpart OOOOa), which imposes emission limits, equipment design standards, and monitoring requirements on oil and gas facilities. A detailed discussion of existing regulations and Executive Orders that apply to BLM management of federal lands as well as current federal and state regulations that apply to oil and gas development and production can be found in Chapter 2 of the Annual Report.

The majority of GHG emissions resulting from federal fossil fuel authorizations occur outside of the BLM's authority and control. These emissions are referred to as indirect emissions and generally occur off-lease during the transport, distribution, refining, and end use of the produced federal minerals. The BLM's regulatory authority is limited to those activities authorized under the terms of the lease and are primarily included in the upstream portions of natural gas and petroleum systems. This decision authority is applicable when development is proposed on public lands and BLM assesses its specific location, design and proposed operation. In carrying out its responsibilities under NEPA, the BLM has developed BMPs designed to reduce emissions from field production and operations. BMPs may include limiting emissions on stationary combustion sources, mobile combustion sources, fugitive sources, and

process emissions occurring on a lease parcel. Analysis and approval of future development may include application of BMPs within BLM's authority, as COAs or lease stipulations, to reduce or mitigate GHG emissions. Additional measures proposed at the project development stage also may be incorporated as applicant-committed measures by the project proponent or added to necessary air quality permits. Additional information on mitigation strategies, including emissions controls and offset options, are provided in Chapter 10 of the Annual GHG Report (BLM 2021b).

CHAPTER 4. CONSULTATION AND COORDINATION

The following consultation and coordination efforts with tribes, individuals, organizations, and agencies were conducted for the proposed leasing actions.

4.1 ENDANGERED SPECIES ACT CONSULTATION

The March 2019 EA, Section 4.1, states the following:

The OFO completed a Biological Evaluation (BE) based on an official species list obtained through the USFWS's Information for Planning and Consultation (IPaC) system on October 23, 2018. According to the USFWS IPaC system, the nominated lease parcels are within the range of the following federally listed species: the interior least tern (Sterna antillarum athalassos), piping plover (Charadrius melodus), red knot (Calidris canutus), and whooping crane (Grus americana). Potential habitat for piping plover, red knot, and whooping crane consists of sandbars, mudflats, marshes, and other wetland areas. Use of these habitats by these species would be limited to brief stopovers during migration. A database query from the Oklahoma Biological Survey at the Oklahoma Natural Heritage Inventory found no occurrence data for Federal and State threatened, endangered, or candidate species, as well as non-regulatory rare species and ecological systems of importance within the vicinity of the Dewey and Woodward County lease sale parcels. Additionally, The Oklahoma Department of Wildlife Conservation confirmed there are no occurrences of state listed threatened and endangered species in Dewey or Woodward Counties. The cumulative impact scenario in Section 3.3 of the OFO March 2019 Competitive Oil and Gas Lease Sale EA (DOI-BLM-NM-0040-2019-0002-EA) provides a quantitative overview of cumulative actions within the analysis area.

The BE determined that there would be "no effect" on any federally listed species or designated critical habitat; therefore, further consultation is not required. See Section 4.1 of the March 2019 EA for more information.

The BLM completed a review of species listings within the vicinity of nominated lease parcel 39 using the USFWS IPaC system in August 2021 under Consultation Code 02EKOK00-2021-SLI-2654 (accessed August 30, 2021), and no additional species were identified.

The BLM would initiate Section 7 consultation with the USFWS in compliance with the Endangered Species Act (ESA) for species not previously analyzed in the 2020 Oklahoma, Kansas and Texas BLM RMP Biological Assessment (BLM and BIA 2019a) if, during site selection, federally listed species are found to have a potential to be present or impacted during lease development, if applicable. No further consultation with the USFWS is required at this stage.

Although not expected to be present, any federally listed fish species with the potential to be present or impacted during site selection would require a separate "effects determination" made at a site-specific project level to ensure that water used for drilling operations is properly permitted from existing legal

sources (no new water depletions) and is in compliance with the ESA. Any new water depletion would likely require Section 7 consultation under the ESA.

4.2 TRIBAL CONSULTATION

Tribal consultation for the BLM is guided by a variety of laws, Executive Orders and Memoranda, as well as case law. Laws include the National Historic Preservation Act of 1966 and subsequent amendments (NHPA; Public Law [PL] 89-665, 15 October 1966), the Archaeological Resources Protection Act of 1979 (PL 96-95, 16 USC 470aa-mm, 31 October 1979), the American Indian Religious Freedom Act of 1978 (PL 95-341, USC 1996 and 1996a, 11 August 1978), NEPA (PL 91-190, 42 USC 4321-4347, 1 January 1970), the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA; PL 101-601, 16 November 1990), and the FLPMA (PL 94-579, 21 October 1976). Executive Orders and Memoranda include a 1994 Memorandum on Government-to-Government Relations with Native American Tribal Governments (59 Federal Register 85, 4 May 1994), Executive Order 13007 on Accommodation of Sacred Sites (61 Federal Register 104, 29 May 1996), and Executive Order 12898 on Environmental Justice (59 Federal Register 32, 16 February 1994).

The BLM has initiated government-to-government consultation for the proposed lease sale. Tribal consultation is a separate process from public scoping, due to the unique relationship between the U.S. Government and federally recognized tribes. The primary methods of tribal consultation include letters providing April 2021 lease sale information materials, telephone calls, and/or face-to-face meetings, if requested.

The BLM initiated government-to-government consultation under NEPA and THPO consultation under NHPA Section 106 on October 7, 2020 (for the postponed April 2021 lease sale, see Section 1.1), with the Apache Tribe of Oklahoma, Caddo Nation, Cheyenne and Arapaho Tribes of Oklahoma, Comanche Nation, Kiowa Tribe of Oklahoma, Muscogee (Creek) Nation, Northern Arapaho Tribe, Northern Cheyenne Tribe, Osage Nation, Seminole Nation, Thlopthlocco Tribal Town, United Keetoowah Band of Cherokee, Wichita & Affiliated Tribes, and Wyandotte Nation regarding the presence of and potential effects on Native American resource concerns within 2 miles of the nominated lease parcel. In these letters, the BLM provided information regarding the parcel, a map of the parcel, lease notices regarding cultural resources, and the NEPA schedule for this project, specifically regarding the dates the EA would be available online for comment.

The Northern Cheyenne THPO responded via email to the Section 106 consultation on November 4, 2020, stating their determination was no effect. However, the THPO responded to NEPA consultation on November 12, 2020, asking for the Class I file search information and if no known sites are within the parcel, wanted a site density report for an area of 0.25 mile outside the APE. On November 19, the BLM responded providing the response given from the Northern Cheyenne THPO and the original letter sent to the THPO with information regarding the literature search. As of January 28, 2021, the Northern Cheyenne THPO has not responded.

On February 12, 2021, the Osage Nation's THPO did not respond within the Section 106 consultation period but requested that the OFO send them any reports that had not been commented on since October 2020. The BLM sent the Osage Nation the April 2021 report on February 25, 2021, stating that the BLM would add any comments to the NEPA record. On March 29, 2021, the Osage Nation THPO responded that the project most likely will not adversely affect any sacred properties and/or properties of cultural significance and that the NHPA finding is no properties affected. The Osage Nation also said they look forward to future Section 106 consultation if the April 2021 lease sale moves to the APD stage.

The BLM re-initiated government-to-government consultation under NEPA and THPO consultation under NHPA Section 106 on September 9, 2021, with the Apache Tribe of Oklahoma, Caddo Nation,

Cheyenne and Arapaho Tribes of Oklahoma, Comanche Nation, Kiowa Tribe of Oklahoma, Muscogee (Creek) Nation, Northern Arapaho Tribe, Northern Cheyenne Tribe, Osage Nation, Quapaw Tribe, Seminole Nation, Southern Ute Tribe, Thlopthlocco Tribal Town, United Keetoowah Band of Cherokee, Wichita & Affiliated Tribes, and Wyandotte Nation regarding the presence of and potential effects on Native American resource concerns within 2 miles of the nominated lease parcel.

The Southern Ute responded on October 26, 2021, that they had no concerns but requested additional consultation at the time the individual lease parcels are developed. No other responses from the tribes or THPOs have been received for the re-initiation letters. NEPA consultation is considered ongoing.

4.3 STATE HISTORIC PRESERVATION OFFICE AND TRIBAL HISTORIC PRESERVATION OFFICE CONSULTATION

The BLM sent NHPA Section 106 consultation letters to the SHPO and Oklahoma Archeological Survey (OAS) on October 9, 2020 (for the April 2021 lease sale) and again on September 9, 2021 (for the Quarter 1 2022 lease sale). In these letters, the BLM provided information on the proposed lease and a cultural resources literature review for the area where off-lease development has the potential to occur. In its correspondence, the BLM made a determination of No Historic Properties Affected, as defined in 36 CFR 800.4(d)(1) for the lease sale. Lease sales are an early step in the development of new oil and gas wells that does not involve or authorize any land disturbance or construction. Future undertakings associated with oil and gas development on any issued leases will be handled through separate, future NEPA and NHPA Section 106 processes at the APD stage.

In response to the first letter sent October 7, 2020, the Oklahoma SHPO concurred with the BLM's determination of effect on November 6, 2020. On December 17, 2020, the OAS stated that it lacks sufficient information to concur with the BLM's recommended finding. The BLM responded to this letter on January 7, 2021. The OAS has not responded to the BLM as of April 2, 2021. Section 106 consultation is ongoing.

CHAPTER 5. LIST OF PREPARERS

Table 5.1 contains a list of individuals that contributed to preparation or review of this EA.

Table 5.1. List of EA Preparers

Name	Area of Expertise	Organization
Aaron Chastain	Natural Resource Specialist	BLM OFO
George Thomas	Wildlife Biologist	BLM OFO
Erin Knolles	Archaeologist	BLM OFO
Patrick Rich	Planning and Environmental Coordinator	BLM OFO
Michael Rodriguez	Realty Specialist	BLM OFO
Jamie Palmer	Archaeologist	BLM OFO
Phil Gensler	Paleontologist	BLM NMSO
Rebecca Hunt	Natural Resource Specialist - Minerals	BLM NMSO
Catherine Brewster	Natural Resource Specialist - Planning and NEPA	BLM NMSO
Deena Lentz	Planning and Environmental Specialist	BLM NMSO
Kim Ryan	Archaeologist	BLM NMSO
Sharllyn Pimentel	Natural Resource Assistant	BLM NMSO
Clara Meier	Natural Resource Assistant	BLM NMSO
Janet Guinn	Project Lead and NEPA Specialist	SWCA Environmental Consultants

Name	Area of Expertise	Organization
Jennifer Clayton	Assistant Project Lead and NEPA Specialist	SWCA Environmental Consultants
Brittany Sahatjian	NEPA Specialist and Lead Author	SWCA Environmental Consultants
Jennifer Summers	Cultural Resources Specialist	SWCA Environmental Consultants
Anne Russell	GIS Specialist	SWCA Environmental Consultants
Michele Rowe	Air Quality Specialist	SWCA Environmental Consultants
Erin Wielenga	Air Quality Specialist	SWCA Environmental Consultants

CHAPTER 6. LITERATURE CITED

- Bureau of Land Management (BLM). 2005. BLM Manual 1601-1. Available at: https://www.blm.gov/sites/blm.gov/files/uploads/Media_Library_BLM_Policy_Handbook_h1601-1.pdf. Accessed April 2021.
- . 2008. BLM National Environmental Policy Act Handbook H-1790-1. Washington, D.C.: Bureau of Land Management NEPA Program Office of the Assistant Director, Renewable Resources and Planning.
- . 2016. *Reasonable Foreseeable Development Scenario (RFD) Kansas, Oklahoma, & Texas*. Norman, Oklahoma: Bureau of Land Management, Oklahoma Field Office.
- . 2017. 43 CFR Part 3160 Onshore Oil and Gas Operations: Federal and Indian Oil and Gas Leases; Onshore Oil and Gas Order Number 1, Approval of Operations. *Federal Register* 82(6), Rules and Regulations. Available at: <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/operations-and-production/onshore-orders>. Accessed March 2020.
- . 2018a. BLM Handbook H-1624-1 – Planning for Fluid Mineral Resources. Available at: <https://www.blm.gov/sites/blm.gov/files/H-1624-1%20rel%201-1791.pdf>. Accessed March 2020.
- . 2018b. *Oklahoma, Kansas, and Texas Draft Joint Environmental Impact Statement/BLM Resource Management Plan and BIA Integrated Resource Management Plan*. Norman, Oklahoma: U.S. Department of the Interior; Bureau of Land Management and Bureau of Indian Affairs.
- . 2019. *Oklahoma Field Office Oil and Gas Lease Sale, March 2019, Final Environmental Assessment*. U.S. Department of the Interior, Bureau of Land Management, Oklahoma Field Office. Available at: https://eplanning.blm.gov/public_projects/115490/200277649/20034276/250040474/EA_OFO_March2019_FinalizationVer_508.pdf. Accessed September 2021.
- . 2020a. *Oklahoma, Kansas, and Texas BLM Record of Decision and Approved Resource Management Plan*. Moore, Oklahoma: U.S. Department of the Interior, Bureau of Land Management, Tulsa District, Oklahoma Resource Area. Available at: https://eplanning.blm.gov/epl-front-office/projects/lup/72142/20014636/250019730/BLM_OFO_OKT_ROD_Approved_RMP_-_March_2020_-_508.pdf. Accessed March 2020.
- . 2020b. BLM Water Support Document for Oil and Gas Development in New Mexico. Available at: https://www.blm.gov/sites/blm.gov/files/docs/2021-04/2020%20NM%20WSD_Revised_4.7.21_508.pdf. Accessed October 2021.
- . 2021a. *2020 Air Resources Technical Report for Oil and Gas Development in New Mexico, Oklahoma, Texas and Kansas*. Available at: https://www.blm.gov/sites/blm.gov/files/docs/2021-09/NM_ARTechRpt_2020_Sept%202021.pdf. Accessed October 2021.
- . 2021b. *BLM Specialist Report on Annual Greenhouse Gas Emissions from Coal, Oil, and Gas Exploration and Development on Public Lands and the Federal Mineral Estate*. Available online at: <https://www.co.blm.gov/AirResourcesReport/ghg/>. Accessed on August 11, 2021.

- Bureau of Land Management (BLM) and Bureau of Indian Affairs (BIA). 2019a. *Biological Assessment for Oklahoma, Kansas, and Texas Final Joint Environmental Impact Statement/Proposed BLM Resource Management Plan and Proposed BIA Integrated Resource Management Plan*. Norman, Oklahoma: U.S. Department of the Interior; Bureau of Land Management and Bureau of Indian Affairs. Available at: https://eplanning.blm.gov/epl-front-office/projects/lup/72142/20012467/250017023/Biological_Assessment_OKT_FJEIS_RMP.pdf. Accessed April 5, 2020.
- . 2019b. *Oklahoma, Kansas and Texas Final Joint Environmental Impact Statement/Proposed BLM Resource Management Plan and Proposed BIA Integrated Resource Management Plan*. Norman, Oklahoma: U.S. Department of the Interior, Bureau of Land Management, Oklahoma Field Office and U.S. Department of the Interior, Bureau of Indian Affairs, Southern Plains Regional Office and Eastern Oklahoma Regional Office. Available at: https://eplanning.blm.gov/epl-front-office/eplanning/docset_view.do?projectId=72142¤tPageId=107477&documentId=20007704. Accessed April 2021.
- Council on Environmental Quality (CEQ). 1997. *Environmental Justice: Guidance under the National Environmental Policy Act*. Available at: <https://www.epa.gov/environmentaljustice/ceq-environmental-justice-guidance-under-national-environmental-policy-act>. Accessed September 2021.
- . 2016. *Memorandum for Heads of Federal Departments and Agencies: Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews*. Available at: https://ceq.doe.gov/docs/ceq-regulations-and-guidance/nepa_final_ghg_guidance.pdf. Accessed October 2021.
- Federal Interagency Working Group on Environmental Justice and NEPA Committee. 2016. *Promising Practices for EJ Methodologies in NEPA Reviews*. Available at: https://www.epa.gov/sites/default/files/2016-08/documents/nepa_promising_practices_document_2016.pdf. Accessed September 2021
- Headwaters Economics. 2021a. Economic Profile for Dewey County, OK. Available at: <https://headwaterseconomics.org/apps/economic-profile-system/>. Accessed October 2021.
- Headwaters Economics. 2021b. Neighborhoods at Risk for Dewey County, OK. Available at: <https://headwaterseconomics.org/apps/neighborhoods-at-risk/>. Accessed September 2021.
- Interagency Working Group on the Social Cost of Greenhouse Gases (IWG). 2021. Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide, Interim Estimates under Executive Order 13990. Interagency Working Group on Social Cost of Greenhouse Gases, February 2021. Available at: https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf. Accessed September 2021.
- Intergovernmental Panel on Climate Change (IPCC). 2013. *Climate Change 2013: The Physical Science Basis, Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge and New York: Cambridge University Press.
- Karl, T.L. 2009. *Global Climate Change Impacts in the United States*. Cambridge: Cambridge University Press.
- Office of Management and Budget. 2021. Regulatory Matters. Available at: <https://www.whitehouse.gov/omb/information-regulatory-affairs/regulatory-matters/#scghgs>. Accessed October 2021.

- United Nations Environment Programme (UNEP). 2020. Emission Gap Report 2020. Nairobi. Available at: <https://www.unep.org/emissions-gap-report-2020>. Accessed September 2021.
- U.S. Department of Interior (DOI). 2021. *Report on The Federal Oil And Gas Leasing Program*, Prepared in Response to Executive Order 14008. U.S. Department of the Interior November 2021.
- U.S. Energy Information Administration (EIA). 2021a. State Energy-Related Carbon Dioxide Emissions Tables. Available at: <https://www.eia.gov/environment/emissions/state/>. Accessed October 6, 2021.
- . 2021b. Annual Energy Outlook 2021. Available at: <https://www.eia.gov/outlooks/aeo/>. Accessed October 6, 2021.
- . 2021c. Supply disruptions and rising demand boosted East Coast petroleum product imports in March. Available at: <https://www.eia.gov/todayinenergy/detail.php?id=48316>. Accessed October 2021.
- . 2022. Short-Term Energy Outlook. Available at: <https://www.eia.gov/outlooks/steo/>. Accessed January 2022.
- U.S. Environmental Protection Agency (EPA). 2020a. 2019 Facility Level Information on Greenhouse Gases Tool (FLIGHT). Available at: <https://ghgdata.epa.gov/ghgp/main.do>. Accessed January 2021.
- . 2021a. *Health Effects of Ozone Pollution*. Available at: <https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution>. Accessed January 2022.
- . 2021b. *Health and Environmental Effects of Particulate Matter (PM)*. Available at: <https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm>. Accessed January 2022.
- . 2021c. *Basic Information about NO₂*. Available at: <https://www.epa.gov/no2-pollution/basic-information-about-no2#Effects>. Accessed January 2022.
- . 2021d. *Basic Information about Carbon Monoxide (CO) Outdoor Air Pollution*. Available at: <https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution#Effects>. Accessed January 2022.
- . 2021e. *Basic Information about Lead Air Pollution*. Available at: <https://www.epa.gov/lead-air-pollution/basic-information-about-lead-air-pollution#health>. Accessed January 2022.
- . 2021f. *Sulfur Dioxide Basics*. Available at: <https://www.epa.gov/so2-pollution/sulfur-dioxide-basics#effects>. Accessed January 2022.
- . 2021g. *Health Effects Notebook for Hazardous Air Pollutants*. Available at: <https://www.epa.gov/haps/health-effects-notebook-hazardous-air-pollutants>. Accessed January 2022.
- . 2021h. Greenhouse Gases Equivalency Calculator. Available at: <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>. Accessed October 6, 2021.

———. 2021i. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019*. Available at: <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2019>. Accessed September 2021.

APPENDIX A. MAPS

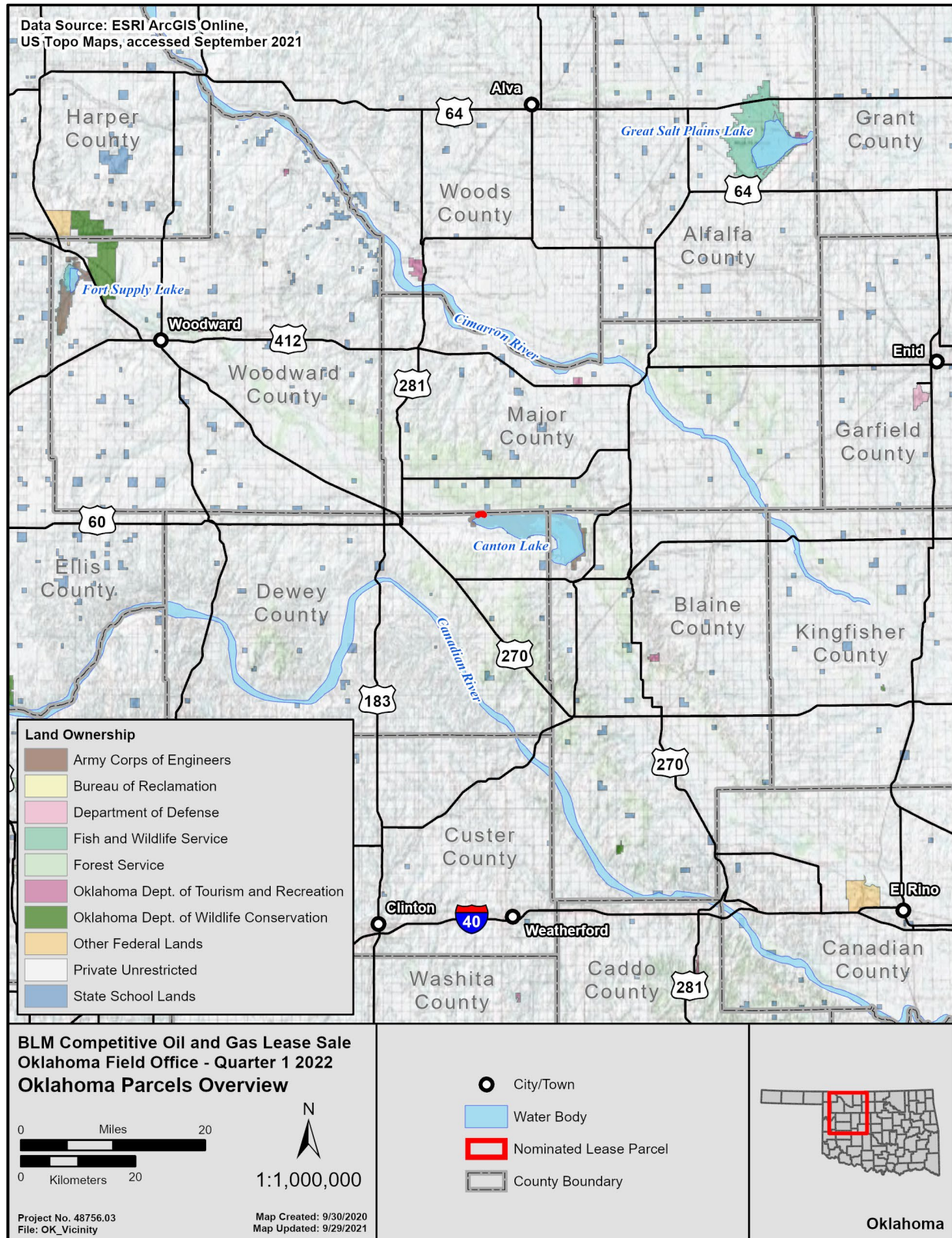


Figure A.1. Location of the nominated lease parcel analyzed within this EA, within the BLM OFO.

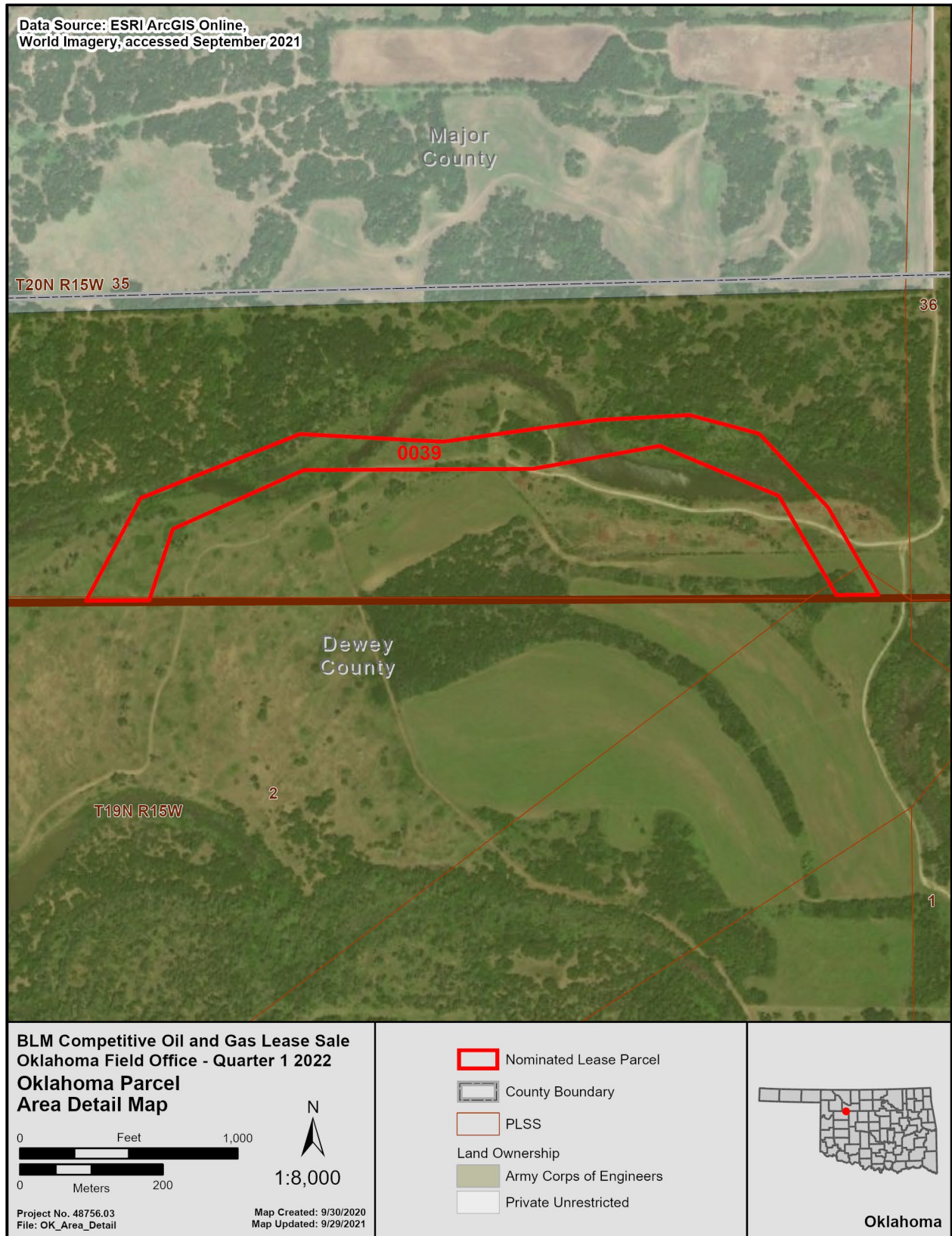


Figure A.2. Detailed map of the nominated lease parcel analyzed in this EA, within the BLM OFO.

APPENDIX B. OKLAHOMA FIELD OFFICE LEASE NOTICE AND STIPULATION SUMMARY

Table B.1. Lease Notices and Stipulations

Notice or Stipulation	Title and Description
WO-ESA-7	THREATENED AND ENDANGERED SPECIES CONSULTATION
	The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. The BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. The BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. The BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 USC 1531 et seq., including completion of any required procedure for conference or consultation.
WO-NHPA	CULTURAL RESOURCES AND TRIBAL CONSULTATION
	This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, Executive Order 13007, or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations (e.g., State Historic Preservation Office [SHPO] and tribal consultation) under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized, or mitigated.
NM-11-LN	LEASE NOTICE – CULTURAL RESOURCES
	All development activities proposed under the authority of this lease are subject to compliance with Section 106 of the NHPA and Executive Order 13007. The lease area may contain historic properties, traditional cultural properties (TCPs), and/or sacred sites currently unknown to the BLM that were not identified in the Resource Management Plan or during the lease parcel review process. Depending on the nature of the lease developments being proposed and the cultural resources potentially affected, compliance with Section 106 of the National Historic Preservation Act and Executive Order 13007 could require intensive cultural resource inventories, Native American consultation, and mitigation measures to avoid adverse effects—the costs for which will be borne by the lessee. The BLM may require modifications to or disapprove proposed activities that are likely to adversely affect TCPs or sacred sites for which no mitigation measures are possible. This could result in extended time frames for processing authorizations for development activities, as well as changes in the ways in which developments are implemented.
OFO-4-LN	LEASE NOTICE – MIGRATORY BIRDS AND BIRDS OF CONSERVATION CONCERN
	The lease or portions of the lease fall within the Central Flyway for Migratory Birds. As defined in the requirements for the BLM site survey, which will be conducted at the Application for Permit to Drill stage, the BLM may require the project proponent to follow additional conditions of approval. These would be imposed to mitigate impacts on migratory birds under the Migratory Bird Treaty Act and USFWS Birds of Conservation Concern. If surface-disturbing activities occur during the migratory birds' nesting season (which varies by species and could be any time between December 15 to July 30), surveys for ground- and tree-nesting birds may be required to be conducted by an entity approved by the BLM Authorized Officer. If active nests are identified, surface-disturbing activities may be delayed until the nesting activities are complete. The project proponent must consult with the BLM to determine whether a survey is required, the extent of the survey, and the timing of the nesting season.

Notice or Stipulation	Title and Description
CE-SS-1-A-CANTON LAKE	CORPS OF ENGINEERS SPECIAL STIPULATIONS 1-A CANTON LAKE
	<ol style="list-style-type: none"> 1. All oil and gas drilling and production operations shall be under the supervision of the District Manager, Bureau of Land Management (BLM), in accordance with 43 Code of Federal Regulations Part 3160. 2. The Secretary of the Army or designee reserves the right to require cessation of operations if a national emergency arises or if the U.S. Army needs the leased property for a mission incompatible with lease operations. On approval from higher authority, the District Engineer will give notice of the required suspension. The lessee agrees to this condition and waives compensation for its exercise. 3. If the District Engineer or his authorized representative discovers an imminent danger to safety or security which allows no time to consult BLM, that person may order such activities stopped immediately by any person conducting or supervising operations subject to BLM mineral leasing operations and that person will also make a good-faith effort to contact the authorized official by telephone and other appropriate means, to facilitate BLM review of the order and determine the need for further action. 4. Lessee liability for damage to improvements shall include improvements of the Department of Defense. Lessee shall be liable for pollution and other damages, as a result of their operations, to Government-owned land and property and to the property of the Government's authorized surface users. 5. Before beginning to drill, the lessee must consult with third parties authorized to use real estate in the lease area and must consider programs for which third parties have contractual responsibility. 6. This tease does not authorize geophysical tests or other geophysical activities on the leased area. The lessee must obtain a separate written approval for geophysical activities from the Real Estate Contracting Officer, U.S. Army Corps of Engineers, Tulsa District prior to engaging in such activities on the lease area. 7. This lease does not authorize the lessee to occupy the surface of the lease area. Specific written approval to use, enter, or occupy the surface for any reason must be obtained separately from the Real Estate Contracting Officer, U.S. Army Corps of Engineers, Tulsa District prior to engaging in surface activities. 8. All rights under this lease are subordinate to the rights of the United States to flood and submerge the lands, permanently or intermittently, in connection with the operation and maintenance of the above-named project. 9. The United States shall not be responsible for damages to property or injuries to persons which may arise from or be incident to the use and occupation of the said premises, or for damages to the property of the lessee, or for injuries to the person of the lessee's officers, agents, servants, or employees, or others who may be on said premises at their invitation or the invitation of any one of them arising from or incident to the flooding of the said premises by the Government or flooding from any other cause, or arising from or incident to any other governmental activities; and the lessee shall hold the United States harmless from any and all such claims. 10. The construction and operation of said structures and appurtenances thereto shall be of such a nature as not to cause pollution of the soils and the waters of the project. 11. The United States reserves the right to use the land jointly with the mineral lessee in connection with the construction, operation, and maintenance of the Government project and to place improvements thereon or to remove materials therefrom, including sand and gravel and other construction material, as may be necessary in connection with such work, and the lessee shall not interfere in any manner with such work or do any act which may increase the cost of performing such work. 12. All areas within 3,000 feet of any major structure, including but not limited to the dam, spillway, or embankment, are restricted areas. The lessee, his operators, agents, or employees shall not utilize the surface of restricted areas for any purpose. Drilling operations in, on, or under the restricted areas, including drilling outside of the restricted areas which would cause a bore hole to be under the restricted area, will not be permitted. 13. All existing or proposed public use areas, recreation areas, wildlife and waterfowl refuges, historical sites, and hiking and horseback trail areas may be leased for the sole purpose of becoming a part of a drilling unit. The lessee, his operators, agents or employees will not use or enter upon the surface of these areas for any purpose. Directional drilling from non-public areas is permitted if not otherwise restricted. 14. It is the responsibility of the lessee to identify and be aware of restricted areas and other areas where operations are prohibited. 15. The operator will immediately stop work and advise the District Engineer or his authorized representative if contamination is found in the operating area.

APPENDIX C. COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD AND BLM'S RESPONSES

The BLM evaluated all comments received and parsed them into substantive or non-substantive comments according to the guidance in BLM's NEPA Handbook (H-1790-1; page 66). Example substantive comments contained in Table C.1 are representative of topics raised, and single responses are provided for similarly stated topics.

Table C.1. Substantive Comment Topics and Responses

Comment	Response
<p>We respectfully request that you hold public hearings and extend the deadlines for public comment on the eight Environmental Assessments for the proposed 2022 Competitive Oil and Gas Lease Sales in Alabama, Colorado, Montana, Nevada, New Mexico, North Dakota, Oklahoma, Utah, and Wyoming. The Organizations ask that you extend the public comment period on each of the lease sale Environmental Assessments by a minimum of 90 days to ensure meaningful public involvement, including Tribal consultation and public hearings. The current 30-day comment period for eight simultaneous Environmental Assessments for competitive oil and gas lease sales, covering nearly 700,000 acres in nine states, is unreasonable and fails to provide the public an adequate opportunity to review the proposed leases and to share feedback on the BLM’s analysis of environmental impacts. The Environmental Assessment for the proposed lease sale in New Mexico, alone, is over 100 pages, and adding the Environmental Assessments for the other proposed 2022 lease sales, there are over 1,100 pages available for public review, not counting the associated documents and appendices. The deadlines for submitting comments on these eight Environmental Assessments fall within four days of one another. Given the limited comment periods and voluminous analysis that must be reviewed, this is not a meaningful opportunity for public comment.</p>	<p>The BLM provided an opportunity for scoping comments and extended the comment period for all Quarter 1 2022 oil and gas lease sale draft environmental assessments for all states by ten days. The BLM determined that it had made an appropriate and diligent effort to involve the public in preparing and implementing the NEPA for this project through the available comment opportunities and use of the e-Planning system, and has taken that input into account in the EAs and proposing parcels for lease. The BLM has ensured adequate tribal consultation as per its requirements.</p>
<p>The proposed lease sales stand to impact a range of environmental justice, public health, natural resource, and wildlife issues, but chief among these issues is the existential imperative to limit climate change to 1.5 degrees Celsius of warming. Addressing the proposed lease sales as they pertain to the issue of climate change, the Bureau of Land Management released its 2020 Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends. This report itself is over 100 pages and includes significant new analysis of the emissions of GHGs from Interior Department-managed fossil fuel development programs and presents significant new technical information. These documents and the actions the Bureau of Land Management may take based on them have serious implications for the United States, and all countries of the world, to prevent 1.5 degrees Celsius of additional warming – warming beyond which scientists predict catastrophic harm to people, ecosystems, and species worldwide. With so much at stake, 30 days for the public to review and provide comment is insufficient.</p>	<p>The BLM provided an opportunity for scoping comments and extended the comment period for all Quarter 1 2022 oil and gas lease sale draft environmental assessments for all states by ten days. The BLM determined that it had made an appropriate and diligent effort to involve the public in preparing and implementing the NEPA for this project through the available comment opportunities and use of the e-Planning system, and has taken that input into account in the EAs and proposing parcels for lease.</p>
<p>In conjunction with an extension of the comment period, we further request the Department of the Interior and Bureau of Land Management hold public hearings on the proposed oil and gas leasing. As part of its environmental reviews, the agencies must “[m]ake diligent efforts to involve the public in preparing and implementing [its] NEPA procedures.” 40 C.F.R. § 1506.6(a). To this end, the agencies are obligated to “[h]old or sponsor public hearings or public meetings whenever appropriate[.]” Id. § 1506.6(c). It is appropriate to hold public 3 hearings or meetings where there is substantial environmental controversy concerning the proposed actions or substantial interest in holding the hearing. The Bureau of Land Management’s duty to hold public hearings around its actions is also set forth in the BLM’s NEPA Handbook H-1790-1 at Section 6.9.1.</p>	<p>The BLM provided an opportunity for scoping comments and extended the comment period for all Quarter 1 2022 oil and gas lease sale draft environmental assessments for all states by 10 days. The BLM determined that it had made an appropriate and diligent effort to involve the public in preparing and implementing the NEPA for this project through the available comment opportunities and use of the e-Planning system, and has taken that input into account in the EAs and proposing parcels for lease.</p>
<p>A full deferral alternative would differ from the No Action Alternative because it would expressly defer leasing of any of the parcels until such time that the oil and gas program aligns with U.S. climate targets and addresses and incorporates identified and needed programmatic reforms. BLM should include analysis of this alternative in its Draft EA. If the</p>	<p>Based on the analysis in the EA, the decision-maker has the option of approving the sale of all, some, or none of the leases. The BLM decision-maker therefore has the option of deferring leasing on these parcels, and consequently, a deferral alternative is not necessary.</p>

Comment	Response
<p>agency does not select the No Action Alternative, choosing a full deferral alternative would likewise avert locking in future greenhouse gas emissions and issuing leases under a fundamentally flawed system.</p>	
<p>DOI well understands that it “has an obligation to responsibly manage our public lands and waters – providing a fair return to the taxpayer and mitigating worsening climate impacts – while staying steadfast in the pursuit of environmental justice.” Its recently issued Report on the Federal Oil and Gas Leasing Program affirmed “significant deficiencies in the federal oil and gas programs, and identifie[d] important and urgent fiscal and programmatic reforms that will benefit the American people.” The clear and present devastating impacts resulting from greenhouse gas emissions and the recognized, critical oil and gas program reforms must be properly and fully addressed before any additional leasing could occur.</p>	<p>In November 2021, the U.S. Department of the Interior released its <i>Report on the Federal Oil and Gas Leasing Program</i>, which made specific recommendations to address documented deficiencies in the program to meet three programmatic goals: 1) providing a fair return to the American public and states from federal management of public lands and waters, including for development of energy resources; 2) designing more responsible leasing and development processes that prioritize areas that are most suitable for development and ensure lessees and operators have the financial and technical capacity to comply with all applicable laws and regulations; and 3) creating a more transparent, inclusive, and just approach to leasing and permitting that provides meaningful opportunity for public engagement and tribal consultation. The report also recommends that, as an overarching policy, the BLM should ensure that oil and gas is not prioritized over other land uses, consistent with BLM’s mandate of multiple use and sustained yield. The BLM should carefully consider which lands make the most sense to lease in terms of expected yields of oil and gas, prospects of earning a fair return for U.S. taxpayers, and conflicts with other uses, such as outdoor recreation and wildlife habitat. The BLM should always ensure it is considering the views of local communities, tribes, businesses, state and local governments, and other stakeholders. While the leasing decisions for this lease sale result from the BLM’s exercise of its discretion based on its analysis and review of the record, they are also consistent with the recommendations in the Report, as well as numerous reports issued by the Governmental Accountability Office and Congressional Budget Office, including ensuring public participation and tribal consultation, addressing conflicts with other resources, avoiding lands with low potential for oil and gas development, focusing leasing near existing development, and ensuring a fair return to taxpayers. This lease sale and NEPA process have included a 30-day scoping period, 30-day comment period on the environmental assessment (which was then extended by an additional 10 days) and 30-day protest period. The BLM has also ensured applicable tribal consultation is current. The BLM’s leasing decisions take into account comments received during this process and will further evaluate points raised in any protests received. In identifying parcels for leasing, the BLM has evaluated and worked to avoid potential conflicts with other resources, such as wildlife habitat, including connectivity, and areas of cultural importance. The BLM has also avoided including low potential lands, which are less likely to produce oil and gas, taking into account identification of development potential in resource management planning as well as current information. In addition, the BLM has worked to focus leasing near areas with existing development, which not only supports infrastructure such as roads and gathering systems that will help to reduce venting and flaring but also helps preserve the resilience of intact public lands and functioning ecosystems. Finally, as discussed in detail above, the BLM is applying a royalty rate higher than the minimum to this lease sale. The current minimum royalty rate is significantly lower than those used in most states and on private land and the BLM is providing an improved return to the taxpayer by using a royalty rate of 18.75% for the leases sold in this sale.</p>

Comment	Response
<p>I. Louisiana v. Biden Does Not Require BLM to Issue Any Leases. The Department of the Interior (DOI) announced that it would proceed with the current lease sale process in response to a preliminary injunction order issued by the U.S. District Court for the Western District of Louisiana. Louisiana v. Biden, No. 2:21-cv-778-TAD-KK, 2021 WL 2446010 (W.D. La. June 15, 2021). That order enjoined implementation of a nationwide "Pause" on offshore and onshore oil and gas leasing contemplated by President Biden's Executive Order 14008. Id. The Louisiana court, however, did not rule that BLM must hold lease sales every three months in every state office, or that BLM must issue any leases at all. Instead, while enjoining a nationwide "Pause" directed by the President, the Louisiana court distinguished lease sale postponements for environmental concerns and further NEPA review. The Louisiana court's reasoning supports BLM's authority not to issue any leases as part of this lease sale. The release of GHG emissions from the burning of fossil fuels from oil and gas leasing and development is causing significant adverse climate changing environmental impacts. Proper analysis and consideration of the impairment of public land and resources subject to this lease sale caused by climate change demand choosing the No Action Alternative or deferring all parcels. The Louisiana order presents no obstacle to doing so.</p>	<p>Thank you for your comment. The BLM has adequately considered the impacts from offering the lands for competitive lease. In November 2021, the U.S. Department of the Interior released its <i>Report on the Federal Oil and Gas Leasing Program</i>, which made specific recommendations to address documented deficiencies in the program to meet three programmatic goals: 1) providing a fair return to the American public and states from federal management of public lands and waters, including for development of energy resources; 2) designing more responsible leasing and development processes that prioritize areas that are most suitable for development and ensure lessees and operators have the financial and technical capacity to comply with all applicable laws and regulations; and 3) creating a more transparent, inclusive, and just approach to leasing and permitting that provides meaningful opportunity for public engagement and tribal consultation. The report also recommends that, as an overarching policy, the BLM should ensure that oil and gas is not prioritized over other land uses, consistent with BLM's mandate of multiple use and sustained yield. The BLM should carefully consider which lands make the most sense to lease in terms of expected yields of oil and gas, prospects of earning a fair return for U.S. taxpayers, and conflicts with other uses, such as outdoor recreation and wildlife habitat. The BLM should always ensure it is considering the views of local communities, tribes, businesses, state and local governments, and other stakeholders. While the leasing decisions for this lease sale result from the BLM's exercise of its discretion based on its analysis and review of the record, they are also consistent with the recommendations in the Report, as well as numerous reports issued by the Governmental Accountability Office and Congressional Budget Office, including ensuring public participation and tribal consultation, addressing conflicts with other resources, avoiding lands with low potential for oil and gas development, focusing leasing near existing development, and ensuring a fair return to taxpayers. This lease sale and NEPA process have included a 30-day scoping period, 30-day comment period on the environmental assessment (which was then extended by an additional 10 days) and 30-day protest period. The BLM has also ensured applicable tribal consultation is current. The BLM's leasing decisions take into account comments received during this process and will further evaluate points raised in any protests received. In identifying parcels for leasing, the BLM has evaluated and worked to avoid potential conflicts with other resources, such as wildlife habitat, including connectivity, and areas of cultural importance. The BLM has also avoided including low potential lands, which are less likely to produce oil and gas, taking into account identification of development potential in resource management planning as well as current information. In addition, the BLM has worked to focus leasing near areas with existing development, which not only supports infrastructure such as roads and gathering systems that will help to reduce venting and flaring but also helps preserve the resilience of intact public lands and functioning ecosystems. Finally, as discussed in detail above, the BLM is applying a royalty rate higher than the minimum to this lease sale. The current minimum royalty rate is significantly lower than those used in most states and on private land and the BLM is providing an improved return to the taxpayer by using a royalty rate of 18.75% for the leases sold in this sale. Additional analysis and consideration of mitigation measures will be considered should the lease be sold, and development proposed.</p>

Comment	Response
<p>II. BLM Must Properly Analyze the Reasonably Foreseeable Greenhouse Gas Emissions that Will Result from This Lease Sale and Choose the No Action Alternative or Defer All Parcels Based on Climate Impacts. Despite the in-depth analysis in the Annual Report, the Draft EA and Draft FONSI fail to adequately apply the report’s useful data in order to properly analyze the climate impacts of estimated emissions from this lease sale. Even so, existing analysis of the environmental effects of GHG emissions in the Draft EA—even with flaws requiring remediation (as discussed below)—counsels choosing the No Action Alternative or deferring all lease sale parcels. BLM should correct the flawed climate analysis in the Draft EA and Draft FONSI. We strongly encourage BLM to address these critical errors and omissions to comply with its obligations under FLPMA and NEPA.</p>	<p>At this time, BLM has not developed a standard or emissions budget that it can apply uniformly to make a determination of significance based on climate change or GHG emissions. Until such time as the Department develops further tools to analyze the relative emissions impact of its activities nationwide, the BLM can disclose GHG emissions and climate impacts, and provide context and analysis for those emissions and impacts; the agency cannot determine significance for a proposed action based on GHG emissions or climate impacts alone. If/when a proposed action for development is submitted, the BLM can determine appropriate mitigation measures to reduce/offset GHG emissions that are not already required by law or proposed by the operator. The 2020 Specialists Report, which was incorporated by reference in the lease sale EAs, provides a hard look and cumulative assessment of the federal oil and gas program’s contribution to state and national GHG emissions and the impacts of climate change.</p>
<p>a. BLM Should Choose the No Action Alternative or Defer All Parcels Because It Must First Revise the Resources Management Plans (RMPs) to Account for and Address Climate Change and to Ensure Compatibility with the U.S. Climate Goal of Limiting Warming to 1.5°C. BLM should not offer any leases as part of this sale unless and until it has revised the underlying land use plans to properly account for climate change impacts resulting from GHG emissions. The Draft EA incorrectly asserts that the EA conforms to the respective RMPs.⁶ True, oil and gas leasing is allowed under the relevant RMPs. But because none of the operable land use plans adequately accounts for GHG emissions and climate change impacts, revision of the RMPs is needed before BLM could offer parcels for lease. Recently issued Instruction Memorandum 2021-027 also contemplates not issuing oil and gas leases when an RMP must be revised. The serious ecological and environmental degradation of the climate crisis constitutes new data and a change in circumstances affecting the entirety of the RMPs or, at the least, major portions of them. The Draft FONSI’s assertion that impacts conform to the land use plans is inapposite. First, for reasons discussed below, BLM has not affirmatively determined whether climate impacts from estimated GHG emissions are significant. Second, as explained above, the existing RMPs and associated EISs fail to adequately analyze GHG emissions or climate impacts. As such, the statement that the Draft EA found no significant effects beyond what the RMPs and EISs have already analyzed is true only if BLM ignores the glaring omission of climate and GHG emissions analysis from any of the respective RMPs. For these reasons, the RMPs are legally flawed, failing to manage the public lands on the basis of multiple use and sustained yield. BLM should therefore choose the No Action Alternative or defer all lease parcels unless and until it revises the deficient land use plans to adequately account for GHG emissions and address climate change.</p>	<p>The BLM’s planning regulations at 43 CFR 46.160 specifically provide that the BLM may act under an existing RMP even though it may be in the process of preparing an RMP revision. In addition, as stated in IM 2018-034 Updating Oil and Gas Leasing Reform, it is BLM policy that existing land use plan decisions remain in effect until an amendment or revision is complete or approved. The parcels available for lease under the Proposed Action are designated as open in the applicable RMP-EIS. Currently, there is not a formal federal policy establishing a national carbon budget or a final international consensus on which carbon budget the world should use for limiting global warming (1.5C or 2.0C) that the BLM can use to evaluate the significance of a proposed action. However, this may change in the future, such as via CEQ direction on addressing climate change and GHGs in NEPA. The BLM works in concert with other U.S. federal agencies (including EPA and DOE) to implement U.S. strategies and meet committed goals, including applicable executive and secretary’s orders, to reduce GHG. The requested alternative is embedded within the No Action. A separate alternative crafted whose purpose and need is to consider reducing GHG emissions is outside the scope of this EA and its stated purpose and need.</p>

Comment	Response
<p>b. The Draft EA and Draft FONSI Fail to Determine Whether GHG Emissions and Climate Impacts Are Significant, in Violation of NEPA. In the Draft FONSI, BLM claims that it is unable to determine whether the estimated GHG emissions and resulting climate impacts from its prospective leasing decisions are significant. The Annual Report and the tremendous wealth of high-quality information on climate change combined with BLM's long history of environmental analyses under NEPA provide the agency with ample resources and the ability to ascertain whether this action presents significant environmental effects. BLM's failure to determine significance is arbitrary and contrary to NEPA. The Council on Environmental Quality's (CEQ's) Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews, which is currently in effect, provides context for how to evaluate the significance of GHG emissions. Stating or demonstrating that an action accounts for a small percentage of global or even national GHG emissions does not justify failing to determine whether an action's estimated GHG emissions rise to the level of significance. That is, however, what the Draft FONSI concludes. This conclusion is unfounded and particularly confusing given the Draft FONSI and Draft EA explicitly acknowledge and utilize the social cost of GHG emissions (SC-GHG) "as a proxy for assessing climate impacts." The Annual Report acknowledges the difficulty in "downscaling" impacts to a particular action but then explains how BLM can use existing information and analysis to judge "the potential for climate impacts from a proposed action." Yet, in the Draft EA and Draft FONSI, BLM claims this task is beyond its ability. This claim is arbitrary, particularly in light of the robust analysis provided in the Annual Report and other widely available high-quality climate scientific information. In fact, the EA examines partially, though not completely, the very proxy information BLM recognizes is designed to enable a significance determination: SC-GHG.</p>	<p>At this time, BLM has not developed a standard or emissions budget that it can apply uniformly to make a determination of significance based on climate change or GHG emissions. Until such time as the Department develops further tools to analyze the relative emissions impact of its activities nationwide, the BLM can disclose GHG emissions, as it has done in the analysis, and climate impacts, and provide context and analysis for those emissions and impacts; the agency cannot determine significance for a proposed action based on GHG emissions or climate impacts alone. If/when a proposed action for development is submitted, the BLM can determine appropriate mitigation measures to reduce/offset GHG emissions that are not already required by law or proposed by the operator. The 2020 Specialists Report, which was incorporated by reference in the lease sale EAs, provides a hard look and cumulative assessment of the federal oil and gas program's contribution to state and national GHG emissions and the impacts of climate change.</p>

Comment	Response
<p>i. The Social Cost of GHG Is an Appropriate and Adequate Proxy for Determining Significance under NEPA. BLM fails to take the logical and necessary next step of adequately applying SC-GHG metrics to determine whether the climate impacts of prospective leasing decisions are significant. The agency has the means and ability to do so. BLM can and should examine its own past NEPA documents to determine whether it has found certain monetary benefits or costs to be significant. Because BLM has issued a Draft FONSI, it is indeed attributing insignificance to this lease sale's SC-GHG, despite protestations in the document that it cannot determine whether climate impacts are significant or not. BLM is misleadingly trivializing emissions by comparing them to larger totals, such as global or national emissions. To correct this error, BLM should properly contextualize the SC-GHG by, at the least, comparing them to the estimated monetized benefits of the lease sale. BLM should undertake the task of determining thresholds for project GHG emissions. It should do so agency-wide, ensure land use plan conformance, and use that analysis to inform significance determinations for individual lease sales. These necessary steps counsel choosing the No Action Alternative in the present lease sale or deferring all parcels until that climate assessment is complete. Not having determined those thresholds at a broader level is no justification for arbitrary and capricious decision-making in the meantime.</p>	<p>Climate impacts are one of many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding on leasing actions.</p>
<p>ii. The Draft EA Arbitrarily Ignores Whether Offering Parcels for Lease Warrants Incurring the Social and Environmental Costs Associated with This Lease Sale. BLM's failure to analyze whether the benefits of this lease sale indeed outweigh or justify its costs is arbitrary and capricious. Comparing an action's costs and benefits is helpful to illustrate whether it is significant and provides essential context for the SC-GHG dollar amounts, which otherwise may be difficult to fully comprehend in isolation. The Draft EA has no discussion at all of the socioeconomic impacts of the proposed sale. Nor does the EA provide any explanation—much less a factually accurate one—for failing to consider the benefits of a lease sale and how they compare with its costs. Offering leases that could impose millions of dollars in social and environmental harms without addressing what (if any) countervailing benefits might warrant such a decision would be arbitrary, capricious, and inconsistent with FLPMA mandates.</p>	<p>Output, royalties, and tax revenue are not measures of economic benefits that would be used in a benefit cost analysis (i.e., they do not measure changes in consumer or producer surplus). These metrics should not be directly compared to estimates of the SCGHG even where both concepts are calculated. Estimating the economic benefits (change in social welfare) associated with oil and gas leasing is not feasible, nor is it required for NEPA. The BLM analyzes the impacts associated with the alternatives using the best available information, which is typically not monetized estimates of benefits or costs. The BLM is exercising its discretion to estimate SC-GHG to provide additional context for decision making. At this time, BLM has not developed a standard or emissions budget that it can apply uniformly to make a determination of significance based on climate change, GHG emissions, or the Social Cost of GHGs. Until such time as the Department develops further tools to analyze the relative emissions impact of its activities nationwide, the BLM can disclose GHG emissions and climate impacts, and provide context and analysis for those emissions and impacts; the agency cannot determine significance for a proposed action based on GHG emissions or climate impacts alone.</p>

Comment	Response
<p>c. The Draft EA Lacks Adequate Analysis of the Climate Effects of GHG Emissions. Neither the Draft EA or Annual Report seriously attempts to grapple with the full projected environmental effects of GHG emissions resulting from federal oil and gas development. The Annual Report fails in this regard by not analyzing the total social cost of greenhouse gases associated with aggregate GHG emissions from the federal oil and gas estate and, further, by not, for example, breaking down SC-GHG by state or by yearly emissions. The Draft EA lacks adequate analysis of climate impacts by making little attempt to discuss and qualify on-the-ground, regional environmental effects of climate change. Providing SC-GHG metrics helps encapsulate impacts but does not relieve BLM of the obligation to adequately contextualize SC-GHG estimates and to discuss, qualitatively, actual climate impacts on the environment and people. The few paragraphs of general statewide impacts discussed in the Annual Report are insufficient.</p>	<p>At this time, BLM has not developed a standard or emissions budget that it can apply uniformly to make a determination of significance based on climate change or GHG emissions. Until such time as the Department develops further tools to analyze the relative emissions impact of its activities nationwide, the BLM can disclose GHG emissions, as it has done in the analysis, and climate impacts, and provide context and analysis for those emissions and impacts; the agency cannot determine significance for a proposed action based on GHG emissions or climate impacts alone. If/when a proposed action for development is submitted, the BLM can determine appropriate mitigation measures to reduce/offset GHG emissions that are not already required by law or proposed by the operator. The 2020 Specialists Report, which was incorporated by reference in the lease sale EAs, provides a hard look and cumulative assessment of the federal oil and gas program's contribution to state and national GHG emissions and the impacts of climate change.</p>
<p>d. The Draft EA Fails to Adequately Discuss Mitigation Measures to Address the Impacts of GHG Emissions. The Draft EA does not adequately identify or evaluate mitigation measures to address GHG emissions associated with oil and gas development for the lease sale. As discussed in this comment and as BLM acknowledges in the Draft FONSI, GHG emissions impacts could be significant. As such, NEPA requires BLM to include a discussion of possible mitigation measures in the Draft EA. If BLM is to rely on an EA instead of an EIS to evaluate an action with likely significant environmental effects, it must impose mitigation of those impacts in a mitigated FONSI. Climate mitigation measures are also required to satisfy BLM's obligation to prevent unnecessary or undue degradation under FLPMA. The Interior Board of Land Appeals (IBLA) and courts have likewise recognized that BLM has authority to incorporate mitigation measures into project authorizations to observe its FLPMA obligations. BLM fails to include in the Draft EA, let alone evaluate, or require in the Draft FONSI any measures for mitigating GHG emissions and resulting climate impacts associated with the lease sale. This failure violates BLM's obligations under NEPA. If BLM proceeds with a FONSI, it must ensure that it is a mitigated FONSI and that the Final EA properly analyzes mitigation measures. Such measures should include, at a minimum:</p> <ul style="list-style-type: none"> • Requiring lessees to plug orphaned and abandoned wells (or pay into a well plugging fund); • Placing a royalty rate on all leases that accounts for the social cost of greenhouse gases; • Requiring full-cost bonding on any issued leases; and • Mandating compensatory mitigation for any quantity of remaining GHG emissions that are neither avoided nor minimized. 	<p>The BLM will conduct analysis and make decisions regarding leasing actions in compliance with applicable federal laws, including FLPMA, NEPA, and the Mineral Leasing Act. Should development occur as a result of the lease, the BLM will complete additional NEPA for site-specific proposed actions that may include additional mitigation measures for GHGs that are not already required by law or proposed by the operator. The BLM may also limit the scale and intensity of proposed development based on the site-specific NEPA analysis that is completed for the proposed action. The BLM has disclosed the GHG emissions from the Proposed Action and provided context for those emissions compared to existing federal GHG emissions in the state and nationally. The BLM has included an evaluation of the climate change impacts that could result from the proposed action and incorporated by the reference the 2020 BLM Specialists Report on Annual Greenhouse Gas Emissions and Climate Trends which provides a more robust assessment of cumulative emissions, climate change impacts, and reputable climate science sources. If/when a proposed action for development is submitted, the BLM can determine appropriate mitigation measures to reduce/offset GHG emissions that are not already required by law or proposed by the operator.</p>

Comment	Response
<p>III. BLM Must Prepare an EIS to Address the Cumulative Impacts of All the Lease Sales It Announced on August 31, 2021. BLM must prepare an environmental impact statement (EIS) to address the cumulative impacts of the tens of millions of acres that may be leased both onshore and offshore in the lease sales announced simultaneously on August 31, 2021. This lease sale is part of a national DOI decision to proceed with oil and gas leasing at the Bureau of Ocean Energy Management (BOEM) and in BLM field offices across the country in direct response to the Louisiana litigation. All these lease sales are plainly part of a national initiative and must be analyzed in a single EIS under NEPA. NEPA mandates that an agency prepare an EIS for any major federal action that may significantly affect the quality of the human environment. 42 U.S.C. § 4332(2)(C). Here, DOI announced potential leasing covering nearly 1,200 square miles (more than 740,000 acres) onshore, and 125,000 square miles of the Gulf of Mexico. It would be arbitrary and capricious to conclude leasing on that scale will not be significant. At the least, BLM should analyze the cumulative impacts from all onshore lease sales announced simultaneously on August 31, 2021.</p> <p>It defies reason to assert that a range of lifecycle SC-GHG of over \$1 billion to over \$12.5 billion across all seven Q1 2022 lease sales is not significant. It is similarly capricious to assert that a range of lifecycle social costs of nearly \$412 million to over \$4.5 billion for the partial leasing deferral alternatives is not significant. But BLM did not conduct this aggregated SC-GHG analysis in any of the draft EAs or in the Annual Report. Nor did the agency fully discuss, qualitatively, impacts of these GHG emissions.</p> <p>The Draft EA for each proposed lease sale provides an analysis of the reasonably foreseeable GHG emissions from that sale, making it entirely feasible to aggregate and assess their cumulative impacts. Merely displaying a table of emissions from projected 2021 lease acres does not satisfy BLM's requirements under NEPA to analyze aggregate GHG emissions and other impacts in an EIS. Even if such an estimate would be conservative, that does not excuse BLM from providing any forecast of cumulative emissions from the lease sales.</p>	<p>The BLM has prepared multiple EISs covering the lands BLM is considering making available for competitive auction. The BLM has disclosed the GHG emissions from the Proposed Action and provided context for those emissions compared to existing federal onshore GHG emissions in the state and nationally. The BLM has included an evaluation of the climate change impacts that could result from the proposed action and incorporated by the reference the 2020 BLM Specialists Report on Annual Greenhouse Gas Emissions and Climate Trends which provides a more robust assessment of cumulative emissions, climate change impacts, and reputable climate science sources. If/when a proposed action for development is submitted, the BLM can determine appropriate mitigation measures to reduce/offset GHG emissions that are not already required by law or proposed by the operator. Climate impacts are one of many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding leasing actions.</p>

Comment	Response
<p>IV.BLM Must Take a Hard Look at Impacts to Groundwater from Well Construction Practices and Hydraulic Fracturing. The Draft EA violates NEPA because it contains inadequate analysis of the reasonably foreseeable impacts to groundwater from drilling on these particular lease sale parcels. The U.S. Environmental Protection Agency (EPA) has noted that existing drinking water resources “may not be sufficient in some locations to meet future demand” and that future sources of fresh drinking “will likely be affected by changes in climate and water use.” As a result, BLM must protect both aquifers currently used for drinking water, and deeper and higher-salinity aquifers that may be needed in coming decades. Federal rules and regulations do not provide specific direction for BLM and operators to protect all usable water. Even rules that purport to do so, like Onshore Order No. 2’s requirement to “protect and/or isolate all usable water zones,” are inconsistently applied and often disregarded in practice. Moreover, industry has admitted that it often does not protect usable water in practice.</p> <p>As a threshold matter, BLM must provide a detailed account of all regional groundwater resources that could be impacted, including usable aquifers that may not currently be used as a drinking water supply. The accounting must include, at minimum, all aquifers with up to 10,000 parts per million total dissolved solids, and it cannot substitute existing drinking water wells or any other incomplete proxy for a full description of all usable or potentially usable groundwater in the region. Second, BLM must use that accounting to assess how new oil and gas wells might impact these resources. That evaluation must assess the sufficiency of protective measures that will be employed, including wellbore casing and cementing and vertical separation between aquifers and the oil and gas formations likely to be hydraulically fractured. In assessing these protections, BLM cannot presume that state and federal regulations will protect groundwater, because of the shortcomings and industry noncompliance described above. BLM may not defer this analysis of groundwater impacts to the APD stage.</p>	<p>The BLM considered and analyzed potential impacts to groundwater quality from the Q1 2022 Lease Sale in Table 1.2 in the EA, which incorporates by reference the analysis from the March 2019 EA. The March 2019 EA AIB-14 (groundwater quality) describes the depths and thicknesses of existing regional aquifers and regulatory programs in place to prevent contamination to these groundwater resources. The Q1 2022 EA reiterates this by stating, “well completion activities would be subject to standard industry practices and other regulatory requirements related to hydraulic fracturing under 43 CFR 3160 and Oklahoma Administrative Code (OAC) 165:10-3-10 (a).” In addition, Section 3.7 of the March 2019 EA describes existing groundwater uses and demand based on OWRB data, and analyzes the cumulative effect of all past, present, and reasonably foreseeable future actions on water demands in the analysis area. Additional site-specific analysis would occur at the APD stage, and additional COAs may be attached to the APD to reduce or avoid impacts to groundwater resources.</p>
<p>BLM Must Prepare an EIS To Address the Cumulative Impacts of All Lease Sales Announced August 31</p>	<p>NEPA allows agencies to prepare an EA “on any action at any time in order to assist agency planning and decision-making” (43 CFR § 1501.3; see also 43 CFR § 1508.9 [defining “environmental assessment”]). An agency need not prepare an EIS or programmatic NEPA analysis if it determines the action will not have significant effect on the human environment or where such effects may be mitigated by adoption of appropriate measures. The level of environmental analysis conducted by the BLM for the Quarter 1 2022 Lease Sale is consistent with the purpose and requirements of NEPA.</p>
<p>BLM Should Consider an Alternative that Protects Groundwater - BLM must consider alternatives that would protect usable groundwater. See WildEarth Guardians v. U.S. Bureau of Land Mgmt., 457 F.Supp.3d 880, 890 (D. Mont. 2020). Specifically, BLM should consider not leasing parcels within areas where there is less than 2,000 feet of vertical separation between the oil and gas formations likely to be targeted and any groundwater aquifer with 10,000 ppm TDS or less.</p>	<p>An explanation of the BLM’s decision space based on the alternatives analyzed in detail is provided in EA Sections 1.3 and 2.1. As informed by the issue-based analysis in the EA and the analysis in the March 2019 EA, the BLM Authorized Officer retains the discretion to lease all of the nominated lease parcels, none of the nominated lease parcels, or some configuration of leasing and deferring nominated lease parcels. An analysis of potential impacts to groundwater quality is provided in Table 1.2 of the EA. The BLM’s analysis does not indicate a resource concern related to groundwater sufficient to justify an alternative. In addition, the alternative proposed is outside the scope of a lease sale decision. The suggested alternative relates to regulatory decisions and land use planning decisions, both of which are programmatic in nature and are not addressable at the non-programmatic leasing stage.</p>

Comment	Response
<p>BLM should also analyze an alternative whereby parcels would not be leased in areas overlying usable groundwater and surface water, and an alternative that includes other measures to ensure that all usable groundwater zones are protected. This might involve pre-leasing groundwater testing and adding a lease stipulation or lease notice requiring specified casing and cementing depths.</p>	<p>An explanation of the BLM's decision space based on the alternatives analyzed in detail is provided in EA Sections 1.3 and 2.1. As informed by the issue-based analysis in the EA and the analysis in the March 2019 EA, the BLM Authorized Officer retains the discretion to lease all of the nominated lease parcels, none of the nominated lease parcels, or some configuration of leasing and deferring nominated lease parcels. An analysis of potential impacts to groundwater quality is provided in Table 1.2 of the EA. The BLM's analysis does not indicate a resource concern related to groundwater sufficient to justify an alternative. In addition, the alternative proposed is outside the scope of a lease sale decision. The suggested alternative relates to regulatory decisions and land use planning decisions, both of which are programmatic in nature and are not addressable at the non-programmatic leasing stage.</p>
<p>BLM must take a hard look not only at direct health impacts and proximity-related health impacts of oil and gas development, but also at cumulative health risks and impacts. In general, the research indicates that the potential cumulative effects of social and environmental stressors and "social determinants of health" in the context of oil and natural gas activity are as follows: (1) they can increase the risk or magnitude of exposure and the number and/or severity of adverse health impacts of oil and gas drilling (e.g. pollution sources are often located closer to "environmental justice" communities; underlying health conditions can increase vulnerability to pollution-related health impacts; and pollution-related risks and impacts can exacerbate existing health, social, and economic stressors and vice versa); and (2) they can present obstacles to diagnosing, managing, treating, and mitigating adverse health impacts (e.g. lack of access to health care providers makes it more difficult to manage asthma). BLM must take a hard look at the reasonably foreseeable cumulative health impacts of its actions, including cumulative impacts as they relate to social and structural factors—often referred to as social determinants of health—and environmental justice. These "social determinants" can include both positive and negative factors.</p>	<p>Potential impacts to human health and safety are discussed in Table 1.2 of the EA, which incorporates by reference the analysis to the March 2019 EA (Section 3.4, AIB-18). AIB-18 of the March 2019 EA addresses the cumulative effects of reasonably foreseeable actions outlined in Section 3.3 and discusses aggregate risks to human health. Potential impacts on environmental justice communities are described in AIB-4, which includes a summary comparison of conclusions from analysis of other issues in Table 3.3. The BLM will continue to monitor publicly available sources and will incorporate scientific sources as they are published and reviewed. The human health and safety analysis in Table 1.2, as well as the environmental justice analysis in Section 3.5, have been revised to include additional disclosure of existing social vulnerabilities that affect populations in Dewey County, and how those social vulnerabilities may increase the risk and magnitude of adverse health effects.</p>
<p>Moreover, the CEQ guidance on environmental justice in the NEPA process specifically directs agencies to incorporate relevant underlying health data, and what amounts to social determinants of health, into their NEPA analyses, and to use this data to identify cumulative risks and reasonably foreseeable cumulative effects.¹⁰⁷ It emphasizes the importance of using public health data to identify "the potential for multiple or cumulative exposure to human health or environmental hazards in the affected population and historical patterns of exposure to environmental hazards, to the extent such information is reasonably available..."¹⁰⁸ and notes that "[a]gencies should consider these multiple, or cumulative effects, even if certain effects are not within the control or subject to the discretion of the agency proposing the action."¹⁰⁹ It also embraces a broad, socio-ecological model of health that is consistent with the language and purpose of NEPA. An additional guiding principle is that "[a]gencies should recognize the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed agency action. These factors should include the physical sensitivity of the community or population to particular impacts; the effect of any disruption of the community structure associated with the proposed action; and the nature and degree of impact on the physical and social structure of the community."</p>	<p>Potential impacts to human health and safety are discussed in Table 1.2. of the EA, which incorporates by reference the analysis the March 2019 EA (Section 3.4, AIB-18). AIB-18 of the March 2019 EA addresses the cumulative effects of reasonably foreseeable actions outlined in Section 3.3 and discusses aggregate risks to human health. Potential impacts on environmental justice communities are described in AIB-4, which includes a summary comparison of conclusions from analysis of other issues in Table 3.3. The BLM will continue to monitor publicly available sources and will incorporate scientific sources as they are published and reviewed. The human health and safety analysis in Table 1.2, as well as the environmental justice analysis in Section 3.5, have been revised to include additional disclosure of existing social vulnerabilities that affect populations in Dewey County, and how those social vulnerabilities may increase the risk and magnitude of adverse health effects.</p>

Comment	Response
<p>The existing health status and pollution burdens experienced by individuals and populations in the lease sale areas, and the disproportionate health risks they face in light of social determinants of health and environmental justice concerns, are precisely the kinds of “incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions” that NEPA requires BLM to analyze here. 40 C.F.R. § 1508.7. BLM cannot simply dismiss the “incremental” addition of wells from a particular lease sale (or the “incremental” increase in air pollution from those wells) as insignificant merely because they constitute a small “percent increase” compared to state, regional/basin-wide, or national well counts or emissions.</p>	<p>Potential impacts to human health and safety are discussed in Table 1.2. of the EA, which incorporates by reference the analysis the March 2019 EA (Section 3.4, AIB-14 [groundwater quality], AIB-18 [human health and safety], and Section 3.5, Issue 1 [air quality]). Potential impacts to human health and safety are further evaluated in the BLM 2020 Air Resources Technical Report.</p> <p>Existing air quality concerns within Dewey County are described in Section 3.5.1 of the March 2019 EA in terms of NAAQS, which describes how existing air quality concerns relate to human health effects. As stated in Section 3.5.1, SO2 emissions can result in adverse human health effects on the respiratory system. Breathing ozone can also have human health effects, particularly for sensitive groups (children, the elderly, and those with chronic lung conditions like bronchitis, emphysema, and asthma). The analysis of air quality effects in Section 3.5 for both the proposed action and cumulative RFD scenario is based not only on the relative, or incremental, contribution of the proposed action to total RFD emissions, but also concludes that this incremental contribution would not result in any direct exceedances of the NAAQS or state air quality standards for any criteria pollutants in the analysis area and therefore is not expected to change the air quality attainment status for the analysis area. NAAQS are set at levels to protect public health, including the health of at-risk populations, with an adequate margin of safety; therefore, these represent appropriate thresholds of significance for the EA analysis. In addition, ongoing operations of the well site would be subject to state and federal permitting (unless emissions are so minimal the site qualifies as de minimis), recordkeeping, monitoring, and reporting requirements, which ensure compliance with air quality emission standards that are established to protect public health. In the Q1 2022 EA, the analysis of potential human health and safety effects in Table 1.2 (human health and safety) discusses air quality-related health effects and acknowledges the potential for adverse aggregate effects from reasonably foreseeable environmental trends and planned actions. A discussion of how existing social vulnerabilities can influence the degree of air quality and health impacts for EJ communities has been added to the EJ analysis in Section 3.5.</p>
<p>In addition, BLM must not summarily dismiss health and safety impacts as temporary simply because some exposures (e.g., to emissions and fugitive dust from construction) are temporary. It is arbitrary, and contrary to scientific understanding, to assume that just because an exposure is temporary, so too are the effects resulting from that exposure. The health effects that can arise from environmental exposures, especially in conjunction with social determinants of health and environmental justice issues, may endure long after the acute exposure source is gone.</p>	<p>Potential impacts to human health and safety are discussed in Table 1.2. of the EA, which incorporates by reference the analysis in the March 2019 EA (Section 3.4, AIB-14 [groundwater quality], AIB-18 [human health and safety], and Section 3.5, Issue 1 [air quality]). Potential impacts to human health and safety are further evaluated in the BLM 2020 Air Resources Technical Report. The EA analysis does not assume or state that all human health and safety impacts are temporary or limited to the construction phase of development. The human health and safety analysis presented in Table 1.2 of the Q1 2022 EA has been revised to clarify that some of the potential long-term health effects related to air pollution may extend beyond the life of the wells. Potential impacts on environmental justice communities are described in Section 3.5, which includes a summary comparison of conclusions from analysis of other issues in Table 3.3. A discussion of how existing social vulnerabilities can influence the degree of air quality and health impacts for EJ communities has been added to the EJ analysis in Section 3.5.</p>

Comment	Response
<p>BLM also cannot dismiss health impacts as “temporary,” and thus avoid taking a hard look at cumulative health impacts, by simply stating that wells will be properly plugged and reclaimed “at the end of their useful lives,” and thus cease to cause unspecified “aggregate” health risks and impacts at that time. See, e.g., Pecos District Office at 49. For one, a well’s “useful life” can span decades. BLM must analyze cumulative emissions and their impacts over the full life course of a well, in conjunction with other wells in the lease sale area and other past, present, and reasonably foreseeable future actions and emissions. Moreover, information from several states, and nationally, indicates that wells often are not properly plugged and reclaimed at the end of their “useful lives. For example, while it is sometimes difficult to obtain an exact count of “orphaned” or improperly plugged and abandoned wells, reports indicate that there are hundreds, even thousands, of such wells across private, state, and federal lands in New Mexico alone, and in nearby Western states such as Colorado and Wyoming. These wells can leach toxic chemicals and contaminate water supplies, posing direct and cumulative health risks to nearby communities. State and BLM bonding requirements are usually insufficient to meet the costs associated with plugging and abandoning these wells, retiring other equipment, and cleaning up the well sites. Thus, idle or orphaned wells and abandoned well sites pose not only health risks and impacts, but also financial ones, which can further compound existing health impacts, including cumulative impacts, and related health inequities</p>	<p>Potential impacts to human health and safety are discussed in Table 1.2. of the EA, which incorporates by reference the analysis in the March 2019 EA (Section 3.4, AIB-14 [groundwater quality], AIB-18 [human health and safety], and Section 3.5, Issue 1 [air quality]). Potential impacts to human health and safety are further evaluated in the BLM 2020 Air Resources Technical Report. The EA analysis does not assume or state that all human health and safety impacts are temporary or limited to the construction phase of development. The human health and safety analysis presented in Table 1.2 of the Q1 2022 EA has been revised to clarify that some of the potential long-term health effects related to air pollution may extend beyond the life of the wells. BLM Onshore Orders 1 and 2 guide plugging and abandonment of wells. The BLM must approve and witness the plugging operations. In addition, the BLM’s orphaned well program will work to identify orphaned wells and associated infrastructure on federal land and then plug, remediate, and reclaim these wells and the surrounding land. Orphaned wells will be prioritized by public health and safety, potential environmental harm, and other subsurface impacts or land use priorities.</p>
<p>The inequities at which BLM must take a hard look in an environmental justice analysis are not incidental, nor are they biologically determined—they are structural, systemic, and part of an unjust historical and ongoing pattern and practice of environmental racism, settler colonialism, and treatment of communities in the leasing areas as energy sacrifice zones. And, as discussed throughout these comments, there are several other health risks and impacts BLM should also analyze in the context of health and environmental justice, particularly in light of social and structural factors that affect health. BLM must engage in a thorough analysis of these and other inequities that NEPA requires, apply this analysis to its decision-making, and articulate a “rational connection between the facts found and the choices made” in coming to its ultimate conclusions in light of that analysis. Motor Vehicle Mfr. Ass’n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43, 52 (1983). In conducting this analysis, BLM can and should synthesize existing local health, socioeconomic, and other data in the lease sale areas—for example, county health statistics and reports, locally-conducted health impact assessments, 123 where available, or mapping of pollution exposure risks and demographic data through tools like U.S. EPA’s “EJ Screen”¹²⁴—and the best available science, including but not limited to the peer-reviewed studies and sources mentioned in these comments.</p>	<p>Potential impacts to human health and safety are discussed in Table 1.2. of the EA, which incorporates by reference the analysis in the March 2019 EA (Section 3.4, AIB-14 [groundwater quality], AIB-18 [human health and safety], and Section 3.5, Issue 1 [air quality]). Potential impacts to human health and safety are further evaluated in the BLM 2020 Air Resources Technical Report. Potential impacts to environmental justice communities are described in Section 3.5, which includes a summary comparison of conclusions from analysis of other issues in Table 3.3. A discussion of how existing social vulnerabilities can influence the degree of air quality and health impacts for EJ communities has been added to the EJ analysis in Section 3.5. Executive Order 13985 directs federal agencies to evaluate whether their policies produce racially inequitable results when implemented, and to make the necessary changes to ensure underserved communities are properly supported. The Department of the Interior is working on a draft equity plan to assist agencies in how to implement this Executive Order. The plan is expected by summer 2022. EJSscreen is one of many tools that the BLM has the option to use, but in this instance, other data was used to evaluate the effects on environmental justice communities. There is currently no specific guidance on requiring the use of EJSscreen for evaluating impacts in NEPA documents.</p>

Comment	Response
<p>Air pollution is of particular concern with respect to health impacts of these lease sales, including not only direct impacts, but also cumulative risks and impacts and historical patterns of multiple and cumulative exposures. The potential harms resulting from exposure to dangerous air pollutants associated with fracking and drilling are serious and wide-ranging. A growing body of scientific research has documented adverse health impacts from air pollution related to unconventional oil and gas development or fracking, including studies showing air pollutants at levels associated with reproductive and developmental harms and increased risk of morbidity and mortality.¹²⁵ A comprehensive review of the risks and harms of fracking to human health came to several key findings, including: (1) “drilling and fracking contribute to toxic air pollution and smog (ground-level ozone) at levels known to have health impacts,” (2) “public health problems associated with drilling and fracking include poor birth outcomes, reproductive and respiratory impacts, cancer risks, and occupational health and safety problems”; and (3) “fracking infrastructure poses serious potential exposure risks to those living near it.”</p>	<p>The BLM has reviewed and considered the sources listed by the commenter to determine if the analysis of risks to human health presented in the EA requires additional analysis for this lease sale. In general, all sources listed confirm the potential risks to human health from aspects of oil and gas development that are discussed in the BLM Air Resources Technical Report, which is incorporated by reference into the Q1 2022 EA, and briefly summarized in Table 1.2 of the EA. The ARTR analysis discusses how hazardous air pollutants (HAPs) are known or suspected to cause cancer or other serious health effects, such as compromises to immune and reproductive systems, birth defects, and developmental disorders, which are the focus of the source documents listed by the commenter. The March 2019 analysis of air quality effects (Section 3.5) discusses the potential air emissions from future potential development of the lease parcels and associated health effects, regulatory programs in place to minimize risk of human health impacts from air pollution, and measures that may be required at the APD stage. Therefore, the BLM has concluded that the risks are adequately discussed in the EA as described above and further in the BLM Air Resources Technical Report.</p>
<p>The range of illnesses that can result from the wide array of air pollutants from fracking were summarized in a study by Dr. Theo Colburn, which charts which fracking chemicals have been linked to certain illnesses.¹²⁷ This study analyzed air samples taken during drilling operations near natural gas wells and residential areas in Garfield County, Colorado, and detected 57 chemicals between July 2010 and October 2011, including 44 with reported health effects. The study found extremely high levels of methylene chloride, which may be used as cleaning solvents to remove waxy paraffin that is commonly deposited by raw natural gas in the region. These deposits solidify at ambient temperatures and build up on equipment.¹³⁰ While none of the detected chemicals exceeded governmental safety thresholds of exposure, the study noted that such thresholds are typically based on “exposure of a grown man encountering relatively high concentrations of a chemical over a brief time period, for example, during occupational exposure.”¹³¹ Consequently, such thresholds may not apply to individuals experiencing “chronic, sporadic, low-level exposure,” including sensitive populations such as children, the elderly, and pregnant women.¹³² For example, the study detected polycyclic aromatic hydrocarbon (PAH) levels that could be of “clinical significance,” as recent studies have linked low levels of exposure to lower mental development in children who were prenatally exposed.¹³³ In addition, government safety standards do not take into account “the kinds of effects found from low-level exposure to endocrine-disrupting chemicals..., which can be particularly harmful during prenatal development and childhood.</p>	<p>The BLM has reviewed and considered the sources listed by the commenter to determine if the analysis of risks to human health presented in the EA requires additional analysis for this lease sale. In general, all sources listed confirm the potential risks to human health from aspects of oil and gas development that are discussed in the BLM Air Resources Technical Report, which is incorporated by reference into the Q1 2022 EA, and briefly summarized in Table 1.2 of the EA. The 2020 ARTR analysis discusses how hazardous air pollutants (HAPs) are known or suspected to cause cancer or other serious health effects, such as compromises to immune and reproductive systems, birth defects, and developmental disorders, which are the focus of the source documents listed by the commenter. Potential air quality impacts to human health and safety are discussed in Table 1.2 of the Q1 2022 EA, which incorporates by reference the existing analysis from the March 2019 EA (AIB-18 [human health and safety] and Section 3.5, Issue 1 [Air Quality]). The March 2019 EA analyses discuss potential hazards of air pollution for nearby residents, regulatory programs in place to minimize risk of human health impacts from air pollution, stipulations that would be applied to the lease parcels to minimize proximity to sensitive receptors or otherwise reduce risk, and measures that may be required at the APD stage. Potential emissions of hazardous air pollutants (including HAPs that are the focus of the source documents mentioned by the commenter) and associated risks to human health are analyzed in Section 3.5 of the March 2019 EA and the 2020 ARTR.</p> <p>Unlike the regulatory thresholds mentioned in the source document, which are based on exposure of a grown man encountering relatively high concentrations of a chemical over a brief period, the regulatory thresholds related to air quality that are used in the March 2019 EA analysis are based on NAAQS. NAAQS primary standards are designed to provide public health protection, including protecting the health of “sensitive” populations such as asthmatics, children, and the elderly.</p>

Comment	Response
<p>A rigorous study by Johns Hopkins University, which examined 35,000 medical records of people with asthma in Pennsylvania, found that people who live near a higher number of, or larger, active gas wells were 1.5 to 4 times more likely to suffer from asthma attacks than those living farther away, with the closest groups having the highest risk.¹³⁵ Relatedly, a 2018 study of pediatric asthma-related hospitalizations found that children and adolescents exposed to newly spudded unconventional natural gas development wells within their zip code had 1.25 times the odds of experiencing an asthma-related hospitalization compared to children who did not live in these communities. Furthermore, children and adolescents living in a zip code with any current or previous drilling activity had 1.19 times the odds of experiencing an asthma-related hospitalization compared to children who did not live in these communities. Amongst children and adolescents (ages 2-18), children between 2 and 6 years of age had the greatest odds of hospitalization in both scenarios.</p> <p>BLM should analyze these asthma-related effects in relation to existing asthma rates and related impacts in the communities adjacent to and counties encompassing the proposed lease sales. For example, Eddy County and Chaves County, New Mexico, within the analysis area for the Pecos District Office, have the highest adult asthma emergency department visit crude rates in the state, more than double the state average.¹³⁷ Eddy County also has the second highest crude rate of child asthma emergency department visits in New Mexico (a very close second), and Lea County the third highest. The rate in Eddy County is well over twice the state average (150.1 per 10,000 population vs. a state average of 62.7 per 10,000 population).¹³⁸ And air pollution-related asthma, in particular, can exert profound and widespread cumulative health effects throughout a person's life course, especially when combined with social determinants of health. For example, children with asthma are much more likely to miss school, hurting their educational prospects as well as their health (with some adverse health effects enduring into adulthood), and resulting in significant funding losses for local schools.¹³⁹ As the New Mexico Department of Health has noted,¹⁴⁰ and nationwide studies confirm,¹⁴¹ "low-income" populations and "environmental justice" populations face not only disproportionate asthma risks, but also significant difficulty managing their asthma, in part due to lack of access to health care.</p>	<p>Potential air quality impacts to human health and safety are discussed in Table 1.2 of the EA, which incorporates by reference the existing analysis from the March 2019 EA (AIB-18 [human health and safety] and Section 3.5, Issue 1 [Air Quality]), and which also incorporates by reference the BLM 2020 Air Resources Technical Report. The March 2019 EA describes existing air quality concerns within Dewey County, in terms of NAAQS, discusses potential hazards of air pollution for nearby residents, regulatory programs in place to minimize risk of human health impacts from air pollution, and as well as measures that may be required at the APD stage. Potential emissions of hazardous air pollutants (including those associated with asthma, such as O₃) and associated risks to human health are analyzed in Section 3.5 of the March 2019 EA as well as in the 2020 ARTR. As stated in the ARTR, which the EA incorporated by reference, "O₃ can worsen bronchitis, emphysema, and asthma, leading to increased medical care."</p> <p>The analysis of potential air quality effects in the March 2019 EA (Section 3.5) for both the proposed action and the RFD scenario is based not only on the relative, or incremental, contribution of the proposed action to total RFD emissions, but also on the fact that this incremental contribution would not result in any direct exceedances of the NAAQS for any criteria pollutants in the analysis area; NAAQS are set at levels to protect public health, including the health of at-risk populations, with an adequate margin of safety, therefore these represent appropriate thresholds of significance for the EA analysis. In addition, ongoing operations of the well site would be subject to state and federal permitting (unless emissions are so minimal the site qualifies as de minimis), recordkeeping, monitoring, and reporting requirements, which ensure compliance with air quality emission standards which are established to protect public health.</p> <p>The human health and safety analysis in the March 2019 EA acknowledges the potential for adverse aggregate effects from reasonably foreseeable environmental trends and planned actions. AIB-18 discusses the existing health and air quality concerns experienced by communities in the analysis area, and analyzes the incremental impacts of the proposed action, combined with reasonable foreseeable environmental trends and planned actions, on human health and safety.</p> <p>Potential impacts on environmental justice communities are described in Section 3.5, which includes a summary comparison of conclusions from analysis of other issues in Table 3.3. A discussion of how existing social vulnerabilities can influence the degree of air quality and health impacts for EJ communities has been added to the EJ analysis in Section 3.5.</p>

Comment	Response
<p>In addition, oil and gas air pollution exacerbates cancer risks. A recent Yale University study identified numerous fracking chemicals that are known, probable, or possible human carcinogens (20 air pollutants) and/or are linked to increased risk for leukemia and lymphoma (11 air pollutants), including benzene, 1,3-butadiene, cadmium, diesel exhaust, and polycyclic aromatic hydrocarbons.¹⁵⁰ And a 2018 study by McKenzie et al. conducted in the Denver Julesberg Basin on the Colorado Northern Front Range (CNFR) found that the established setback distance of 152 m (500 ft) did little to protect people in that proximity. In analyses of nonmethane concentrations from 152 to >1600 meters from oil and gas facilities, the study found that the EPA's minimum cumulative lifetime excess cancer risk benchmark of 1 in a million was exceeded. Cumulative lifetime excess cancer risk increased with decreasing distance from the nearest oil and gas facility. Residents living within 610 meters of an oil and gas facility had an overall cancer risk in excess of the EPA's upper bound for remedial action of 1 in 10,000. Furthermore, residents within 152 meters of an oil and gas facility had an overall excess cancer risk of 8.3 in 10,000, along with an increased likelihood of neurological, hematological, and developmental health effects. Over 95% of the total risk was due to benzene, with additional risk due to the presence of toluene, ethylbenzene, xylene, and alkanes.¹⁵¹ Other studies have found that residents living closer to drilling and fracking operations had higher hospitalization rates¹⁵² and reported more health symptoms including upper respiratory problems and rashes.</p>	<p>The BLM has reviewed and considered the sources listed by the commenter to determine if the analysis of risks to human health presented in the EA requires additional analysis for this lease sale. In general, all sources listed confirm the potential risks to human health from aspects of oil and gas development that are disclosed in the BLM Air Resources Technical Report, which is incorporated by reference into the Q1 2022 EA, and briefly summarized in Table 1.2 of the EA. The 2020 ARTR analysis discusses how hazardous air pollutants (HAPs) are known or suspected to cause cancer or other serious health effects, such as compromises to immune and reproductive systems, birth defects, and developmental disorders, which are the focus of the source documents listed by the commenter. Potential air quality impacts to human health and safety are discussed in Table 1.2 of the Q1 2022 EA, which incorporates by reference the existing analysis from the March 2019 EA (AIB-18 [human health and safety] and Section 3.5, Issue 1 [Air Quality]). The March 2019 EA analysis discusses potential hazards of air pollution for nearby residents, regulatory programs in place to minimize risk of human health impacts from air pollution, stipulations that would be applied to the lease parcels to minimize proximity to sensitive receptors or otherwise reduce risk, and measures that may be required at the APD stage. Potential emissions of hazardous air pollutants (including HAPs that are the focus of the source documents mentioned by the commenter) and associated risks to human health are analyzed in Section 3.5 of the March 2019 EA and the 2020 ARTR.</p> <p>The human health and safety analysis in the March 2019 EA acknowledges the potential for air quality-related health effects. Human health risk assessments cannot be performed until project-specific details are known so that frequency, timing, and levels of contact with potential stressors may be identified. However, future potential development will be subject to relevant rules and regulations regarding public health and safety. In addition, following additional analysis at the time of proposed lease sale development, measures to reduce effects on residents could be attached as COAs to the APD. Measures may include modification to siting or design of facilities, including relocation of proposed operations up to 656 feet (200 m).</p>

Comment	Response
<p>Numerous studies also suggest that higher maternal exposure to fracking and drilling can increase the incidence of high-risk pregnancies, premature births, low-birthweight babies, and birth defects.¹⁵⁴ A study of more than 1.1 million births in Pennsylvania found evidence of a greater incidence of low-birth-weight babies and significant declines in average birth weight among pregnant women living within 3 kilometers of fracking sites.¹⁵⁵ The study estimated that about 29,000 U.S. births each year occur within 1 kilometer of an active fracking sties and “that these births therefore may be at higher risk of poor birth outcomes.” A study of 9,384 pregnant women in Pennsylvania found that women who live near active drilling and fracking sites had a 40 percent increased risk for having premature birth and a 30 percent increased risk for having high-risk pregnancies.¹⁵⁶ Another Pennsylvania study found that pregnant women who had greater exposure to gas wells—measured in terms of proximity and density of wells—had a much higher risk of having low-birthweight babies; the researchers identified air pollution as the likely route of exposure.¹⁵⁷ In rural Colorado, mothers with greater exposure to natural gas wells had a higher risk of having babies with congenital heart defects and possibly neural tube defects.¹⁵⁸ A July 2020 study found that residential proximity to flaring (the open combustion of natural gas) from oil and gas development was associated with an increased risk of preterm birth, specifically for “Hispanic” women, in the Eagle Ford Shale of Texas.¹⁵⁹ Here, again, these documented risks are of particular concern in certain communities near the proposed lease sales in light of environmental justice concerns, like proximity of homes to multiple wells¹⁶⁰ (an exacerbating factor in the Eagle Ford Shale study), and social and structural inequities, such as limited access to prenatal care. (For example, in Chaves County, NM (within the Pecos District Office) in 2017, nearly half of mothers lacked access to prenatal care during the first trimester of their pregnancies.)¹⁶¹ BLM should have taken local health data like this into account as part of its “hard look” at health impacts, especially as they relate to social determinants of health and environmental justice.</p>	<p>The BLM has reviewed and considered the sources listed by the commenter to determine if the analysis of risks to human health presented in the EA requires additional analysis for this lease sale. In general, the sources listed all confirm the potential risks to human health from aspects of oil and gas development that are disused in the BLM Air Resources Technical Report, which is incorporated by reference into the Q1 2022 EA, and briefly summarized in Table 1.2 of the EA. The ARTR analysis discusses how hazardous air pollutants (HAPs) are known or suspected to cause cancer or other serious health effects, such as compromises to immune and reproductive systems, birth defects, and developmental disorders, which are the focus of the source documents listed by the commenter. The March 2019 analysis of air quality effects (Section 3.5) discusses the potential air emissions from future potential development of the lease parcels and associated health effects, regulatory programs in place to minimize risk of human health impacts from air pollution, and measures that may be required at the APD stage. Therefore, the BLM has concluded that the risks are adequately considered and analyzed in the EA as described above and further in the BLM Air Resources Technical Report.</p>
<p>Those living near oil and gas development aren’t the only ones at risk. Oil and gas workers also suffer high risks from toxic exposure and accidents.¹⁶² One study of the occupational inhalation risks caused by emissions from chemical storage tanks associated with fracking wells found that chemicals used in 12.4 percent of wells posed acute non-cancer risks, chemicals used in 7.5 percent of wells posed acute cancer risks, and chemicals used in 5.8 percent of wells posed chronic cancer risks.</p>	<p>Potential air quality impacts to human health and safety are discussed in Table 1.2 of the EA, which incorporates by reference the existing analysis from the March 2019 EA (AIB-18 [human health and safety] and Section 3.5, Issue 1 [Air Quality]), and which also incorporates by reference the BLM 2020 Air Resources Technical Report. The March 2019 EA analysis (Section 3.5) discusses potential emissions of hazardous air pollutants (including HAPs, which are known or suspected to cause cancer, and VOCs, which are the focus of the commenter’s listed source document) and regulatory programs in place to minimize risk of human health impacts from air pollution, as well as measures that may be required at the APD stage. Developers who install and operate oil and gas wells, facilities, and pipelines are responsible for complying with the applicable laws and regulations governing hazardous materials and for following all hazardous spill response plans and stipulations. This includes but is not limited to worker safety laws as stipulated by the Occupational Safety and Health Administration (OSHA).</p>

Comment	Response
<p>Radioactive wastes from oil and gas production can be found in produced water, flowback water from hydraulic fracturing, drilling waste including cuttings and mud, and/or sludge. This material can concentrate in pipes, storage tanks and facilities, and on other extraction equipment, and may be left on site or be emitted into the environment. Some of these materials, such as Radium, can penetrate the skin and raise the risk of cancer.165 The NEPA analysis conducted for this plan amendment must consider the potential health impacts of radioactive materials, as well as all other potential health effects.</p>	<p>Appendix C of the EA discusses how naturally occurring radioactive material can be brought to the surface in drill cuttings and produced water, as well as the state's regulatory program in place to safely manage the disposal of drill cuttings and produced water. Impacts to human health and safety from future potential lease development are presented in Table 1.2 of the EA, which incorporates by reference the previous analyses from the March 2019 EA (AIB-18 [human health and safety], AIB-14 [groundwater quality], AIB-15 [surface water quality], and Section 3.6 [air quality]). The public health and safety summary in Table 1.2 discusses health and safety risks associated with spills of hazardous materials, hydrocarbons, produced water, or hydraulic fracturing fluid and corresponding potential contamination of air, soil, or water. Additional language has been added to Table 1.2 to discuss the risk of exposure to radioactive materials, specifically.</p>
<p>Processes used to produce oil and gas often generate radioactive waste containing concentrations of naturally occurring radioactive materials (NORM) and Technologically Enhanced Naturally Occurring Radioactive Materials (TENORMS). The geological formations to be drilled will result in radioactive waste, containing both NORMS and TENORMs. The radioactive materials will show up in formation drilling, production wastes, and operations. Every single shale well that uses an on-site pit for disposal of drill cuttings and/or fluids likely will leave behind some amount of concentrated radioactive materials.166 Further, Alpha-emitting radioactive decay elements concentrate at the pipe scale, so the waste is much more radioactive than any of the constituent parts.167 BLM must also evaluate radiation exposure risks as part of its obligation to take a hard look at public health and safety. Further, BLM should conduct a baseline groundwater analysis in the lease sale areas before any more leasing and development occurs, to ensure that no environmental contamination occurs from disposal of radioactive sludge/scale.</p>	<p>Appendix C of the EA discusses how naturally occurring radioactive material can be brought to the surface in drill cuttings and produced water, as well as the state's regulatory program in place to safely manage the disposal of drill cuttings and produced water. Impacts to human health and safety from future potential lease development are presented in Table 1.2 of the EA, which incorporates by reference the analysis from the March 2019 EA (AIB-18 [human health and safety], AIB-14 [groundwater quality], AIB-15 [surface water quality], and Section 3.6 [air quality]). The public health and safety summary in Table 1.2 discusses health and safety risks associated with spills of hazardous materials, hydrocarbons, produced water, or hydraulic fracturing fluid and corresponding potential contamination of air, soil, or water. Additional language has been added to Table 1.2 to discuss the risk of exposure to radioactive materials, specifically.</p>
<p>According to EPA Guidance on environmental justice in the NEPA process, an environmental justice analysis must also include "the cultural values that the community and/or Indian Tribe may place on a natural resource at risk."172 The Guidance also states that it is "essential" for the "NEPA analyst to consider the cumulative impacts from the perspective of these specific resources or ecosystems which are vital to the communities of interest."173 Yet BLM has failed to incorporate Tribes' and community members' knowledge of, and concerns about, such cultural values and cumulative impacts in its NEPA analyses for the lease sales. It is arbitrary and capricious, a failure to "articulate a rational connection between the facts found and the choices made," Motor Vehicle Mfr. Ass'n, 463 U.S. at 43, for BLM to acknowledge that there are "environmental justice populations" in the lease sale areas who could experience adverse and disproportionate risks or impacts, without actually analyzing, or in some cases even mentioning, the risks and impacts of its leasing decisions on these populations, let alone taking them into account in its decision-making. "Where BLM has acknowledged increased risk, it cannot then conclude impacts are not significant absent a comprehensive analysis." State of California, 472 F. Supp. 3d at 622.</p>	<p>Potential impacts to environmental justice communities are considered and analyzed in AIB-4 and discussed in Section 3.6.1 and AIB-3 of the EA. As described in Section 4.2 of the EA, The BLM initiated government-to-government consultation under NEPA and THPO consultation under NHPA Section 106 on October 7, 2020 (for the postponed April 2021 lease sale, see Section 1.1), with the Apache Tribe of Oklahoma, Caddo Nation, Cheyenne and Arapaho Tribes of Oklahoma, Comanche Nation, Kiowa Tribe of Oklahoma, Muscogee (Creek) Nation, Northern Arapaho Tribe, Northern Cheyenne Tribe, Osage Nation, Seminole Nation, Thlophlocco Tribal Town, United Keetoowah Band of Cherokee, Wichita & Affiliated Tribes, and Wyandotte Nation regarding the presence of and potential effects on Native American resource concerns within 2 miles of the nominated lease parcel. The BLM re-initiated government-to-government consultation under NEPA and THPO consultation under NHPA Section 106 on September 9, 2021, with the same tribes. Tribal consultation is ongoing, and the BLM will remain available to engage with tribes and respond to any consultation requests. Note that while the determination of potential adverse and disproportionate impacts from specific actions may initially be the assessment of the BLM, this assessment should not be assumed to be the position of specific, potentially impacted communities of concern. In addition, no specific Native American resource concerns have been identified on the subject lease parcel (see AIB-2); however, this consultation is considered ongoing.</p>

Comment	Response
<p>BLM's FONSI's for the proposed 2022 lease sales improperly limit the context and scope of the potentially affected environment in which the proposed leasing actions, and their cumulative impacts, will occur. Significance assessments under NEPA require consideration of "context," meaning the significance of the proposed action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. Despite these requirements for considering the context of the proposed lease sales and despite the global nature and impacts of cumulative GHG emission international, nation, regional, or state-wide importance. We request BLM consider a far wider array of contexts, including society as whole, global, national, and regional contexts, that reflect the cumulative and global nature of climate change impacts.</p>	<p>The BLM provided a wide range of potential impact contexts in the 2020 Specialists Report, which was incorporated by reference into each EA. The Specialists Report presents the life-cycle representation of the federal onshore mineral estate GHG emissions relative to various local, state, national and global emissions and impact contexts. This fact is demonstrated by the relative federal mineral estate emissions levels presented in the EA and the report, and more specifically the "direct emissions" for which future permitting conditions of approval would apply. The cumulative emissions scope in the Specialists Report is inclusive of the offshore federal mineral estate (U.S. totals for production and emissions).</p>
<p>BLM has not taken the required "hard look" at potential environmental impacts, as required by NEPA. Under NEPA, BLM must evaluate the "reasonably foreseeable" site-specific impacts of oil and gas leasing prior to making an "irretrievable commitment of resources." <i>New Mexico ex rel. Richardson</i>, 565 F.3d at 718; see also <i>Sierra Club v. Hodel</i>, 848 F.2d 1068, 1093 (10th Cir. 1988) (agencies are to perform hard look NEPA analysis "before committing themselves irretrievably to a given course of action so that the action can be shaped to account for environmental values"); <i>Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc.</i>, 435 U.S. 519, 553 (1978) (stating NEPA "places upon an agency the obligation to consider every significant aspect of the environmental impact of a proposed action"). Courts have held that BLM makes such a commitment when it issues an oil and gas lease without reserving the right to later prohibit all development. <i>New Mexico ex rel. Richardson</i>, 565 F.3d at 718; <i>Pennaco Energy, Inc. v. United States Dep't of the Interior</i>, 377 F.3d 1147, 1160 (10th Cir. 2004).</p>	<p>Section 2.1.3 of the EA describes the process for future development of the lease parcels, and Section 3.3 describes the reasonably foreseeable trends and planned actions. The BLM tiered the Lease Sale EA to the applicable RMP EIS (as amended) and provided additional analysis in the Lease Sale EA based on the Proposed Action and reasonably foreseeable trends and planned actions. If the lessee chooses to pursue development, which is not a given, additional site-specific NEPA analysis takes place when APDs are submitted. Conducting a speculative exercise about the density, rate, extent of drilling, and the potential impacts from complex multi-year plans of operation on lease sale parcels for APDs that have not been submitted would be inaccurate, premature, and misleading for the public and the BLM.</p>
<p>Here, BLM is in fact proposing to make an "irretrievable commitment of resources" by offering leases without reserving the right to prevent future development; the site-specific impacts are "reasonably foreseeable" and should be analyzed in this EA, rather than waiting until a leaseholder submits an application for permit to drill (APD). This approach violates NEPA, and BLM must take the site-specific impacts of leasing into account at this stage.</p>	<p>Section 2.1 of the EA describes the process for future development of the lease parcels. The BLM tiered the Lease Sale EA to the applicable RMP EIS, and provided additional analysis in the Lease Sale EA. If the lessee chooses to pursue development, which is not a given, additional site-specific NEPA analysis takes place when APD's are submitted. Conducting a speculative exercise about the density, rate, extent of drilling, and the potential impacts from complex multi-year plans of operation on lease sale parcels for APDs that have not been submitted would be inaccurate, premature, and misleading for the public and the BLM.</p>
<p>Several of the draft EAs violate NEPA because they contain no analysis of the reasonably foreseeable impacts to groundwater from drilling on these particular leases.</p>	<p>The BLM identified, discussed, and analyzed the potential impacts to groundwater quality and quantity from the Q1 2022 Lease Sale in Table 2.1 of the EA, which incorporates by reference the analysis from the March 2019 EA.</p>
<p>As federal courts have explained, the issuance of a non-NSO represents an irreversible commitment of resources because it gives the leaseholder the right to engage in ground disturbing activity. Accordingly, detailed environmental analysis and ESA consultation must occur at the leasing stage.</p>	<p>Section 2.1.3 of the EA describes the process for future development of the lease parcels, and Section 3.3 describes the reasonably foreseeable trends and planned actions. The BLM tiered the Lease Sale EA to the applicable RMP EIS (as amended), and provided additional analysis in the Lease Sale EA based on the Proposed Action and reasonably foreseeable trends and planned actions. If the lessee chooses to pursue development, which is not a given, additional site-specific NEPA analysis takes place when APDs are submitted. Conducting a speculative exercise about the density, rate, extent of drilling, and the potential impacts from complex multi-year plans of operation on lease sale parcels for APDs that have not been submitted would be inaccurate, premature, and misleading for the public and the BLM. A description of ESA consultation can be found in Section 4.1 of the EA.</p>

Comment	Response
<p>Oil and gas drilling involves boring wells to depths thousands of feet below the surface, often through or just above groundwater aquifers. Without proper well construction and vertical separation between aquifers and fractured formations, oil and gas development can contaminate underground sources of water. However, federal rules and regulations do not provide specific direction for BLM and operators to protect all usable water. Even rules that purport to do so, like Onshore Order No. 2's requirement to "protect and/or isolate all usable water zones," are inconsistently applied and often disregarded in practice. Moreover, industry has admitted that it often does not protect usable water in practice. Western Energy Alliance and the Independent Petroleum Association of America have told BLM that the "existing practice for locating and protecting usable water" does not measure the numerical quality of water underlying drilling locations, and therefore does not consider whether potentially usable water would be protected during drilling. In light of these risks to a critical resource, BLM must evaluate potential groundwater impairment. As a threshold matter, BLM must provide a detailed account of all regional groundwater resources that could be impacted, including usable aquifers that may not currently be used as a drinking water supply. The accounting must include, at minimum, all aquifers with up to 10,000 parts per million total dissolved solids, and it cannot substitute existing drinking water wells or any other incomplete proxy for a full description of all usable or potentially usable groundwater in the region. Second, BLM must use that accounting to assess how new oil and gas wells might impact these resources. That evaluation must assess the sufficiency of protective measures that will be employed, including wellbore casing and cementing and vertical separation between aquifers and the oil and gas formations likely to be hydraulically fractured. In assessing these protections, BLM cannot presume that state and federal regulations will protect groundwater, because of the shortcomings and industry noncompliance described above. BLM may not defer this analysis of groundwater impacts to the APD stage.</p>	<p>The BLM identified, discussed, and analyzed potential impacts to groundwater quality from the Q1 2022 Lease Sale in Table 1.2 in the EA, which incorporates by reference the analysis from the March 2019 EA. The March 2019 EA AIB-14 (groundwater quality) describes the depths and thicknesses of existing regional aquifers and regulatory programs in place to prevent contamination to these groundwater resources. The Q1 2022 EA reiterates this by stating, "well completion activities would be subject to standard industry practices and other regulatory requirements related to hydraulic fracturing under 43 CFR 3160 and Oklahoma Administrative Code (OAC) 165:10-3-10 (a)." In addition, Section 3.7 of the March 2019 EA describes existing groundwater uses and demand based on OWRB data, and analyzes the cumulative effect of all past, present, and reasonably foreseeable future actions on water demands in the analysis area. Additional site-specific analysis would occur at the APD stage, and additional COAs may be attached to the APD to reduce or avoid impacts to groundwater resources.</p>
<p>In order to adequately protect water resources and comply with NEPA, BLM must complete a detailed, project-specific analysis of water resources prior to approving each lease sale. See Center for Biological Diversity, 937 F. Supp. 2d at 1158; Conner, 848 F.2d at 1450. BLM must also consider cumulative effects of the proposed action pursuant to Secretarial Order 3399, recent case law, and BLM's NEPA Handbook.</p>	<p>The BLM identified, discussed, and analyzed potential impacts to surface and groundwater quality and quantity from the Q1 2022 Lease Sale in Table 1.2 in the EA, which incorporates by reference the analysis from the March 2019 EA.</p>
<p>An adequate cumulative effects analysis requires some "quantified or detailed" information. Klamath-Siskiyou Wildlands Ctr. v. BLM, 387 F.3d 989, 993 (9th Cir. 2004). Cf. Sierra Club v. Bosworth, 510 F.3d 1016, 1028-30 (9th Cir. 2007) (requiring consideration of cumulative impacts for activities covered by categorical exclusion for fuel reduction activities); Soda Mountain Wilderness Council v. Norton, 424 F. Supp. 2d 1241, 1266-67 (E.D. Cal. 2006) (finding one-page cumulative impact analysis inadequate). Generalized, conclusory statements about the insignificance of cumulative effects or how they will be effectively mitigated will not suffice. Te-Moak Tribe of Western Shoshone of Nevada v. U.S. Dept. of Interior, 608 F.3d 592, 606 (9th Cir. 2010) (failure to include quantified or detailed information on cumulative effects of past, present, and reasonably foreseeable mining activities). See also Great Basin Mine Watch v. Hankins, 456 F.3d 955, 971-74 (9th Cir. 2006) (holding cumulative impact analysis for gold mining operations inadequate because it consisted of "vague and conclusory statements, without any supporting data" and lacked any explanation for why other mining projects were not explicitly discussed)</p>	<p>The BLM undertook an analysis of impacts on resources and potential environmental consequences, including cumulative impacts in the EA. Refer to Issues Analyzed in Brief (Section 3.5) and Issues Analyzed in Detail (Section 3.6). EA Section 3.3 outlines past, present, and reasonably foreseeable future actions that would affect the same resources as the Proposed Action and are within the temporal and geographic boundaries of the analysis. The EA analysis for all issues analyzed in brief and issues analyzed in detail includes a cumulative impact analysis of development of the RFD, which includes the referenced lease sale actions as well as other reasonably foreseeable development.</p>

Comment	Response
<p>For every discretionary action, Section 7(a)(2) of the Endangered Species Act (“ESA”) requires each federal agency, in consultation with the nation’s wildlife agencies, to “insure that any action authorized, funded, or carried out by such agency ... is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species” using the best scientific data available.²⁰⁷ The Supreme Court has unequivocally stated that the Act’s “language, history, and structure” made clear “beyond doubt” that “Congress intended endangered species to be afforded the highest of priorities” and endangered species should be given “priority over the ‘primary missions’ of federal agencies” especially during such consultations.²⁰⁸ Even with a global threat to biodiversity such as climate change, “the plain intent of Congress in enacting this statute was to halt and reverse the trend toward species extinction, whatever the cost.”²⁰⁹ Because resuming federal oil and gas leasing will have an appreciable, cumulative impact on climate-threatened species, BLM must include these species as part of its consultation with both the National Marine Fisheries Service and the U.S. Fish and Wildlife Service (collectively the “Services”).</p>	<p>A description of Endangered Species Act compliance and consultation can be found in Section 4.1 of the EA. The BLM has determined that estimated surface occupancy associated with the development of the lease parcel would not result in significant adverse impacts to ESA listed or candidate species, nor would it jeopardize or adversely modify critical habitat using best available information (see Section 1.5.6, Table 1.2 of the EA). Additionally, leases do not directly permit surface-disturbing activity without further analysis during the project application (APD) phase. Any proposed development that is outside the authorization of the existing USFWS consultation or is found to likely impact ESA federally listed or candidate species would result in a new USFWS consultation process under Section 7 of the ESA.</p> <p>The BLM consults with USFWS on projects that may have a physical effect on threatened and endangered species or their habitats. BLM commits to continue this long-established practice for any proposed plan of development that may result from the lease sale. Buying or holding a lease does not by itself convey the right to impact threatened or endangered species or their habitats, and therefore consultation with other federal agencies is not required at the leasing stage. The BLM includes a stipulation in all leases to ensure threatened and endangered species will be addressed prior to any development. Additionally, the BLM did not receive any comments or letters from USFWS for any of the currently proposed lease sales.</p>
<p>For this proposed action, it is clear that the anticipated greenhouse gas pollution from federal oil and gas leasing will harm listed species far beyond the immediate area of the proposed activity in a manner that is attributable to the agency action.</p>	<p>A description of Endangered Species Act compliance and consultation can be found in Section 4.1 of the EA. The BLM has determined that estimated surface occupancy associated with the development of the lease parcel would not result in significant adverse impacts to ESA listed or candidate species, nor would it jeopardize or adversely modify critical habitat using best available information (see Section 1.5.6, Table 1.2 of the EA). Additionally, leases do not directly permit surface-disturbing activity without further analysis during the project application (APD) phase. Any proposed development that is outside the authorization of the existing USFWS consultation or is found to likely impact ESA federally listed or candidate species would result in a new USFWS consultation process under Section 7 of the ESA.</p> <p>The BLM consults with USFWS on projects that may have a physical effect on threatened and endangered species or their habitats. BLM commits to continue this long-established practice for any proposed plan of development that may result from the lease sale. Buying or holding a lease does not by itself convey the right to impact threatened or endangered species or their habitats, and therefore consultation with other federal agencies is not required at the leasing stage. The BLM includes a stipulation in all leases to ensure threatened and endangered species will be addressed prior to any development. Additionally, the BLM did not receive any comments or letters from USFWS for any of the currently proposed lease sales.</p>

Comment	Response
<p>As an initial matter, the science is overwhelmingly clear that climate change represents a stark threat to the future of biodiversity within the United States and around the world. The Fourth National Climate Assessment warns that “climate change threatens many benefits that the natural environment provides to society,” and that “extinctions and transformative impacts on some ecosystems” will occur “without significant reductions in global greenhouse gas emissions.”²¹⁴ The best available science shows that anthropogenic climate change is causing widespread harm to life across the planet, disrupting species’ distribution, timing of breeding and migration, physiology, vital rates, and genetics—in addition to increasing species extinction risk.²¹⁵ Climate change is already affecting 82% of key ecological processes that underpin ecosystem function and support basic human needs.²¹⁶ Climate change-related local extinctions are widespread and have occurred in hundreds of species, including almost half of the 976 species surveyed.²¹⁷ Nearly half of terrestrial non-flying threatened mammals and nearly one quarter of threatened birds are estimated to have been negatively impacted by climate change in at least part of their range.²¹⁸ Furthermore, across the globe, populations of terrestrial birds and mammals that are experiencing greater rates of climate warming are more likely to be declining at a faster rate.²¹⁹ Genes are changing, species’ physiology and physical features such as body size are changing, species are moving to try to keep pace with suitable climate space, species are shifting their timing of breeding and migration, and entire ecosystems are under stress.</p>	<p>A description of Endangered Species Act compliance and consultation can be found in Section 4.1 of the EA. The BLM has determined that estimated surface occupancy associated with the development of the lease parcel would not result in significant adverse impacts to ESA listed or candidate species, nor would it jeopardize or adversely modify critical habitat using best available information (see Section 1.5.6, Table 1.2 of the EA). Additionally, leases do not directly permit surface-disturbing activity without further analysis during the project application (APD) phase. Any proposed development that is outside the authorization of the existing USFWS consultation or is found to likely impact ESA federally listed or candidate species would result in a new USFWS consultation process under Section 7 of the ESA.</p> <p>The BLM consults with USFWS on projects that may have a physical effect on threatened and endangered species or their habitats. BLM commits to continue this long-established practice for any proposed plan of development that may result from the lease sale. Buying or holding a lease does not by itself convey the right to impact threatened or endangered species or their habitats, and therefore consultation with other federal agencies is not required at the leasing stage. The BLM includes a stipulation in all leases to ensure threatened and endangered species will be addressed prior to any development. Additionally, the BLM did not receive any comments or letters from USFWS for any of the currently proposed lease sales.</p>
<p>What is more, scientists can now predict specific harms to individual species from the incremental emissions increases directly attributable to the federal agency actions, and can also assess the consequences of emissions for listed species’ conservation and recovery. For example, the recovery plan for the polar bear predicts three different scenarios for polar bear populations under scenarios where emissions are abated early, emissions are abated later, and where emissions continue unabated.²³⁵ Likewise, with respect to particular agency actions, scientists were able to calculate that the rollback of vehicle emissions standards by the Trump administration would have resulted in a sustained loss of more than 1,000 square miles of summer sea ice habitat for the polar bear and nearly one full additional day of ice-free conditions in Alaska and many other parts of the Arctic, which would reduce the length of the polar bear feeding season and lower reproductive success and survival.²³⁶ Thus as a scientific matter, there is no basis for any federal agency to assert that climate change does not harm endangered and threatened species or that it is scientifically impossible to ascertain the particular harm caused by an agency’s contribution to greenhouse gas emissions.</p>	<p>A description of Endangered Species Act compliance and consultation can be found in Section 4.1 of the EA. The BLM has determined that estimated surface occupancy associated with the development of the lease parcel would not result in significant adverse impacts to ESA listed or candidate species, nor would it jeopardize or adversely modify critical habitat using best available information (see Section 1.5.6, Table 1.2 of the EA). Additionally, leases do not directly permit surface-disturbing activity without further analysis during the project application (APD) phase. Any proposed development that is outside the authorization of the existing USFWS consultation or is found to likely impact ESA federally listed or candidate species would result in a new USFWS consultation process under Section 7 of the ESA.</p> <p>The BLM consults with USFWS on projects that may have a physical effect on threatened and endangered species or their habitats. BLM commits to continue this long-established practice for any proposed plan of development that may result from the lease sale. Buying or holding a lease does not by itself convey the right to impact threatened or endangered species or their habitats, and therefore consultation with other federal agencies is not required at the leasing stage. The BLM includes a stipulation in all leases to ensure threatened and endangered species will be addressed prior to any development. Additionally, the BLM did not receive any comments or letters from USFWS for any of the currently proposed lease sales.</p>

Comment	Response
<p>Furthermore, there are no defensible legal rationales for ignoring climate-threatened species that are harmed by the emissions that will result from a proposed agency action. Since 2008, federal agencies have taken cover behind a cursory, two-page memorandum from the Fish and Wildlife Service, which asserted, without any citation or acknowledgement of the scientific literature, that the “best scientific data available today do not allow us to draw a causal connection between GHG emissions from a given facility and effects posed to listed species or their habitats, nor are there sufficient data to establish that such impacts are reasonably certain to occur.”²³⁷ Several months later, David Bernhardt — then Department of Interior Solicitor during the George W. Bush administration—issued a five-page memorandum concurring with the FWS.²³⁸ Even if these memoranda were correct at the time — and they were not — as the FWS memorandum stated: that “As new information and knowledge about emissions and specific impacts to species and their habitats is developed, we will adapt our framework for consultations accordingly. This is particularly important as more regionally-based models are developed and refined to the level of specificity and reliability needed for the Service to execute its implementation of the Act’s provisions ensuring consistency with the statute’s best available information standard.”²³⁹ Thus, the FWS and Bernhardt Memoranda were never intended to provide a permanent shield to avoid consultations, and any reliance on it today would simply be arbitrary and capricious. Accordingly, all federal agencies must assess whether the emissions that result from their activities harm climate-threatened species</p>	<p>A description of Endangered Species Act compliance and consultation can be found in Section 4.1 of the EA. The BLM has determined that estimated surface occupancy associated with the development of the lease parcel would not result in significant adverse impacts to ESA listed or candidate species, nor would it jeopardize or adversely modify critical habitat using best available information (see Section 1.5.6, Table 1.2 of the EA). Additionally, leases do not directly permit surface-disturbing activity without further analysis during the project application (APD) phase. Any proposed development that is outside the authorization of the existing USFWS consultation or is found to likely impact ESA federally listed or candidate species would result in a new USFWS consultation process under Section 7 of the ESA.</p> <p>The BLM consults with USFWS on projects that may have a physical effect on threatened and endangered species or their habitats. BLM commits to continue this long-established practice for any proposed plan of development that may result from the lease sale. Buying or holding a lease does not by itself convey the right to impact threatened or endangered species or their habitats, and therefore consultation with other federal agencies is not required at the leasing stage. The BLM includes a stipulation in all leases to ensure threatened and endangered species will be addressed prior to any development. Additionally, the BLM did not receive any comments or letters from USFWS for any of the currently proposed lease sales.</p>
<p>If the agency determines that an action may affect a species—even if the effect is small, indirect, or the result of cumulative actions—it must formally consult with the Services.²⁴⁰ Federal courts have repeatedly held that the “may affect” threshold is “very low” and that any effect — whether “beneficial, benign, adverse or of an undetermined character” — is sufficient to cross that threshold.²⁴¹ Only a scientific finding of “no effect” is sufficient to avoid the consultation process altogether.²⁴² In essence, as the Joint Consultation Handbook explains, a “no effect” finding means exactly what it says, and is only properly made “when the action agency determines its proposed action will not affect a listed species or designated critical habitat”;²⁴³ it cannot be employed when an agency simply believes it is too hard to determine the impacts of its actions.</p>	<p>A description of Endangered Species Act compliance and consultation can be found in Section 4.1 of the EA. The BLM has determined that estimated surface occupancy associated with the development of the lease parcel would not result in significant adverse impacts to ESA listed or candidate species, nor would it jeopardize or adversely modify critical habitat using best available information (see Section 1.5.6, Table 1.2 of the EA). Additionally, leases do not directly permit surface-disturbing activity without further analysis during the project application (APD) phase. Any proposed development that is outside the authorization of the existing USFWS consultation or is found to likely impact ESA federally listed or candidate species would result in a new USFWS consultation process under Section 7 of the ESA.</p> <p>The BLM consults with USFWS on projects that may have a physical effect on threatened and endangered species or their habitats. BLM commits to continue this long-established practice for any proposed plan of development that may result from the lease sale. Buying or holding a lease does not by itself convey the right to impact threatened or endangered species or their habitats, and therefore consultation with other federal agencies is not required at the leasing stage. The BLM includes a stipulation in all leases to ensure threatened and endangered species will be addressed prior to any development. Additionally, the BLM did not receive any comments or letters from USFWS for any of the currently proposed lease sales.</p>

Comment	Response
<p>It is abundantly clear in this instance the proposed agency action will result in a significant fraction of all global greenhouse gas emissions, and consequently there are real impacts that cross the “may affect” threshold, even if some of those impacts are still of an undetermined character at this point. The purpose of the consultation process, by Congressional design, is to allow the expert wildlife agencies to assess these impacts using the best available science, so that they can evaluate the harm that may be caused. Any attempt by the Bureau of Land Management (or U.S. Fish and Wildlife Service) to simply assert that it is unable to determine the impacts of greenhouse gas emissions on listed species is illegal and ultra vires. Only the expert wildlife agencies, with best scientific data available, can determine the effects of a federal action on species or habitat.</p>	<p>A description of Endangered Species Act compliance and consultation can be found in Section 4.1 of the EA. The BLM has determined that estimated surface occupancy associated with the development of the lease parcel would not result in significant adverse impacts to ESA listed or candidate species, nor would it jeopardize or adversely modify critical habitat using best available information (see Section 1.5.6, Table 1.2 of the EA). Additionally, leases do not directly permit surface-disturbing activity without further analysis during the project application (APD) phase. Any proposed development that is outside the authorization of the existing USFWS consultation or is found to likely impact ESA federally listed or candidate species would result in a new USFWS consultation process under Section 7 of the ESA.</p> <p>The BLM consults with USFWS on projects that may have a physical effect on threatened and endangered species or their habitats. BLM commits to continue this long-established practice for any proposed plan of development that may result from the lease sale. Buying or holding a lease does not by itself convey the right to impact threatened or endangered species or their habitats, and therefore consultation with other federal agencies is not required at the leasing stage. The BLM includes a stipulation in all leases to ensure threatened and endangered species will be addressed prior to any development. Additionally, the BLM did not receive any comments or letters from USFWS for any of the currently proposed lease sales.</p>
<p>With respect to the greenhouse gas emissions that will result from federal fossil fuel leasing, the best available science suggests that this action, along with other federal onshore mineral production will result in approximately 24,112 megatons of carbon dioxide equivalent through 2050. 250 These emissions are appreciable and significant, and must be assessed under the ESA’s consultation framework. This analysis is also consistent with President Biden’s “whole of government” approach to addressing the climate crisis, as well as Executive Order 13990, which states that all federal agencies “must be guided by the best science and be protected by processes that ensure the integrity of Federal decision-making.</p>	<p>A description of Endangered Species Act compliance and consultation can be found in Section 4.1 of the EA. The BLM has determined that estimated surface occupancy associated with the development of the lease parcel would not result in significant adverse impacts to ESA listed or candidate species, nor would it jeopardize or adversely modify critical habitat using best available information (see Section 1.5.6, Table 1.2 of the EA). Additionally, leases do not directly permit surface-disturbing activity without further analysis during the project application (APD) phase. Any proposed development that is outside the authorization of the existing USFWS consultation or is found to likely impact ESA federally listed or candidate species would result in a new USFWS consultation process under Section 7 of the ESA.</p> <p>The BLM consults with USFWS on projects that may have a physical effect on threatened and endangered species or their habitats. BLM commits to continue this long-established practice for any proposed plan of development that may result from the lease sale. Buying or holding a lease does not by itself convey the right to impact threatened or endangered species or their habitats, and therefore consultation with other federal agencies is not required at the leasing stage. The BLM includes a stipulation in all leases to ensure threatened and endangered species will be addressed prior to any development. Additionally, the BLM did not receive any comments or letters from USFWS for any of the currently proposed lease sales.</p>

Comment	Response
<p>Consultation on climate-threatened species that may be affected by cumulative impacts of emissions caused by the agency's action is similar to many other complex consultations undertaken by the Services. The Services must first attempt to quantify any take of listed species, but if such harms cannot be quantified, the Services can qualitatively assess the harm, something Congress contemplated when it passed the 1982 amendments to the Endangered Species Act. The legislative history of those amendments reflects Congress' recognition that a numerical determination of take would not always be obtainable— such as when the eggs of listed species are boiled alive in power plant cooling systems—and intention that such challenges not present an insurmountable barrier to completing consultations.²⁵² Furthermore, the Services have regularly relied on surrogates, such as habitat, ecological conditions, or a similarly-affected species that are easier to monitor in instances where the biology of a listed species or the nature of the proposed action makes it difficult to detect or monitor take of individual animals.</p>	<p>A description of Endangered Species Act compliance and consultation can be found in Section 4.1 of the EA. The BLM has determined that estimated surface occupancy associated with the development of the lease parcel would not result in significant adverse impacts to ESA listed or candidate species, nor would it jeopardize or adversely modify critical habitat using best available information (see Section 1.5.6, Table 1.2 of the EA). Additionally, leases do not directly permit surface-disturbing activity without further analysis during the project application (APD) phase. Any proposed development that is outside the authorization of the existing USFWS consultation or is found to likely impact ESA federally listed or candidate species would result in a new USFWS consultation process under Section 7 of the ESA.</p> <p>The BLM consults with USFWS on projects that may have a physical effect on threatened and endangered species or their habitats. BLM commits to continue this long-established practice for any proposed plan of development that may result from the lease sale. Buying or holding a lease does not by itself convey the right to impact threatened or endangered species or their habitats, and therefore consultation with other federal agencies is not required at the leasing stage. The BLM includes a stipulation in all leases to ensure threatened and endangered species will be addressed prior to any development. Additionally, the BLM did not receive any comments or letters from USFWS for any of the currently proposed lease sales.</p>
<p>We again urge BLM, and by extension the Department of Interior, to exercise their full authority under federal law to end new federal fossil fuel leasing and enact a managed decline of production consistent with the U.S. goal of limiting global warming to 1.5 Celsius.</p>	<p>The BLM has analyzed a range of alternatives for proceeding with lease sales taking into account a number of factors, including resource conflicts and development potential, as part of exercising its discretion in leasing decisions. The alternatives considered adequately weigh the courses of actions that BLM could take based on potential resource conflicts and whether making certain lands available would meet the purpose and need of the EA. BLM has considered a reasonable range of alternatives and disclosed the impacts based on GHG emissions and the SC-GHG over the range of the Proposed Action and the No Action Alternative, which are less than the Proposed Action. Climate impacts are one of many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding on leasing actions.</p>
<p>Louisiana v. Biden Does Not Require Holding a Lease Sale or Issuing Any Leases</p>	<p>In November 2021, the U.S. Department of the Interior released its <i>Report on the Federal Oil and Gas Leasing Program</i>, which made specific recommendations to address documented deficiencies in the program to meet three programmatic goals: 1) providing a fair return to the American public and states from federal management of public lands and waters, including for development of energy resources; 2) designing more responsible leasing and development processes that prioritize areas that are most suitable for development and ensure lessees and operators have the financial and technical capacity to comply with all applicable laws and regulations; and 3) creating a more transparent, inclusive, and just approach to leasing and permitting that provides meaningful opportunity for public engagement and tribal consultation. The report also recommends that, as an overarching policy, the BLM should ensure that oil and gas is not prioritized over other land uses, consistent with BLM's mandate of multiple use and sustained yield. The BLM should carefully consider which lands make the most sense to lease in terms of expected yields of oil and gas, prospects of earning a fair return for U.S. taxpayers, and conflicts with other uses, such as outdoor recreation and wildlife habitat. The BLM should always ensure it is considering the views of local communities, tribes, businesses, state and local governments, and other stakeholders. While the leasing decisions for this lease sale result from the BLM's exercise of its discretion based on its analysis and review of the record, they are also consistent with the recommendations in the Report, as well as numerous reports issued by the Governmental Accountability Office and Congressional Budget Office, including ensuring public participation and</p>

Comment	Response
	<p>tribal consultation, addressing conflicts with other resources, avoiding lands with low potential for oil and gas development, focusing leasing near existing development, and ensuring a fair return to taxpayers. This lease sale and NEPA process have included a 30-day scoping period, 30-day comment period on the environmental assessment (which was then extended by an additional 10 days) and 30-day protest period. The BLM has also ensured applicable tribal consultation is current. The BLM's leasing decisions take into account comments received during this process and will further evaluate points raised in any protests received. In identifying parcels for leasing, the BLM has evaluated and worked to avoid potential conflicts with other resources, such as wildlife habitat, including connectivity, and areas of cultural importance. The BLM has also avoided including low potential lands, which are less likely to produce oil and gas, taking into account identification of development potential in resource management planning as well as current information. In addition, the BLM has worked to focus leasing near areas with existing development, which not only supports infrastructure such as roads and gathering systems that will help to reduce venting and flaring but also helps preserve the resilience of intact public lands and functioning ecosystems. Finally, as discussed in detail above, the BLM is applying a royalty rate higher than the minimum to this lease sale. The current minimum royalty rate is significantly lower than those used in most states and on private land and the BLM is providing an improved return to the taxpayer by using a royalty rate of 18.75% for the leases sold in this sale.</p> <p>As a result of public comments received on the sale and consistent with recommendations in the November 2021 report, BLM NM undertook additional review and has not identified any additional parcels which warrant deferral. Details of this review are included in Appendix D.</p>
<p>The Interior Department announced that it would proceed with the current lease sales in response to a June 15 preliminary injunction order issued by the U.S. District Court for the Western District of Louisiana. <i>Louisiana v. Biden</i>, No. 2:21-cv-778-TAD-KK, 2021 WL 2446010 (W.D. La. June 15, 2021). That rationale is arbitrary and capricious because the June 15 order does not require holding any lease sales.</p>	<p>In November 2021, the U.S. Department of the Interior released its <i>Report on the Federal Oil and Gas Leasing Program</i>, which made specific recommendations to address documented deficiencies in the program to meet three programmatic goals: 1) providing a fair return to the American public and states from federal management of public lands and waters, including for development of energy resources; 2) designing more responsible leasing and development processes that prioritize areas that are most suitable for development and ensure lessees and operators have the financial and technical capacity to comply with all applicable laws and regulations; and 3) creating a more transparent, inclusive, and just approach to leasing and permitting that provides meaningful opportunity for public engagement and tribal consultation. The report also recommends that, as an overarching policy, the BLM should ensure that oil and gas is not prioritized over other land uses, consistent with BLM's mandate of multiple use and sustained yield. The BLM should carefully consider which lands make the most sense to lease in terms of expected yields of oil and gas, prospects of earning a fair return for U.S. taxpayers, and conflicts with other uses, such as outdoor recreation and wildlife habitat. The BLM should always ensure it is considering the views of local communities, tribes, businesses, state and local governments, and other stakeholders. While the leasing decisions for this lease sale result from the BLM's exercise of its discretion based on its analysis and review of the record, they are also consistent with the recommendations in the Report, as well as numerous reports issued by the Governmental Accountability Office and Congressional Budget Office, including ensuring public participation and tribal consultation, addressing conflicts with other resources, avoiding lands with low potential for oil and gas development, focusing leasing near existing development, and ensuring a fair return to taxpayers. This lease sale and NEPA process have included a 30-day scoping period, 30-day comment period on the environmental assessment (which was then extended by an additional 10 days) and 30-day protest period. The BLM has also ensured applicable tribal consultation is current. The BLM's leasing decisions take into account comments received during this process and will further evaluate points raised in any protests received. In identifying parcels for leasing,</p>

Comment	Response
	<p>the BLM has evaluated and worked to avoid potential conflicts with other resources, such as wildlife habitat, including connectivity, and areas of cultural importance. The BLM has also avoided including low potential lands, which are less likely to produce oil and gas, taking into account identification of development potential in resource management planning as well as current information. In addition, the BLM has worked to focus leasing near areas with existing development, which not only supports infrastructure such as roads and gathering systems that will help to reduce venting and flaring but also helps preserve the resilience of intact public lands and functioning ecosystems. Finally, as discussed in detail above, the BLM is applying a royalty rate higher than the minimum to this lease sale. The current minimum royalty rate is significantly lower than those used in most states and on private land and the BLM is providing an improved return to the taxpayer by using a royalty rate of 18.75% for the leases sold in this sale.</p> <p>As a result of public comments received on the sale and consistent with recommendations in the November 2021 report, BLM NM undertook additional review and has not identified any additional parcels which warrant deferral. Details of this review are included in Appendix D.</p>
<p>The Louisiana order enjoined implementation of a nationwide “Pause” on offshore and onshore oil and gas leasing contemplated by President Biden’s Executive Order 14008. Id. The Louisiana court, however, did not rule that BLM must hold lease sales every three months in every state office. Instead, while enjoining a nationwide “Pause” directed by the President, the Louisiana court distinguished lease sale postponements for NEPA or other environmental concerns.</p>	<p>In November 2021, the U.S. Department of the Interior released its <i>Report on the Federal Oil and Gas Leasing Program</i>, which made specific recommendations to address documented deficiencies in the program to meet three programmatic goals: 1) providing a fair return to the American public and states from federal management of public lands and waters, including for development of energy resources; 2) designing more responsible leasing and development processes that prioritize areas that are most suitable for development and ensure lessees and operators have the financial and technical capacity to comply with all applicable laws and regulations; and 3) creating a more transparent, inclusive, and just approach to leasing and permitting that provides meaningful opportunity for public engagement and tribal consultation. The report also recommends that, as an overarching policy, the BLM should ensure that oil and gas is not prioritized over other land uses, consistent with BLM’s mandate of multiple use and sustained yield. The BLM should carefully consider which lands make the most sense to lease in terms of expected yields of oil and gas, prospects of earning a fair return for U.S. taxpayers, and conflicts with other uses, such as outdoor recreation and wildlife habitat. The BLM should always ensure it is considering the views of local communities, tribes, businesses, state and local governments, and other stakeholders. While the leasing decisions for this lease sale result from the BLM’s exercise of its discretion based on its analysis and review of the record, they are also consistent with the recommendations in the Report, as well as numerous reports issued by the Governmental Accountability Office and Congressional Budget Office, including ensuring public participation and tribal consultation, addressing conflicts with other resources, avoiding lands with low potential for oil and gas development, focusing leasing near existing development, and ensuring a fair return to taxpayers. This lease sale and NEPA process have included a 30-day scoping period, 30-day comment period on the environmental assessment (which was then extended by an additional 10 days) and 30-day protest period. The BLM has also ensured applicable tribal consultation is current. The BLM’s leasing decisions take into account comments received during this process and will further evaluate points raised in any protests received. In identifying parcels for leasing, the BLM has evaluated and worked to avoid potential conflicts with other resources, such as wildlife habitat, including connectivity, and areas of cultural importance. The BLM has also avoided including low potential lands, which are less likely to produce oil and gas, taking into account identification of development potential in resource management planning as well as current information. In addition, the BLM has worked to focus leasing near areas with existing development, which not only supports infrastructure such as roads and gathering systems that will help to reduce venting and flaring but also helps preserve the resilience of intact public lands and</p>

Comment	Response
	<p>functioning ecosystems. Finally, as discussed in detail above, the BLM is applying a royalty rate higher than the minimum to this lease sale. The current minimum royalty rate is significantly lower than those used in most states and on private land and the BLM is providing an improved return to the taxpayer by using a royalty rate of 18.75% for the leases sold in this sale.</p> <p>As a result of public comments received on the sale and consistent with recommendations in the November 2021 report, BLM NM undertook additional review and has not identified any additional parcels which warrant deferral. Details of this review are included in Appendix D.</p>
<p>The court stated that “[t]he agencies could cancel or suspend a lease sale due to problems with that specific lease [sale], but not as to eligible lands for no reason other than to do a comprehensive review pursuant to Executive Order 14008.” Id. at *14. The court added: “there is a huge difference between the discretion to stop or pause a lease sale because the land has become ineligible for a reason such as an environmental issue,” and halting lease sales “with no such issues and only as a result of Executive Order 14008.” Id. at *13. The Louisiana ruling found that the plaintiffs had shown a likelihood of success on the merits of the case because BLM’s postponement of some sales expressly relied on Executive Order 14008 or did not identify any NEPA concerns. Id. at *16; see also id. at *21 (“at least some of the onshore lease [sale]s were cancelled due to the Pause, without any other valid reason. Some were cancelled to do additional environmental analysis . . . but the Pause has obviously been implemented by Agency Defendants for some of the lease sales”).</p> <p>The Louisiana court’s reasoning thus supports BLM’s continued authority to postpone lease sales to address NEPA and similar concerns tied to a given sale. Indeed, the Interior Department has recognized this point. In its appeal of the Louisiana ruling, the Department noted that: “the district court did not dispute that Interior retains discretion to insist on compliance with NEPA and other statutory prerequisites before finding that ‘eligible lands are available’ under the [Mineral Leasing Act] (and its injunction does not prevent Interior from doing so).” Appellants’ Open. Br. at 32-33, <i>State of Louisiana v. Biden</i>, Fifth Cir. No. 21-30505 (Nov. 16, 2021); see also id. at 14 n. 1 (similar).</p>	<p>In November 2021, the U.S. Department of the Interior released its <i>Report on the Federal Oil and Gas Leasing Program</i>, which made specific recommendations to address documented deficiencies in the program to meet three programmatic goals: 1) providing a fair return to the American public and states from federal management of public lands and waters, including for development of energy resources; 2) designing more responsible leasing and development processes that prioritize areas that are most suitable for development and ensure lessees and operators have the financial and technical capacity to comply with all applicable laws and regulations; and 3) creating a more transparent, inclusive, and just approach to leasing and permitting that provides meaningful opportunity for public engagement and tribal consultation. The report also recommends that, as an overarching policy, the BLM should ensure that oil and gas is not prioritized over other land uses, consistent with BLM’s mandate of multiple use and sustained yield. The BLM should carefully consider which lands make the most sense to lease in terms of expected yields of oil and gas, prospects of earning a fair return for U.S. taxpayers, and conflicts with other uses, such as outdoor recreation and wildlife habitat. The BLM should always ensure it is considering the views of local communities, tribes, businesses, state and local governments, and other stakeholders. While the leasing decisions for this lease sale result from the BLM’s exercise of its discretion based on its analysis and review of the record, they are also consistent with the recommendations in the Report, as well as numerous reports issued by the Governmental Accountability Office and Congressional Budget Office, including ensuring public participation and tribal consultation, addressing conflicts with other resources, avoiding lands with low potential for oil and gas development, focusing leasing near existing development, and ensuring a fair return to taxpayers. This lease sale and NEPA process have included a 30-day scoping period, 30- day comment period on the environmental assessment (which was then extended by an additional 10 days) and 30- day protest period. The BLM has also ensured applicable tribal consultation is current. The BLM’s leasing decisions take into account comments received during this process and will further evaluate points raised in any protests received. In identifying parcels for leasing, the BLM has evaluated and worked to avoid potential conflicts with other resources, such as wildlife habitat, including connectivity, and areas of cultural importance. The BLM has also avoided including low potential lands, which are less likely to produce oil and gas, taking into account identification of development potential in resource management planning as well as current information. In addition, the BLM has worked to focus leasing near areas with existing development, which not only supports infrastructure such as roads and gathering systems that will help to reduce venting and flaring but also helps preserve the resilience of intact public lands and functioning ecosystems. Finally, as discussed in detail above, the BLM is applying a royalty rate higher than the minimum to this lease sale. The current minimum royalty rate is significantly lower than those used in most states and on private land and the BLM is providing an improved return to the taxpayer by using a royalty rate of 18.75% for the leases sold in this sale. As a result of public comments received on the sale and consistent with recommendations in the November 2021 report, BLM NM undertook additional review and has not identified any additional parcels which warrant deferral. Details of this review are included in Appendix D.</p>

Comment	Response
<p>As discussed elsewhere in these comments, there are numerous NEPA, FLPMA and other issues that require postponement or deferral of any and all additional leasing, and the Louisiana order presents no obstacle to doing so. Especially in light of the Interior Department's recent statement to the Fifth Circuit, it would be arbitrary and capricious to rely on the Louisiana order 4 as a justification for the proposed lease sales, or for failure to consider no-leasing or deferral of leasing alternatives.</p>	<p>In November 2021, the U.S. Department of the Interior released its <i>Report on the Federal Oil and Gas Leasing Program</i>, which made specific recommendations to address documented deficiencies in the program to meet three programmatic goals: 1) providing a fair return to the American public and states from federal management of public lands and waters, including for development of energy resources; 2) designing more responsible leasing and development processes that prioritize areas that are most suitable for development and ensure lessees and operators have the financial and technical capacity to comply with all applicable laws and regulations; and 3) creating a more transparent, inclusive, and just approach to leasing and permitting that provides meaningful opportunity for public engagement and tribal consultation. The report also recommends that, as an overarching policy, the BLM should ensure that oil and gas is not prioritized over other land uses, consistent with BLM's mandate of multiple use and sustained yield. The BLM should carefully consider which lands make the most sense to lease in terms of expected yields of oil and gas, prospects of earning a fair return for U.S. taxpayers, and conflicts with other uses, such as outdoor recreation and wildlife habitat. The BLM should always ensure it is considering the views of local communities, tribes, businesses, state and local governments, and other stakeholders. While the leasing decisions for this lease sale result from the BLM's exercise of its discretion based on its analysis and review of the record, they are also consistent with the recommendations in the Report, as well as numerous reports issued by the Governmental Accountability Office and Congressional Budget Office, including ensuring public participation and tribal consultation, addressing conflicts with other resources, avoiding lands with low potential for oil and gas development, focusing leasing near existing development, and ensuring a fair return to taxpayers. This lease sale and NEPA process have included a 30-day scoping period, 30-day comment period on the environmental assessment (which was then extended by an additional 10 days) and 30-day protest period. The BLM has also ensured applicable tribal consultation is current. The BLM's leasing decisions take into account comments received during this process and will further evaluate points raised in any protests received. In identifying parcels for leasing, the BLM has evaluated and worked to avoid potential conflicts with other resources, such as wildlife habitat, including connectivity, and areas of cultural importance. The BLM has also avoided including low potential lands, which are less likely to produce oil and gas, taking into account identification of development potential in resource management planning as well as current information. In addition, the BLM has worked to focus leasing near areas with existing development, which not only supports infrastructure such as roads and gathering systems that will help to reduce venting and flaring but also helps preserve the resilience of intact public lands and functioning ecosystems. Finally, as discussed in detail above, the BLM is applying a royalty rate higher than the minimum to this lease sale. The current minimum royalty rate is significantly lower than those used in most states and on private land and the BLM is providing an improved return to the taxpayer by using a royalty rate of 18.75% for the leases sold in this sale. As a result of public comments received on the sale and consistent with recommendations in the November 2021 report, BLM NM undertook additional review and has not identified any additional parcels which warrant deferral. Details of this review are included in Appendix D.</p>

Comment	Response
<p>Many or most of the parcels currently being scoped were originally slated to be auctioned in the March 2021 lease sales. BLM postponed those lease sales due to concerns that, in light of recent NEPA case law and other court decisions, the analyses for the March 2021 sales were inadequate. Those same concerns still apply and require additional analysis before offering any parcels for lease. As discussed in detail below, the November 2021 Environmental Assessments, and "2020 BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends from Coal, Oil, and Gas Exploration and Development on the Federal Mineral Estate, (hereinafter "Specialist Report").¹ do not adequately cure these deficiencies. Under the plain terms of the National Environmental Policy Act and Department of Interior Secretarial Order 3399, the BLM's NEPA processes must take place under the Council on Environmental Quality's pre-2020 regulations implementing the National Environmental Policy Act.</p>	<p>The BLM is complying with the direction of Secretarial Order 3399 regarding application of the CEQ regulations. Secretarial Order 3399 instructs the BLM to identify opportunities to reduce GHG emissions. The BLM has quantified and disclosed potential emissions from the lease sale based on the methodologies outlined in the 2020 Specialists Report using the best available data and in accordance with the requirements of Secretarial Order 3399. The report provides a cumulative assessment of potential GHG emissions from the federal mineral estate relative to several metrics and analysis levels at various scopes and scales. The Report also identifies potential mitigation options that can be applied to any subsequent lease development via conditions of approval once specific plans of development are submitted for analysis and permitting. If/when a proposed action for development is submitted, the BLM can determine appropriate mitigation measures to reduce/offset GHG emissions that are not already required by law or proposed by the operator.</p>
<p>On July 16, 2020, the Council of Environmental Quality (CEQ) published in the Federal Register its final rule to revise the NEPA regulations (2020 Rule), which went into effect on September 14, 2020. The 2020 Rule immediately drew five lawsuits challenging the 2020 Rule on a variety of grounds, including under the Administrative Procedures Act, NEPA, and the Endangered Species Act, contending that the 2020 Rule exceeded CEQ's authority and that the related rulemaking process was procedurally and substantively defective. <i>Wild Va. v. Council on Env't Quality</i>, No. 3:20cv45 (W.D. Va. 2020); <i>Env'tl. Justice Health All. v. Council on Env't Quality</i>, No. 1:20cv06143 (S.D.N.Y. 2020); <i>Alaska Cmty. Action on Toxics v. Council on Env't Quality</i>, No. 3:20cv5199 (N.D. Cal. 2020); <i>California v. Council on Env't Quality</i>, No. 3:20cv06057 (N.D. Cal. 2020); <i>Iowa Citizens for Cmty. Improvement v. Council on Env't Quality</i>, No 1:20cv02715 (D.D.C. 2020).</p> <p>Following the inauguration of President Biden in January 2021, CEQ moved the courts to stay the litigation mentioned above, pending the new administration's review of the 2020 Rule. In response to CEQ and joint motions, the districts courts have issued temporary stays in each of the cases, except for <i>Wild Virginia v. Council on Environmental Quality</i>, which the district court dismissed without prejudice on June 21, 2021 and is currently on appeal to the U.S. Court of Appeals for the Fourth Circuit. To the extent BLM relied on or applied the 2020 Rule for purposes of administering the lease sales proposed in 2022, we find that reliance on and application of the 2020 Rule unlawful for the reasons explained in the stayed litigation of the 2020 Rule referenced above, including but not limited to the following reasons: Neither an EA nor EIS were prepared pursuant to NEPA to evaluate the environmental impacts of the 2020 Rule.</p>	<p>The BLM is complying with the direction of Secretarial Order 3399 regarding application of the CEQ regulations. BLM is ensuring that NEPA analysis is consistent with BLM's current regulations and ongoing guidance from CEQ to comply with the requirements of the statute.</p>
<p>The current lease sale process in each state is part of a national Interior Department decision to proceed with oil and gas leasing in light of the Louisiana litigation. On August 24, the Interior Department reported to the Louisiana court that BLM offices across the country had been directed "to finalize parcel lists for upcoming sales, in order to publicly post those parcel lists for NEPA scoping by August 31, 2021." ECF No. 155 at 5, <i>Louisiana v. Biden</i>. As directed by the Department, notices of scoping in each state were posted on August 31. Also on August 31, the Interior Department announced that it would proceed with offshore lease sale 257, which covers over 80 million acres in the Gulf of Mexico. That sale took place on November 17. Each of the proposed lease sales here are plainly part of a larger national initiative and must be analyzed as such under NEPA.</p>	<p>The BLM has prepared multiple EISs covering the lands BLM is considering making available for competitive auction. The BLM has disclosed the GHG emissions from the Proposed Action and provided context for those emissions compared to existing federal onshore GHG emissions in the state and nationally. The BLM has included an evaluation of the climate change impacts that could result from the proposed action and incorporated by the reference the 2020 BLM Specialists Report on Annual Greenhouse Gas Emissions and Climate Trends which provides a more robust assessment of cumulative emissions, climate change impacts, and reputable climate science sources. If/when a proposed action for development is submitted, the BLM can determine appropriate mitigation measures to reduce/offset GHG emissions that are not already required by law or proposed by the operator. Climate impacts are one of many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding leasing actions.</p>

Comment	Response
<p>Here, the Interior Department announced potential leasing covering nearly 1,200 square miles (more than 740,000 acres) onshore, and 125,000 square miles of the Gulf of Mexico. It would be arbitrary and capricious to conclude that leasing on that scale will not be significant, or to fail to consider the direct, indirect, and cumulative effects of this single unified decision to resume leasing without emissions safeguard.</p>	<p>After careful review, BLM determined that past emissions related to BLM fossil fuel approvals over the preceding 5 years, estimated total emissions related to BLM fossil fuel approvals for the 12-month period including the lease sale, and projected total emissions for the lifecycle of potential BLM leases was the appropriate reasonably foreseeable scope of emissions for decision making by the BLM. This analysis scope provides a thorough cumulative assessment of GHG emissions. All past and in-process BLM leases were considered in the preparation of the estimates. Current lease approval time frames along with current data on the development status of all approved and in-process leases were also considered. The 2020 BLM Specialist Report provides information on non-BLM related emissions by presenting data from the most recent EPA GHG Emissions and Sinks Report, which presents estimates of total U.S. GHG emissions as well as breakdown subtotals by economic sector and specific GHG. The EPA report represents an authoritative accounting of cumulative U.S. GHG emissions, including emissions related to BLM actions. In addition, the 2020 Specialists Report presents the range of projected Climate Change effects across basin and range states at length in Section 8.3, Section 8.4, and Chapter 9.0. This information is incorporated by reference in the EA. This analysis provides emissions estimates and describes actual environmental effects in terms of temperatures, drought, snowpack, growing season, and other impacts to vegetation with details from several representative states. These comparisons and examples are illustrative and support the decision-making process.</p>
<p>BLM must prepare a programmatic environmental impact statement to take a hard look at climate impacts of the resumption of federal oil and gas leasing and to avoid any new greenhouse gas pollution.</p>	<p>Climate impacts are among many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding on leasing actions.</p>
<p>The proposed lease sale in this state thus is plainly part of a larger national initiative and must be analyzed as such under NEPA. There is no remaining room in the carbon budget for new commitments of future greenhouse gas (GHG) pollution. Greenhouse gas pollution resulting from the lease sales and subsequent development, considered alongside existing federal fossil fuel development and potential development from leases previously issued but not yet under production, would contribute to catastrophic climate change and unnecessary and undue degradation to the atmosphere and other public lands values that BLM is legally obligated to protect.</p>	<p>The BLM has prepared multiple EISs covering the lands BLM is considering making available for competitive auction. The BLM has disclosed the GHG emissions from the Proposed Action and provided context for those emissions compared to existing federal onshore GHG emissions in the state and nationally. The BLM has included an evaluation of the climate change impacts that could result from the proposed action and incorporated by the reference the 2020 BLM Specialists Report on Annual Greenhouse Gas Emissions and Climate Trends which provides a more robust assessment of cumulative emissions, climate change impacts, and reputable climate science sources. If/when a proposed action for development is submitted, the BLM can determine appropriate mitigation measures to reduce/offset GHG emissions that are not already required by law or proposed by the operator. Climate impacts are one of many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding leasing actions.</p>

<p>BLM must therefore take a hard and comprehensive look at the cumulative climate change impacts of authorizing new leasing, together with committed emissions under lease, and immediately defer ANY sale of new leases and APD approvals pending demonstration of compatibility with U.S. and global climate goals and completion of the comprehensive review and reconsideration of Federal oil and gas permitting and leasing practices called for by Executive Order 14008.3 fuel program review. BLM must also consider, as proposed in Conservation Groups' scoping comments, a reasonable alternative of managed decline of GHG emissions from the already-leased federal fossil fuel estate.</p>	<p>In November 2021, the U.S. Department of the Interior released its <i>Report on the Federal Oil and Gas Leasing Program</i>, which made specific recommendations to address documented deficiencies in the program to meet three programmatic goals: 1) providing a fair return to the American public and states from federal management of public lands and waters, including for development of energy resources; 2) designing more responsible leasing and development processes that prioritize areas that are most suitable for development and ensure lessees and operators have the financial and technical capacity to comply with all applicable laws and regulations; and 3) creating a more transparent, inclusive, and just approach to leasing and permitting that provides meaningful opportunity for public engagement and tribal consultation. The report also recommends that, as an overarching policy, the BLM should ensure that oil and gas is not prioritized over other land uses, consistent with BLM's mandate of multiple use and sustained yield. The BLM should carefully consider which lands make the most sense to lease in terms of expected yields of oil and gas, prospects of earning a fair return for U.S. taxpayers, and conflicts with other uses, such as outdoor recreation and wildlife habitat. The BLM should always ensure it is considering the views of local communities, tribes, businesses, state and local governments, and other stakeholders. While the leasing decisions for this lease sale result from the BLM's exercise of its discretion based on its analysis and review of the record, they are also consistent with the recommendations in the Report, as well as numerous reports issued by the Governmental Accountability Office and Congressional Budget Office, including ensuring public participation and tribal consultation, addressing conflicts with other resources, avoiding lands with low potential for oil and gas development, focusing leasing near existing development, and ensuring a fair return to taxpayers. This lease sale and NEPA process have included a 30-day scoping period, 30-day comment period on the environmental assessment (which was then extended by an additional 10 days) and 30-day protest period. The BLM has also ensured applicable tribal consultation is current. The BLM's leasing decisions take into account comments received during this process and will further evaluate points raised in any protests received. In identifying parcels for leasing, the BLM has evaluated and worked to avoid potential conflicts with other resources, such as wildlife habitat, including connectivity, and areas of cultural importance. The BLM has also avoided including low potential lands, which are less likely to produce oil and gas, taking into account identification of development potential in resource management planning as well as current information. In addition, the BLM has worked to focus leasing near areas with existing development, which not only supports infrastructure such as roads and gathering systems that will help to reduce venting and flaring but also helps preserve the resilience of intact public lands and functioning ecosystems. Finally, as discussed in detail above, the BLM is applying a royalty rate higher than the minimum to this lease sale. The current minimum royalty rate is significantly lower than those used in most states and on private land and the BLM is providing an improved return to the taxpayer by using a royalty rate of 18.75% for the leases sold in this sale. As a result of public comments received on the sale and consistent with recommendations in the November 2021 report, BLM NM undertook additional review and has not identified any additional parcels which warrant deferral. Details of this review are included in Appendix D.</p> <p>The BLM has analyzed a range of alternatives for proceeding with lease sales taking into account a number of factors, including resource conflicts and development potential, as part of exercising its discretion in leasing decisions. The alternatives considered adequately weigh the courses of actions that BLM could take based on potential resource conflicts and whether making certain lands available would meet the purpose and need of the EA. BLM has considered a reasonable range of alternatives and disclosed the impacts based on GHG emissions and the SC-GHG over the range of the Proposed Action, which is what BLM has proposed as its decision, and the No Action Alternative, which are less than the Proposed Action. Climate impacts are among many</p>
--	---

Comment	Response
	factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding on leasing actions.
<p>A programmatic approach is compelled for the following reasons: 1) the fundamentally incremental nature of the climate crisis; 2) Executive Order 14008 recognizes the small and shrinking window that remains to avoid the most catastrophic effects of climate change; 3) BLM should complete the analysis it started with its issuance of the "2020 BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends" (hereinafter the "Report"), by conducting a PEIS; and 4) the need for consistency with the pending federal coal review.</p>	<p>Climate impacts are among many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding on leasing actions. The BLM has prepared multiple EISs covering the lands BLM is considering making available for competitive auction. The BLM has disclosed the GHG emissions from the Proposed Action and provided context for those emissions compared to existing federal onshore GHG emissions in the state and nationally. The BLM has included an evaluation of the climate change impacts that could result from the proposed action and incorporated by the reference the 2020 BLM Specialists Report on Annual Greenhouse Gas Emissions and Climate Trends which provides a more robust assessment of cumulative emissions, climate change impacts, and reputable climate science sources. If/when a proposed action for development is submitted, the BLM can determine appropriate mitigation measures to reduce/offset GHG emissions that are not already required by law or proposed by the operator.</p>
<p>The incremental nature of climate change requires a Programmatic EIS.</p>	<p>Climate impacts are among many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding on leasing actions.</p>
<p>BLM has yet to complete either a project level or broader NEPA document that analyzes the federal oil and gas program in light of these scientific conclusions and with an eye to developing alternatives that respond to them. A programmatic review is the ideal setting for such an analysis. NEPA requires analysis before making decisions with potentially irreversible effects: "the appropriate time for preparing an EIS is prior to a decision, when the decisionmaker retains a maximum range of options." <i>Sierra Club v. Peterson</i>, 717 F.2d 1409, 1414 (D.C. Cir. 1983). While this is of course true at the project level, it is no less true at the programmatic level when each project comprises an incremental part of the overall impact.</p>	<p>The BLM has prepared multiple EISs covering the lands BLM is considering making available for competitive auction. The BLM has disclosed the GHG emissions from the Proposed Action and provided context for those emissions compared to existing federal onshore GHG emissions in the state and nationally. The BLM has included an evaluation of the climate change impacts that could result from the proposed action and incorporated by the reference the 2020 BLM Specialists Report on Annual Greenhouse Gas Emissions and Climate Trends which provides a more robust assessment of cumulative emissions, climate change impacts, and reputable climate science sources. If/when a proposed action for development is submitted, the BLM can determine appropriate mitigation measures to reduce/offset GHG emissions that are not already required by law or proposed by the operator. Climate impacts are among many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding leasing actions.</p>
<p>BLM must complete the analysis it has begun in the "2020 BLM Specialist Report." A programmatic review is particularly critical following release of the "2020 BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends from Coal, Oil, and Gas Exploration and Development on the Federal Mineral Estate," (hereinafter the "Report") This report constitutes—in large part—the quantification and context of federal mineral estate associated GHG emissions courts have faulted BLM for not providing in the past. BLM must now take the logical next step, by completing the programmatic NEPA analysis it has effectively begun with the Report. Failure to do so will represent not only a derogation of the action called for by EO 14008, but also a lost opportunity to meaningfully evaluate the outsized role the federal oil and gas leasing program plays in the climate crisis, and to explore alternatives to reduce its impacts.</p>	<p>The BLM has prepared multiple EISs covering the lands BLM is considering making available for competitive auction. The BLM has disclosed the GHG emissions from the Proposed Action and provided context for those emissions compared to existing federal onshore GHG emissions in the state and nationally. The BLM has included an evaluation of the climate change impacts that could result from the proposed action and incorporated by the reference the 2020 BLM Specialists Report on Annual Greenhouse Gas Emissions and Climate Trends which provides a more robust assessment of cumulative emissions, climate change impacts, and reputable climate science sources. If/when a proposed action for development is submitted, the BLM can determine appropriate mitigation measures to reduce/offset GHG emissions that are not already required by law or proposed by the operator. Climate impacts are among many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding leasing actions.</p>

Comment	Response
<p>The impacts to GHG emissions and climate according to the no action alternatives considered in each EA are brief and fail to indicate the difference in estimated GHG emissions between the proposed alternatives and the no action alternatives.</p>	<p>The BLM has analyzed a range of alternatives for proceeding with lease sales taking into account a number of factors, including resource conflicts and development potential, as part of exercising its discretion in leasing decisions. The alternatives considered adequately weigh the courses of actions that BLM could take based on potential resource conflicts and whether making certain lands available would meet the purpose and need of the EA. BLM has considered a reasonable range of alternatives and disclosed the impacts based on GHG emissions and the SC-GHG over the range of the Proposed Action, which is what BLM has proposed as its decision, and the No Action Alternative, which are less than the Proposed Action. Climate impacts are among many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding on leasing actions.</p>
<p>None of the BLM EAs addressed the other alternatives we proposed in our scoping comment, including: -An alternative that imposes a minimum bonus bid higher than \$2.00 per acre; -An alternative that defers offering the proposed lease parcels for sale until at least 50% of all leased federal oil and gas acres in each of the state for which a Q1 2022 sale is proposed are put into production; and -An alternative that analyzes and applies best available methane reduction technologies as a stipulation attached to all parcels in the lease sale. We renew our request that BLM consider these alternatives or, at minimum, explain the basis for its determination not to consider these alternatives.</p>	<p>BLM conducted a review of reasonable alternatives and determined that there were no outstanding issues warranting analysis under additional alternatives. An explanation of why the alternatives outlined in the comment were not analyzed is below.</p> <p>BLM must comply with existing statutory and policy requirements with respect to lease sales. As the commenter notes, 43 CFR 3120.1-2 (c) provides that the national minimum acceptable bid shall be \$2 per acre or fraction thereof on the payable on the gross acreage and shall not be prorated for any lands in which the United States owns a fractional interest. BLM is implementing the current regulations regarding minimum bids, which can be updated.</p> <p>The BLM has evaluated a reasonable range of alternatives to inform its decisions as to which parcels should be available for leasing based on proximity to existing development, potential for development and other resource conflicts.</p> <p>Lease Notice 14-18 is applied to every BLM-administered parcel, which provides: The lessee/operator is given notice that prior to project-specific approval, additional air resource analyses may be required in order to comply with the NEPA, FLPMA, and/or other applicable laws and regulations. Analyses may include equipment and operations information, emission inventory development, dispersion modeling or photochemical grid modeling for air quality and/or air quality related value impact analysis, and/or emission control determinations. These analyses may result in the imposition of additional project-specific control measures to protect air resources.</p>
<p>The EAs and 2020 BLM Specialist Report Fail NEPA's "Hard Look" Test with Regard to Analyzing Climate Impacts of Resuming Federal Oil and Gas Leasing</p>	<p>The BLM analysis presented in the EA and the 2020 Specialists Report is the agency's determination of a "hard look" at GHG emissions related to agency fossil fuel approvals. Comparing all potential emissions from fossil fuel approvals within BLM jurisdiction to emissions totals at state, national and global levels represents a comprehensive "hard look" focused on the subject matter set before BLM decision makers. Given the highly complex and thus-far unclear relationship between GHG emissions from a specific location and climate effects at that or any other location, smaller scale comparisons cannot be made. The BLM also included comparisons of projected emissions to familiar GHG emission sources (passenger vehicles), alternative energy sources (a wind turbine), and acres of forest sequestration. These standard comparisons provided by EPA illustrate the level of impact expected from GHG emissions related to the lease sale. At this time, BLM has not developed a standard or emissions budget that it can apply uniformly to make a determination of significance based on climate change or GHG emissions. Until such time as the Department develops further tools to analyze the relative emissions impact of its activities nationwide, the BLM can disclose GHG emissions and climate impacts, and provide context and analysis for those emissions and impacts; the agency cannot determine significance for a proposed action based on GHG emissions or climate impacts alone.</p>

Comment	Response
<p>BLM improperly segmented its decision to offer portions of the federal mineral estate for fossil fuel development. According to BLM, the agency offered the 2022 lease sales consistent with the federal district court's order in Louisiana v. Biden. Rather than evaluate the proposed lease sales and their associated environmental impacts in a single NEPA analysis, BLM separated environmental analysis despite the connected nature of the leasing actions and the reasonably foreseeable cumulative climate impacts associated with the potential GHG emissions from authorized leases.</p>	<p>The 2020 BLM Specialist Report on GHG Emissions and Climate Trends was incorporated by reference in the Lease Sale EA and provides a detailed discussion and cumulative assessment of federal oil and gas emissions and climate change impacts. Additionally, the concurrent offering of leases across multiple states does not constitute a connected action for purposes of NEPA analysis for two reasons: 1) the individual lease sales are not part of or dependent on a larger proposed action to proceed, and 2) the concurrent timing of the lease sales does not represent a connected action that authorizes concurrent development, or any development, to occur. The timing, scale, and locations of development that may occur as a result of the leasing actions are not interdependent, and therefore do not represent similar connected actions for the purposes of NEPA analysis.</p>
<p>BLM claims that the "dynamic nature of the lease sale process" and "independence of each administrative unit for constructing its lease sales" precludes BLM from analyzing potential GHG emissions that could occur from other lease sales.²⁶ But this is a nonsensical statement in light of the fact that BLM estimated the emissions from all the parcels being offered in each of the proposed 2022 lease sales in the EA associated with each sale.²⁷ BLM plainly can analyze the potential GHG emissions of all of the actions and should do so in a single impact statement</p>	<p>The BLM provided a wide range of potential impact contexts in the 2020 Specialists Report, which was incorporated by reference into each EA. The Specialists Report presents the life-cycle representation of the federal onshore mineral estate GHG emissions relative to various local, state, national and global emissions, and impact contexts</p>
<p>However, the total annual GHG emissions from the proposed lease sales are equivalent to 524,886 gasoline-fueled passenger vehicles driven for one year. We request BLM further contextualize these GHG emissions by using the EPA GHG equivalency calculator to consider the GHG emissions over the average 30-year production life of the leases.</p>	<p>The BLM provided a wide range of potential impact contexts in the 2020 Specialists Report, which was incorporated by reference into each EA. The Specialists Report presents the life-cycle representation of the federal onshore mineral estate GHG emissions relative to various local, state, national and global emissions and impact contexts. The BLM is not applying additional calculation methods at this time.</p>
<p>BLM did not use EPA's GHG equivalency calculator to conduct a similar analysis of the cumulative GHG emissions from the federal fossil fuel program in the 2020 BLM Specialist Report, and BLM failed to explain the basis for its decision to omit this analysis. We request BLM contextualize the cumulative GHG emissions from the federal fossil fuel program using EPA's GHG equivalency calculator as well.</p>	<p>The BLM provided a wide range of potential impact contexts in the 2020 Specialists Report, which was incorporated by reference into each EA. The Specialists Report presents the life-cycle representation of the federal onshore mineral estate GHG emissions relative to various local, state, national and global emissions and impact contexts. The BLM is not applying additional calculation methods at this time.</p>
<p>BLM also used the social cost of greenhouse gases (SC-GHG) as another tool to assess GHG emissions and climate change effects from the proposed lease sales. The social cost of greenhouse gases provides an estimate of the monetized global damages associated with the incremental increases of GHGs. Again, because BLM improperly segmented its NEPA analysis of the proposed lease sales the EAs only provide the social cost of GHGs for each individual lease sale rather than a cumulative total. However, the combined total social cost of GHGs for all seven proposed lease sales ranges between \$1,111,091,000 (in 2020 dollars) and \$12,643,190,000 (in 2020 dollars), depending on the discount rate.</p>	<p>The BLM provided a wide range of potential impact contexts in the 2020 Specialists Report, which was incorporated by reference into each EA. The Specialists Report presents the life-cycle representation of the federal onshore mineral estate GHG emissions relative to various local, state, national and global emissions and impact contexts. The BLM is exercising its discretion to estimate SC-GHG to provide additional context for decision making (see Section 3.6.2). Additionally, the concurrent offering of leases across multiple states does not constitute a connected action for purposes of NEPA analysis for two reasons: 1) the individual lease sales are not part of or dependent on a larger proposed action to proceed, and 2) the concurrent timing of the lease sales does not represent a connected action that authorizes concurrent development, or any development, to occur. The timing, scale, and locations of development that may occur as a result of the leasing actions are not interdependent, and therefore do not represent similar connected actions for the purposes of NEPA analysis.</p>

Comment	Response
<p>BLM did not use the social cost of GHGs tool to assess the impacts of the cumulative cost of global damages from BLM’s fossil fuel program in the 2020 BLM Specialist Report, and BLM failed to explain the basis for its decision to omit this analysis. We request BLM contextualize the cumulative GHG emissions from the federal fossil fuel program using the social cost of GHGs. The cumulative costs of the federal fossil fuel program is an important consideration for BLM to weigh, as it is many orders of magnitude greater than the already significant costs of just the seven proposed 2022 lease sales.</p>	<p>The BLM provided a wide range of potential impact contexts in the 2020 Specialists Report, which was incorporated by reference into each EA. The Specialists Report presents the life-cycle representation of the federal onshore mineral estate GHG emissions relative to various local, state, national and global emissions and impact contexts</p>
<p>We are concerned by the way BLM frames its understanding and weight of the social cost of GHG analysis. BLM states: “[The SC-GHG] numbers were monetized; however, they do not constitute a complete cost benefit analysis...SC-GHG is provided only as a useful measure of the benefits of GHG emissions reductions to inform agency decision-making.” However, BLM must be clear that the SC-GHG is a measure of impacts to the human environment (reflected in 2020 U.S. dollars) that BLM is obligated to evaluate pursuant to NEPA regardless of whether or not BLM conducts a complete or partial cost cost-benefit analysis of the proposed lease sales.</p>	<p>The BLM provided a wide range of potential impact contexts in the 2020 Specialists Report, which was incorporated by reference into each EA. The Specialists Report presents the life-cycle representation of the federal onshore mineral estate GHG emissions relative to various local, state, national and global emissions and impact contexts. The BLM analyzes the impacts associated with the alternatives using the best available information, which is typically not monetized estimates of benefits or costs. The BLM is exercising its discretion to estimate the SC-GHG to provide additional context for decision making. At this time, BLM has not developed a standard or emissions budget that it can apply uniformly to make a determination of significance based on climate change, GHG emissions, or the Social Cost of GHGs. Until such time as the Department develops further tools to analyze the relative emissions impact of its activities nationwide, the BLM can disclose GHG emissions and climate impacts, and provide context and analysis for those emissions and impacts; the agency cannot determine significance for a proposed action based on GHG emissions or climate impacts alone.</p>
<p>In addition to SC-GHG, BLM used carbon budgeting to evaluate the impact of GHG emissions associated with BLM’s onshore fossil fuel authorizations on the remaining atmospheric capacity to take on further GHG emissions without exceeding different degrees of additional warming. As we discuss below, BLM improperly omitted carbon budget analysis of the United States’ share of the global carbon budget. Nonetheless, GHG emissions from the onshore federal fossil fuel program consume a tremendous amount of the global budget – 1.47% of the budget consistent with a 66% chance of limiting warming to 1.5 C. And this analysis omits GHG emissions from federal offshore oil and gas leasing</p>	<p>The analysis requested is included for informational purposes in section 7.2 of the 2020 BLM Specialist Report on Annual GHG Emissions and Climate Trends, which was incorporated by reference in the lease sale EAs. This analysis includes information from the United Nations emissions gap report which shows the difference between global emissions pathways required to limit warming to 1.5C or 2.0C (i.e. carbon budgets) with the anticipated emissions based on national commitments to reduce GHG emissions. At this time, BLM has not developed a standard or emissions budget that it can apply uniformly to make a determination of significance based on climate change or GHG emissions. Until such time as the Department develops further tools to analyze the relative emissions impact of its activities nationwide, the BLM can disclose GHG emissions and climate impacts, and provide context and analysis for those emissions and impacts; the agency cannot determine significance for a proposed action based on GHG emissions or climate impacts alone.</p>
<p>In addition to the tools BLM used to contextualize and evaluate federal fossil fuel GHG emissions, we request BLM evaluate and consider the impacts of climate change that have already occurred as a result of the cumulative emissions of GHGs. BLM’s NEPA analysis of GHGs and climate change tends to frame the impacts of climate change as long-term impacts, estimated to be realized at some future point in time. However, the climate has already changed as a result of anthropogenic GHG emissions and the consequences of global climate change are already being realized. We request BLM consider, discuss, and evaluate the climate science regarding past and present impacts from climate change to further contextualize the climate impacts from the cumulative emissions of GHGs associated with the proposed lease sales and the federal fossil fuel program.</p>	<p>The BLM provided a wide range of potential impact contexts in the 2020 Specialists Report, which was incorporated by reference into each EA. The Specialists Report presents the life-cycle representation of the federal onshore mineral estate GHG emissions relative to various local, state, national and global emissions and impact contexts</p>

Comment	Response
<p>Despite using these tools to contextualize and evaluate the significance of GHG emissions from the proposed lease sales and the cumulative emissions of the federal fossil fuel program, BLM determined the emissions and associated climate impacts are insignificant. Based on the information presented in BLM's NEPA analyses, some of which is summarized above, it is unclear how BLM reached this determination. Moreover, BLM never explained its rationale or decision-making process for assessing the significance of GHG emissions and their climate impacts. We request BLM clarify and explain in detail how, based on the SC-GHG, carbon budgeting, and other analytical tools, it concluded the GHG emissions from the lease sales proposed in 2022 and the cumulative GHG emissions from the federal fossil fuel program do not significantly impact the human environment.</p>	<p>The BLM analysis presented in the EA and the 2020 Specialists Report is the agency's determination of a "hard look" at GHG emissions related to agency fossil fuel approvals. Comparing all potential emissions from fossil fuel approvals within BLM jurisdiction to emissions totals at state, national and global levels represents a comprehensive "hard look" focused on the subject matter set before BLM decision makers. Given the highly complex and thus-far unclear relationship between GHG emissions from a specific location and climate effects at that or any other location, smaller scale comparisons cannot be made. The BLM also included comparisons of projected emissions to familiar GHG emission sources (passenger vehicles), alternative energy sources (a wind turbine), and acres of forest sequestration. These standard comparisons provided by EPA illustrate the level of impact expected from GHG emissions related to the lease sale. At this time, BLM has not developed a standard or emissions budget that it can apply uniformly to make a determination of significance based on climate change or GHG emissions. Until such time as the Department develops further tools to analyze the relative emissions impact of its activities nationwide, the BLM can disclose GHG emissions and climate impacts, and provide context and analysis for those emissions and impacts; the agency cannot determine significance for a proposed action based on GHG emissions or climate impacts alone.</p>
<p>BLM has the ability to provide for meaningful and measurable mitigation actions in the context of cumulative climate change resulting from global emissions.</p>	<p>Mitigation may be appropriate at the proposed development stage, such as APDs or EISs for larger proposed projects, when a plan of development/operation has been submitted and emissions sources are known with a higher degree of certainty. At the proposed development stage, the BLM can consider mitigations measures and align with climate policies, regulations and guidance enacted at that time. Lease notices identifying that a lessee may be required to complete additional air resource analysis and apply mitigation measures are sufficient at the leasing stage.</p>
<p>The EAs and the 2020 BLM Specialist Report omit an analysis of the compatibility of global and national over-commitment of fossil fuels relative to global carbon budgets necessary to avoid 1.5 C warming</p>	<p>The analysis requested is included for informational purposes in section 7.2 of the 2020 BLM Specialist Report on Annual GHG Emissions and Climate Trends, which was incorporated by reference in the lease sale EAs. This analysis includes information from the United Nations emissions gap report which shows the difference between global emissions pathways required to limit warming to 1.5C or 2.0C (i.e. carbon budgets) with the anticipated emissions based on national commitments to reduce GHG emissions. At this time, BLM has not developed a standard or emissions budget that it can apply uniformly to make a determination of significance based on climate change or GHG emissions. Until such time as the Department develops further tools to analyze the relative emissions impact of its activities nationwide, the BLM can disclose GHG emissions and climate impacts, and provide context and analysis for those emissions and impacts; the agency cannot determine significance for a proposed action based on GHG emissions or climate impacts alone.</p>
<p>The EAs and the 2020 BLM Specialist Report omit an analysis of the global and national over-commitment of fossil fuels relative to global carbon budgets necessary to avoid 1.5 C warming. BLM's EAs for the proposed 2022 lease sales omit analyzing and evaluating the estimated GHG emissions from the lease sales and cumulative GHG emissions within the context of the widening production gap. The production gap is the difference between global fossil fuel production projected by governments and fossil fuel production consistent with the 1.5 C-warming pathway and other pathways. This year the United Nations, in collaboration with SEI and other academic institutions, issued the first comprehensive update to the 2019 production gap analysis. We request BLM consider the production gap reports discussed above, which indicate an imperative to rapidly transition away from fossil fuels using supply side policies.</p>	<p>The analysis requested is included for informational purposes in section 7.2 of the 2020 BLM Specialist Report on Annual GHG Emissions and Climate Trends, which was incorporated by reference in the lease sale EAs. This analysis includes information from the United Nations emissions gap report which shows the difference between global emissions pathways required to limit warming to 1.5C or 2.0C (i.e. carbon budgets) with the anticipated emissions based on national commitments to reduce GHG emissions. At this time, BLM has not developed a standard or emissions budget that it can apply uniformly to make a determination of significance based on climate change or GHG emissions. Until such time as the Department develops further tools to analyze the relative emissions impact of its activities nationwide, the BLM can disclose GHG emissions and climate impacts, and provide context and analysis for those emissions and impacts; the agency cannot determine significance for a proposed action based on GHG emissions or climate impacts alone.</p>

Comment	Response
<p>The EAs and 2020 BLM Specialist Report fail to adequately quantify and assess all related past, present, and reasonably foreseeable GHG emissions.</p>	<p>After careful review, BLM determined past emissions related to BLM fossil fuel approvals over the preceding 5 years, estimated total emissions related to BLM fossil fuel approvals for the 12-month period including the lease sale, and projected total emissions for the lifecycle of potential BLM leases was the appropriate reasonably foreseeable scope of emissions for decision making by BLM State Directors. This analysis scope provides a thorough cumulative assessment of GHG emissions. All past and in-process BLM leases were considered in the preparation of the estimates. Current lease approval timeframes along with current data on the development status of all approved and in-process leases were also considered. The 2020 BLM Specialist Report provides information on non-BLM related emissions by presenting data from the most recent EPA GHG Emissions and Sinks Report, which presents estimates of total U.S. GHG emissions as well as breakdown subtotals by economic sector and specific GHG. The EPA report represents an authoritative accounting of cumulative U.S. GHG emissions, including emissions related to BLM actions. In addition, the 2020 Specialists Report presents the range of projected Climate Change effects across basin and range states at length in Section 8.3, Section 8.4, and Chapter 9.0. This information is incorporated by reference in the EA. This analysis provides emissions estimates and describes actual environmental effects in terms of temperatures, drought, snowpack, growing season, and other impacts to vegetation with details from several representative states. These comparisons and examples are illustrative and support the decision-making process.</p>
<p>BLM failed to assess the cumulative greenhouse gas emissions from recent and reasonably foreseeable federal offshore oil and gas lease sales. BLM also failed to assess the cumulative greenhouse gas emissions from recent and reasonably foreseeable federal fossil fuel lease sales and similar federal actions, as required by NEPA. BLM continues to fail to assess cumulative greenhouse gas emissions from recent and reasonably foreseeable non-federal oil and gas leasing and development projects.</p>	<p>The BLM has prepared multiple EISs covering the lands BLM is considering making available for competitive auction. The BLM has disclosed the GHG emissions from the Proposed Action and provided context for those emissions compared to existing federal onshore GHG emissions in the state and nationally. The BLM has included an evaluation of the climate change impacts that could result from the proposed action and incorporated by the reference the 2020 BLM Specialists Report on Annual Greenhouse Gas Emissions and Climate Trends which provides a more robust assessment of cumulative emissions, climate change impacts, and reputable climate science sources. If/when a proposed action for development is submitted, the BLM can determine appropriate mitigation measures to reduce/offset GHG emissions that are not already required by law or proposed by the operator. Climate impacts are among many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding leasing actions.</p>
<p>The emissions comparisons in the EAs fail NEPA's "hard look" standard. BLM continues to improperly frame and weigh the context and intensity factors for assessing the significance of reasonably foreseeable GHG emissions from the proposed lease sales and their cumulative climate impacts. Although BLM acknowledges that all GHGs contribute incrementally to the climate change phenomenon, BLM persists in comparing the estimated emissions associated with the proposed actions to the total global, national, state, and other categories of GHG emissions to support its finding that the GHG emissions from the proposed actions are insignificant. BLM's attempt to minimize the estimated GHG emissions from the proposed actions in this way is precisely how the 2016 CEQ GHG Guidance directed federal agencies not to limit assessments of the significance of GHG emissions. This method of analysis doesn't reveal anything beyond the nature of the climate change challenge itself.</p>	<p>The BLM analysis presented in the EA and the 2020 Specialists Report is the agency's determination of a "hard look" at GHG emissions related to agency fossil fuel approvals. Comparing all potential emissions from fossil fuel approvals within BLM jurisdiction to emissions totals at state, national and global levels represents a comprehensive "hard look" focused on the subject matter set before BLM decision makers. Given the highly complex and thus-far unclear relationship between GHG emissions from a specific location and climate effects at that or any other location, smaller scale comparisons cannot be made. The BLM also included comparisons of projected emissions to familiar GHG emission sources (passenger vehicles), alternative energy sources (a wind turbine), and acres of forest sequestration. These standard comparisons provided by EPA illustrate the level of impact expected from GHG emissions related to the lease sale. At this time, BLM has not developed a standard or emissions budget that it can apply uniformly to make a determination of significance based on climate change or GHG emissions. Until such time as the Department develops further tools to analyze the relative emissions impact of its activities nationwide, the BLM can disclose GHG emissions and climate impacts, and provide context and analysis for those emissions and impacts; the agency cannot determine significance for a proposed action based on GHG emissions or climate impacts alone.</p>

Comment	Response
<p>BLM's analysis of GHG emissions from the proposed lease sales in comparison with global, national, state, and other categories of emissions is incomplete and fails to inform the public and decision maker of comparisons that would more effectively reveal the context and intensity of the reasonably foreseeable GHG emissions. BLM correctly points out that GHGs have a long atmospheric lifetime, which allows them to become well mixed and uniformly distributed over the entirety of the Earth's surface, no matter their point of origin. However, BLM's EAs for the 2022 lease sales never explain why this aspect of GHGs should limit BLM's comparison of potential emissions from the proposed actions to global, national, and state emission totals for purposes of providing context of their significance and potential contribution to climate change impacts. In other words, BLM never compares or explains why it would be inappropriate to compare potential GHG emissions from one proposed lease sale to the potential GHG emissions from another past or present lease sale. Similarly, why not compare the potential GHG emissions from one proposed lease sale with another past or present federal (or non-federal) fossil fuel action or project? Why not compare the potential emissions to different individual sources of GHG emissions, such as a gas-fired power plant? A dairy operation? A landfill? We request BLM include a more comprehensive comparison of the estimated GHG emissions associated with the lease sales proposed in 2022 and the cumulative GHG emissions from the federal fossil fuel program to other emissions source, including but not limited to other individual federal and non-federal fossil fuel leases, individual coal-fired and natural gas electric generating facilities, and individual concentrated animal feeding operations (CAFOs).</p>	<p>The BLM has prepared multiple EISs covering the lands BLM is considering making available for competitive auction. The BLM has disclosed the GHG emissions from the Proposed Action and provided context for those emissions compared to existing federal onshore GHG emissions in the state and nationally. The BLM has included an evaluation of the climate change impacts that could result from the proposed action and incorporated by the reference the 2020 BLM Specialists Report on Annual Greenhouse Gas Emissions and Climate Trends which provides a more robust assessment of cumulative emissions, climate change impacts, and reputable climate science sources. If/when a proposed action for development is submitted, the BLM can determine appropriate mitigation measures to reduce/offset GHG emissions that are not already required by law or proposed by the operator. Climate impacts are among many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding leasing actions.</p>
<p>BLM's analysis of cumulative GHG emissions in the 2020 BLM Specialist Report fails NEPA's "hard look" standard.</p>	<p>The BLM analysis presented in the EA and the 2020 Specialists Report is the agency's determination of a "hard look" at GHG emissions related to agency fossil fuel approvals. Comparing all potential emissions from fossil fuel approvals within BLM jurisdiction to emissions totals at state, national and global levels represents a comprehensive "hard look" focused on the subject matter set before BLM decision makers. Given the highly complex and thus-far unclear relationship between GHG emissions from a specific location and climate effects at that or any other location, smaller scale comparisons cannot be made. The BLM also included comparisons of projected emissions to familiar GHG emission sources (passenger vehicles), alternative energy sources (a wind turbine), and acres of forest sequestration. These standard comparisons provided by EPA illustrate the level of impact expected from GHG emissions related to the lease sale. At this time, BLM has not developed a standard or emissions budget that it can apply uniformly to make a determination of significance based on climate change or GHG emissions. Until such time as the Department develops further tools to analyze the relative emissions impact of its activities nationwide, the BLM can disclose GHG emissions and climate impacts, and provide context and analysis for those emissions and impacts; the agency cannot determine significance for a proposed action based on GHG emissions or climate impacts alone.</p>

Comment	Response
<p>In addition, although the 2020 BLM Specialist Report provided a discussion of cumulative GHG emissions from the BLM fossil fuel leasing program and future climate change impacts, the 2020 BLM Specialist Report failed to analyze these cumulative impacts using the SC-GHG and failed to assess carbon budgets according to historic GHG contribution and equitable apportionment. BLM estimated the monetized net harm to society associated with incremental increases in GHG emissions for each individual lease sale proposed in 2022, but without explanation, BLM chose not to conduct the same analysis of cumulative GHG emissions in the 2020 BLM Specialist Report. We request BLM conduct a social cost analysis of the cumulative GHG emissions attributable to federal fossil fuel development and production in accordance with the Interim Estimates of the Social Cost of Carbon, Methane, and Nitrous Oxide. This analysis must include the monetized net harm to society of reasonably foreseeable emissions according to the increasing social cost of greenhouse gases, which reflects the expectation that the net harm to society will increase as the impacts of climate change accumulate over time.</p>	<p>The BLM provided a wide range of potential impact contexts in the 2020 Specialists Report, which was incorporated by reference into each EA. The Specialists Report presents the life-cycle representation of the federal onshore mineral estate GHG emissions relative to various local, state, national and global emissions and impact contexts. The BLM analyzes the impacts associated with the alternatives using the best available information, which is typically not monetized estimates of benefits or costs. The BLM is exercising its discretion to estimate the SC-GHG to provide additional context for decision making. At this time, BLM has not developed a standard or emissions budget that it can apply uniformly to make a determination of significance based on climate change, GHG emissions, or the Social Cost of GHGs. Until such time as the Department develops further tools to analyze the relative emissions impact of its activities nationwide, the BLM can disclose GHG emissions and climate impacts, and provide context and analysis for those emissions and impacts; the agency cannot determine significance for a proposed action based on GHG emissions or climate impacts alone.</p>
<p>BLM's 2020 BLM Specialist Report must also further contextualize its carbon budget analysis by evaluating carbon budgets according to the United States' historic contributions. The 2020 BLM Specialist Report attempts to cast doubt on the utility of assessing GHG emissions according to carbon budgets, stating: "Carbon budgets have not yet been established on a national or subnational scale, primarily due to the lack of consensus on how to allocate the global budget to each nation, and as such the global budgets that limit warming to 1.5 C or 2.0 C are not useful for BLM decision-making as it is unclear what portion of the budget applies to emissions occurring in the United States."⁸⁵ However, uncertainty in other contexts of GHG and climate change analysis has not prevented BLM from using averages, estimates, and models to address uncertainty and provide the public and decision makers helpful information.⁸⁶ As such, BLM should consult the best scientific reports and data available to determine a representative carbon budget that reasonably applies to emissions in the United States, given its historic contributions.⁸⁷ The carbon budget analysis in the 2020 BLM Specialist Report, as currently drafted, is misleading because it inappropriately compares GHG emissions from the BLM federal fossil fuel program to the remaining global carbon budget. To the public or a decision maker, this analysis minimizes the GHG emissions from the BLM federal fossil fuel program and implies the emissions are insignificant to the global carbon budget, comparatively.</p>	<p>The analysis requested is included for informational purposes in section 7.2 of the 2020 BLM Specialist Report on Annual GHG Emissions and Climate Trends, which was incorporated by reference in the lease sale EAs. This analysis includes information from the United Nations emissions gap report which shows the difference between global emissions pathways required to limit warming to 1.5C or 2.0C (i.e. carbon budgets) with the anticipated emissions based on national commitments to reduce GHG emissions. At this time, BLM has not developed a standard or emissions budget that it can apply uniformly to make a determination of significance based on climate change or GHG emissions. Until such time as the Department develops further tools to analyze the relative emissions impact of its activities nationwide, the BLM can disclose GHG emissions and climate impacts, and provide context and analysis for those emissions and impacts; the agency cannot determine significance for a proposed action based on GHG emissions or climate impacts alone.</p>

Comment	Response
<p>For example, some of the FONSI only evaluate four of the NEPA intensity factors,176 while others evaluate ten.177 Further confounding things, the publicly available FONSI for the proposed lease sale in Utah is less than half a page in length and includes no evaluation of context or intensity according to NEPA.178 The inconsistent method of impact analysis displayed in these FONSI, particularly with regard to the impacts of GHGs and climate change, is improper and absent further explanation from BLM, arbitrary. These unjustified discrepancies provide yet another reason for BLM to analyze and evaluate the environmental impacts of these oil and gas leasing proposals in a single impact statement, as well as evaluate the BLM federal fossil fuel program pursuant to a programmatic EIS. Further, to fully inform the public we request BLM explicitly evaluate and discuss the impacts of GHG emissions estimated from the proposed lease sales, cumulative GHG emissions, and their impact on climate change according to all the NEPA intensity factors. We request this evaluation be done in the context of a single EIS for all seven proposed lease sales.</p>	<p>The BLM has disclosed the GHG emissions from the Proposed Action and provided context for those emissions compared to existing federal onshore GHG emissions in the state and nationally. The BLM has included an evaluation of the climate change impacts that could result from the proposed action and incorporated by the reference the 2020 BLM Specialists Report on Annual Greenhouse Gas Emissions and Climate Trends which provides a more robust assessment of cumulative emissions, climate change impacts, and reputable climate science sources. This analysis scope provides a thorough cumulative assessment of GHG emissions. All past and in-process BLM leases were considered in the preparation of the estimates. Current lease approval timeframes along with current data on the development status of all approved and in-process leases were also considered. The 2020 BLM Specialist Report provides information on non-BLM related emissions by presenting data from the most recent EPA GHG Emissions and Sinks Report, which presents estimates of total U.S. GHG emissions as well as breakdown subtotals by economic sector and specific GHG. The EPA report represents an authoritative accounting of cumulative U.S. GHG emissions, including emissions related to BLM actions. In addition, the 2020 Specialists Report presents the range of projected Climate Change effects across basin and range states at length in Section 8.3, Section 8.4, and Chapter 9.0. This information is incorporated by reference in the EA. This analysis provides emissions estimates and describes actual environmental effects in terms of temperatures, drought, snowpack, growing season, and other impacts to vegetation with details from several representative states. These comparisons and examples are illustrative and support the decision-making process. There is no significant scientific controversy as to whether or not anthropogenic GHGs contribute to climate change resulting in adverse impacts to the environment, which is why the BLM developed the 2020 Specialists Report on GHG Emissions and Climate Change. Climate impacts are among many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding on leasing actions. In addition, the lease sales are distinct actions and so do not per se implicate the same intensity factors, or implicate each and every one. The EAs discuss the relevant intensity factors as applicable.</p>
<p>In each of the FONSI, BLM states that it cannot determine the significance of GHG emissions from the proposed lease sales, but ultimately concludes, anyway, that the GHG emissions from the proposed lease sales, and the cumulative emissions from the federal fossil fuel program, are insignificant. This is a textbook example of an arbitrary and capricious determination, which must be remedied.</p>	<p>The BLM has disclosed the GHG emissions from the Proposed Action and provided context for those emissions compared to existing federal onshore GHG emissions in the state and nationally. The BLM has included an evaluation of the climate change impacts that could result from the proposed action and incorporated by the reference the 2020 BLM Specialists Report on Annual Greenhouse Gas Emissions and Climate Trends which provides a more robust assessment of cumulative emissions, climate change impacts, and reputable climate science sources. This analysis scope provides a thorough cumulative assessment of GHG emissions. All past and in-process BLM leases were considered in the preparation of the estimates. Current lease approval timeframes along with current data on the development status of all approved and in-process leases were also considered. The 2020 BLM Specialist Report provides information on non-BLM related emissions by presenting data from the most recent EPA GHG Emissions and Sinks Report, which presents estimates of total U.S. GHG emissions as well as breakdown subtotals by economic sector and specific GHG. The EPA report represents an authoritative accounting of cumulative U.S. GHG emissions, including emissions related to BLM actions. In addition, the 2020 Specialists Report presents the range of projected Climate Change effects across basin and range states at length in Section 8.3, Section 8.4, and Chapter 9.0. This information is incorporated by reference in the EA. This analysis provides emissions estimates and describes actual environmental effects in terms of temperatures, drought, snowpack, growing season, and other impacts to vegetation with details from several representative states. These comparisons and examples are illustrative and support the decision-making process. There is no significant</p>

Comment	Response
	<p>scientific controversy as to whether or not anthropogenic GHGs contribute to climate change resulting in adverse impacts to the environment, which is why the BLM developed the 2020 Specialists Report on GHG Emissions and Climate Change . Climate impacts are among many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding on leasing actions. In addition, the lease sales are distinct actions and so do not per se implicate the same intensity factors, or implicate each and every one. The EAs discuss the relevant intensity factors as applicable .</p>
<p>We request BLM clarify and further explain precisely why the agency cannot make a judgment based on the best available science and its own expertise as to the significance of its GHG emissions. In each of the proposed FONSI, BLM determines that no environmental effects, including the cumulative effects of GHG emissions on climate change, meet the NEPA definition of significance. Should BLM wish to maintain this conclusion, it must provide the basis and rationale that support the conclusion to inform and be evaluated by the public and decision makers.</p>	<p>The BLM has disclosed the GHG emissions from the Proposed Action and provided context for those emissions compared to existing federal onshore GHG emissions in the state and nationally. The BLM has included an evaluation of the climate change impacts that could result from the proposed action and incorporated by the reference the 2020 BLM Specialists Report on Annual Greenhouse Gas Emissions and Climate Trends which provides a more robust assessment of cumulative emissions, climate change impacts, and reputable climate science sources. This analysis scope provides a thorough cumulative assessment of GHG emissions. All past and in-process BLM leases were considered in the preparation of the estimates. Current lease approval timeframes along with current data on the development status of all approved and in-process leases were also considered. The 2020 BLM Specialist Report provides information on non-BLM related emissions by presenting data from the most recent EPA GHG Emissions and Sinks Report, which presents estimates of total U.S. GHG emissions as well as breakdown subtotals by economic sector and specific GHG. The EPA report represents an authoritative accounting of cumulative U.S. GHG emissions, including emissions related to BLM actions. In addition, the 2020 Specialists Report presents the range of projected Climate Change effects across basin and range states at length in Section 8.3, Section 8.4, and Chapter 9.0. This information is incorporated by reference in the EA. This analysis provides emissions estimates and describes actual environmental effects in terms of temperatures, drought, snowpack, growing season, and other impacts to vegetation with details from several representative states. These comparisons and examples are illustrative and support the decision-making process. There is no significant scientific controversy as to whether or not anthropogenic GHGs contribute to climate change resulting in adverse impacts to the environment, which is why the BLM developed the 2020 Specialists Report on GHG Emissions and Climate Change . Climate impacts are among many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding on leasing actions. In addition, the lease sales are distinct actions and so do not per se implicate the same intensity factors, or implicate each and every one. The EAs discuss the relevant intensity factors as applicable .</p>

Comment	Response
<p>The EAs, FONSI, and 2020 BLM Specialist Report discussion of GHG emissions and climate change use comparisons with global, national, and state level GHG emissions to imply that the potential emissions from the proposed lease sales are insignificant. But these NEPA documents never clearly articulate whether this proxy comparison to global, national, and state level emissions is the basis on which BLM determined the GHG emissions from the proposed lease sales are insignificant. BLM's clearest articulation of how it determined the significance of GHG emissions is in the FONSI for the proposed lease sale in Wyoming, where BLM states "[the proposed action is] not expected to significantly affect the rate of change in those effects, bring forth impacts that are not already identified in existing literature, or cause a change in the magnitude of those impacts at the local, state, regional, national, or global scale."¹⁸⁰ This statement is not reflected in the other seven FONSI associated with the 2022 lease sales, but it seems to be implied in the NEPA analyses of the other proposed lease sales. Importantly, the 2016 CEQ GHG Guidance specifically instructs federal agencies not to limit their analysis of GHG emissions to this type of proxy analysis.</p>	<p>The BLM has disclosed the GHG emissions from the Proposed Action and provided context for those emissions compared to existing federal onshore GHG emissions in the state and nationally. The BLM has included an evaluation of the climate change impacts that could result from the proposed action and incorporated by the reference the 2020 BLM Specialists Report on Annual Greenhouse Gas Emissions and Climate Trends which provides a more robust assessment of cumulative emissions, climate change impacts, and reputable climate science sources. This analysis scope provides a thorough cumulative assessment of GHG emissions. All past and in-process BLM leases were considered in the preparation of the estimates. Current lease approval timeframes along with current data on the development status of all approved and in-process leases were also considered. The 2020 BLM Specialist Report provides information on non-BLM related emissions by presenting data from the most recent EPA GHG Emissions and Sinks Report, which presents estimates of total U.S. GHG emissions as well as breakdown subtotals by economic sector and specific GHG. The EPA report represents an authoritative accounting of cumulative U.S. GHG emissions, including emissions related to BLM actions. In addition, the 2020 Specialists Report presents the range of projected Climate Change effects across basin and range states at length in Section 8.3, Section 8.4, and Chapter 9.0. This information is incorporated by reference in the EA. This analysis provides emissions estimates and describes actual environmental effects in terms of temperatures, drought, snowpack, growing season, and other impacts to vegetation with details from several representative states. These comparisons and examples are illustrative and support the decision-making process. There is no significant scientific controversy as to whether or not anthropogenic GHGs contribute to climate change resulting in adverse impacts to the environment, which is why the BLM developed the 2020 Specialists Report on GHG Emissions and Climate Change. Climate impacts are among many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding on leasing actions. In addition, the lease sales are distinct actions and so do not per se implicate the same intensity factors, or implicate each and every one. The EAs discuss the relevant intensity factors as applicable.</p>
<p>Beyond the contradiction in each of BLM's FONSI, BLM attempts to avoid making a significance determination regarding the GHG emissions from the proposed lease sales is an improper dereliction of the agency's duty under NEPA and FLPMA. BLM's NEPA analyses and FONSI for the proposed lease sales include the statement: "There are no established thresholds for NEPA analysis to contextualize the quantifiable GHG emissions or social cost of an action in terms of the action's propensity to affect the climate, incrementally or otherwise."¹⁸² While this may be true, it is also true that there are no established specific or particularized thresholds that determine whether other types of environmental impacts are significant for purposes of NEPA analysis. Significance determinations are made according to the potentially affected environment (or the relative context in which the action would occur) and the degree of the effects of the proposed action (or the intensity of the effects of the proposed action). At the end of the day, weighing these factors to make a significance determination requires an agency to make a judgment call based on the best science available. We request BLM clearly articulate the basis for its significance determination of the estimated GHG emissions from the proposed lease sales and the cumulative GHG emissions from the federal fossil fuel program and their associated impacts related to climate change.</p>	<p>The BLM has prepared multiple EISs covering the lands BLM is considering making available for competitive auction. The BLM has disclosed the GHG emissions from the Proposed Action and provided context for those emissions compared to existing federal onshore GHG emissions in the state and nationally. The BLM has included an evaluation of the climate change impacts that could result from the proposed action and incorporated by the reference the 2020 BLM Specialists Report on Annual Greenhouse Gas Emissions and Climate Trends which provides a more robust assessment of cumulative emissions, climate change impacts, and reputable climate science sources. If/when a proposed action for development is submitted, the BLM can determine appropriate mitigation measures to reduce/offset GHG emissions that are not already required by law or proposed by the operator. Climate impacts are among many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding leasing actions.</p> <p>In regards to the FONSI - at this time, BLM has not developed a standard or emissions budget that it can apply uniformly to make a determination of significance based on climate change or GHG emissions. Until such time as the Department develops further tools to analyze the relative emissions impact of its activities nationwide, the BLM can disclose GHG emissions and climate impacts, and provide context and analysis for those emissions and impacts; the agency cannot render a determination of significance for a proposed action based on GHG emissions or climate impacts alone.</p>

Comment	Response
<p>BLM Improperly Limits the Context of Significance Analysis ----- BLM's FONSI for the proposed 2022 lease sales improperly limit the context and scope of the potentially affected environment in which the proposed leasing actions, and their cumulative impacts, will occur. Significance assessments under NEPA require consideration of "context," meaning the significance of the proposed action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. 183 Significance varies with the setting of the proposed action. 184 Despite these requirements for considering the context of the proposed lease sales and despite the global nature and impacts of cumulative GHG emissions and climate change, BLM's FONSI generally limit the consideration of context to the localities wherein the oil and gas development would take place, if authorized, and find that the impacts of oil and gas development would not have international, nation, regional, or state-wide importance. 185 We request BLM consider a far wider array of contexts, including society as whole, global, national, and regional contexts, that reflect the cumulative and global nature of climate change impacts.</p>	<p>The BLM provided a wide range of potential impact contexts in the 2020 Specialists Report, which was incorporated by reference into each EA. The Specialists Report presents the life-cycle representation of the federal onshore mineral estate GHG emissions relative to various local, state, national and global emissions and impact contexts. This fact is demonstrated by the relative federal mineral estate emissions levels presented in the EA and the report, and more specifically the "direct emissions" for which future permitting conditions of approval would apply. The cumulative emissions scope in the Specialists Report is inclusive of the offshore federal mineral estate (U.S. Totals for production and emissions).</p>
<p>BLM's FONSI vary widely in how they evaluate and discuss the impacts of GHG emissions and climate change on public health and safety, and we request BLM more clearly address these impacts in a single EIS. For example, with regard to public health and safety impacts some of the FONSI do not mention climate change at all, even though the 2020 BLM Specialist Report describes both the existing health threats caused by climate change and the predicted intensification and new emerging health threats caused by continued GHG emissions. 186 Other FONSI, such as the FONSI for the proposed lease sale in Nevada, fail to clearly explain or justify how, given the analysis of public health impacts presented in the 2020 BLM Specialist Report, BLM concluded that both the current impacts of climate change and the predicted impacts of increasing climate change do not significantly affect public health and safety</p>	<p>The BLM has disclosed the GHG emissions from the Proposed Action and provided context for those emissions compared to existing federal onshore GHG emissions in the state and nationally. The BLM has included an evaluation of the climate change impacts that could result from the proposed action and incorporated by reference the 2020 BLM Specialists Report on Annual Greenhouse Gas Emissions and Climate Trends which provides a more robust assessment of cumulative emissions, climate change impacts, and reputable climate science sources. This analysis scope provides a thorough cumulative assessment of GHG emissions. All past and in-process BLM leases were considered in the preparation of the estimates. Current lease approval timeframes along with current data on the development status of all approved and in-process leases were also considered. The 2020 BLM Specialist Report provides information on non-BLM related emissions by presenting data from the most recent EPA GHG Emissions and Sinks Report, which presents estimates of total U.S. GHG emissions as well as breakdown subtotals by economic sector and specific GHG. The EPA report represents an authoritative accounting of cumulative U.S. GHG emissions, including emissions related to BLM actions. In addition, the 2020 Specialists Report presents the range of projected Climate Change effects across basin and range states at length in Section 8.3, Section 8.4, and Chapter 9.0. This information is incorporated by reference in the EA. This analysis provides emissions estimates and describes actual environmental effects in terms of temperatures, drought, snowpack, growing season, and other impacts to vegetation with details from several representative states. These comparisons and examples are illustrative and support the decision-making process. There is no significant scientific controversy as to whether or not anthropogenic GHGs contribute to climate change resulting in adverse impacts to the environment, which is why the BLM developed the 2020 Specialists Report on GHG Emissions and Climate Change. Climate impacts are among many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding on leasing actions. In addition, the lease sales are distinct actions and so do not per se implicate the same intensity factors, or implicate each and every one. The EAs discuss the relevant intensity factors as applicable .</p>

Comment	Response
<p>Well-documented scientific research and BLM's own analysis demonstrate that the potential effects of climate change are highly uncertain and involve unique and unknown risks. BLM must properly address this NEPA intensity factor in light of these impacts, and we request BLM do so in a single EIS.</p>	<p>The BLM has disclosed the GHG emissions from the Proposed Action and provided context for those emissions compared to existing federal onshore GHG emissions in the state and nationally. The BLM has included an evaluation of the climate change impacts that could result from the proposed action and incorporated by reference the 2020 BLM Specialists Report on Annual Greenhouse Gas Emissions and Climate Trends which provides a more robust assessment of cumulative emissions, climate change impacts, and reputable climate science sources. This analysis scope provides a thorough cumulative assessment of GHG emissions. All past and in-process BLM leases were considered in the preparation of the estimates. Current lease approval timeframes along with current data on the development status of all approved and in-process leases were also considered. The 2020 BLM Specialist Report provides information on non-BLM related emissions by presenting data from the most recent EPA GHG Emissions and Sinks Report, which presents estimates of total U.S. GHG emissions as well as breakdown subtotals by economic sector and specific GHG. The EPA report represents an authoritative accounting of cumulative U.S. GHG emissions, including emissions related to BLM actions. In addition, the 2020 Specialists Report presents the range of projected Climate Change effects across basin and range states at length in Section 8.3, Section 8.4, and Chapter 9.0. This information is incorporated by reference in the EA. This analysis provides emissions estimates and describes actual environmental effects in terms of temperatures, drought, snowpack, growing season, and other impacts to vegetation with details from several representative states. These comparisons and examples are illustrative and support the decision-making process. There is no significant scientific controversy as to whether or not anthropogenic GHGs contribute to climate change resulting in adverse impacts to the environment, which is why the BLM developed the 2020 Specialists Report on GHG Emissions and Climate Change. Climate impacts are among many factors that are considered in the NEPA analysis to evaluate the significance of a proposed action and the BLM's exercise of its discretion in deciding on leasing actions. In addition, the lease sales are distinct actions and so do not per se implicate the same intensity factors, or implicate each and every one. The EAs discuss the relevant intensity factors as applicable.</p>
<p>BLM's analysis of controversy over impacts from GHGs is absent or unsupported</p>	<p>There is no scientific controversy as to whether or not anthropogenic GHGs contribute to climate change resulting in adverse impacts to the environment which is why the BLM developed the 2020 Specialists Report on GHG Emissions and Climate Change. The Report will be updated as necessary to address current regulation, policy, climate science and the contribution and impacts from federal oil and gas development.</p>
<p>BLM's evaluation of the estimated GHG emissions from the proposed lease sales is another NEPA intensity factor that receives little to no consideration in the associated FONSI. This is astounding given the seriousness and cumulative nature of climate change. Considering both the impacts of climate change that are already occurring as a result of historic anthropogenic emissions of GHGs and forecast impacts of continued GHG emissions, it is challenging to understand the basis for BLM's conclusion that significant cumulative effects are not expected from the proposed oil and gas lease sales. We request BLM fully inform the public and the decision makers by providing a complete and comprehensive justification for how the agency reached its significance determination on this NEPA intensity factor.</p>	<p>The BLM provided a wide range of potential impact contexts in the 2020 Specialists Report, which was incorporated by reference into each EA. The Specialists Report presents the life-cycle representation of the federal onshore mineral estate GHG emissions relative to various local, state, national and global emissions and impact contexts. The BLM works in concert with other U.S. federal agencies (including EPA and DOE) to implement U.S. strategies and meet committed goals, including applicable executive and secretary's orders. The 2020 BLM Specialist Report presents 6 pages of analysis in Section 2.0 Relationship to Other Laws and Policies focused on orders, laws, and regulations related to GHGs and Climate Change. While the report was incorporated by reference in the lease sale EA, the BLM has included a direct citation to this information. The FONSI for the Q1 2022 OFO Competitive Oil and Gas Lease Sale summarizes potential GHG emissions and climate change effects from the proposed action within the framework of NEPA intensity criteria 1 (short and long term effects) and criteria 2 (beneficial and adverse effects).</p>

Comment	Response
<p>Not one of the FONSI's for the proposed lease sales indicate the lease actions will violate federal or state law and policy, but there are several federal and state government laws and policies that set GHG emission reduction targets or commitments, which authorization of the proposed leases will likely threaten. On the federal side, President Biden announced a goal to achieve net-zero emissions by 2050,196 as well as a target to reduce GHG emissions by 50-52% by 2030, compared to 2005 levels.197 In addition, the United States is a signatory to the 2015 Paris Agreement, committing to a goal of limiting global temperature increase well below 2 C, pursuing efforts to limit the increase to 1.5 C, and committing to reaching global peaking of GHGs as soon as possible. On the state side, both Colorado and New Mexico have statutes and executive orders setting emission reduction goals. In Colorado, HB19-1261 requires the state to reduce GHG emissions by at least 26 percent in 2025, at least 50 percent by 2030, and at least 90 percent by 2050, relative to 2005 pollution levels. In New Mexico, Executive Order 2019-003 declares the state's support of the 2015 Paris Agreement goals and orders the state to achieve statewide reduction of GHG emissions of at least 45% by 2030, relative to 2005 levels. BLM's EAs and FONSI's must discuss and evaluate how the proposed lease sales and their estimated GHG emissions may threaten violation of these federal and state laws and policies.</p>	<p>The BLM provided a wide range of potential impact contexts in the 2020 Specialists Report, which was incorporated by reference into each EA. The Specialists Report presents the life-cycle representation of the federal onshore mineral estate GHG emissions relative to various local, state, national and global emissions and impact contexts. The BLM works in concert with other U.S. federal agencies (including EPA and DOE) to implement U.S. strategies and meet committed goals, including applicable executive and secretary's orders. The 2020 BLM Specialist Report presents 6 pages of analysis in Section 2.0 Relationship to Other Laws and Policies focused on orders, laws, and regulations related to GHGs and Climate Change. While the report was incorporated by reference in the lease sale EA, the BLM has included a direct citation to this information.</p>
<p>VIII. Leasing new federal fossil fuels for development would cause unnecessary and undue degradation that is prohibited under FLPMA: The inquiry, then, is whether BLM has taken sufficient measures to prevent degradation unnecessary to, or undue in proportion to, its oil and gas leasing decisions. See Theodore Roosevelt Conservation Partnership, 661 F.3d at 76. BLM has neither defined what constitutes "unnecessary or undue degradation" in the context of continued oil and gas leasing and development, either at a programmatic level or within these specific sales—and with particular consideration of greenhouse gas emissions and resulting climate impacts—nor has the agency explained why its chosen alternative will not result in such degradation, as required by FLPMA, 43 U.S.C. § 1732(b). BLM's failure to define, analyze, or take action to prevent the unnecessary or undue degradation of lands in the context of climate impacts is arbitrary and capricious agency action, an abuse of discretion, and action without observance of procedures required by</p>	<p>The referenced case involves an oil and gas development EIS, and whether the seasonal waiver of oil and gas stipulations would result in undue or unnecessary impacts, which is unrelated to the proposed action, where BLM is deciding which lands to make available for this lease sale. While BLM has considered reasonably foreseeable future development, should the leases be issued and development proposed, the BLM will consider whether the proposed action would cause unnecessary or undue impacts from surface disturbance or occupancy of the leasehold as part of that environmental analysis.</p>
<p>BLM mentions socioeconomic benefits but provide only boilerplate text describing how lease revenues are distributed, and summarizing studies that discuss various economic impacts in other geographic areas.</p>	<p>Socioeconomic benefits of leasing and future potential development are discussed in Table 1-2, which incorporates by reference the analysis from the March 2019 EA. Socioeconomic benefits discussed in AIB-12 of the March 2019 EA include, but are not limited to, employment opportunities for area residents, and taxes and royalty payments for county, state, and federal governments. .</p>

Comment	Response
<p>Offering hundreds of leases that will impose billions of dollars in social and environmental harms without addressing what (if any) countervailing benefits might warrant such a decision would be arbitrary and capricious and inconsistent with FLPMA. An action is arbitrary and capricious, inter alia, “if the agency has . . . failed to consider an important aspect of the problem [or] offered an explanation for its decision that runs counter to the evidence before the agency.” Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto Ins. Co., 463 U.S. 29, 43 (1983). Here, it would be arbitrary and capricious to quantify the costs of selling so many leases, but disregard the other side of the cost-benefit scale. See High Country Conserv. Advocs. v. U.S. Forest Serv., 52 F. Supp. 3d 1174, 1191 (D. Colo. 2014) (holding it was “arbitrary and capricious to quantify the benefits of the lease modifications and then explain that a similar analysis of the costs was impossible when such an analysis was in fact possible”); Montana Env. Info. Ctr. v. U.S. Office Surf. Mining, 274 F. Supp. 3d 1074, 1098 (D. Mont. 2017) (ruling in favor of plaintiff’s argument that it was “arbitrary and capricious for [agency] to quantify socioeconomic benefits while failing to quantify costs”). Such a one-sided analysis also would violate NEPA</p>	<p>Output, royalties, and tax revenue are not measures of economic benefits that would be used in a benefit cost analysis (i.e., they do not measure changes in consumer or producer surplus). These metrics should not be directly compared to estimates of the SCGHG even where both concepts are calculated. Estimating the economic benefits (change in social welfare) associated with oil and gas leasing is not feasible, nor is it required for NEPA. The BLM analyzes the impacts associated with the alternatives using the best available information, which is typically not monetized estimates of benefits or costs. The BLM is exercising its discretion to estimate the SC-GHG to provide additional context for decision making.</p>
<p>Generating an estimate of the economic benefits from each lease sale is entirely feasible. For example, the Montana draft EA forecasts the bonus and rental payments resulting from that proposed sale. Montana draft EA at 72-74. It is also realistic to forecast potential oil and gas production (and thus royalties and other economic benefits) from the proposed leases. For example, BLM has prepared reasonably foreseeable development estimates in Colorado and other states, e.g. Colorado draft EA at 22-24, that can be used for a forecast of future production. Moreover, BLM’s estimate of GHG impacts further illustrates that the agency can make such projections. While recognizing uncertainties, the agency used “estimated well numbers based on State data for past lease development combined with per-well drilling, development, and operating emissions data from representative wells in the area. . . . For purposes of estimating production and end-use emissions, reasonably foreseeable wells are assumed to produce oil and gas in similar amounts as existing nearby wells.” Wyoming draft EA at 31. A similar methodology could be used to estimate production royalty and related economic benefits from the leases.</p>	<p>Output, royalties, and tax revenue are not measures of economic benefits that would be used in a benefit cost analysis (i.e., they do not measure changes in consumer or producer surplus). These metrics should not be directly compared to estimates of the SCGHG even where both concepts are calculated. Estimating the economic benefits (change in social welfare) associated with oil and gas leasing is not feasible, nor is it required for NEPA. The BLM analyzes the impacts associated with the alternatives using the best available information, which is typically not monetized estimates of benefits or costs. The BLM is exercising its discretion to estimate the SC-GHG to provide additional context for decision making.</p>
<p>The need to consider both costs and benefits is also part of BLM’s obligation under the multiple-use mandate of FLPMA. FLPMA requires striking a balance between conflicting uses, such as oil and gas development and climate (and numerous other uses). As the Supreme Court has noted “multiple use” describes the enormously complicated task of striking a balance among the many competing uses to which land can be put, “including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and [uses serving] natural scenic, scientific and historical values.” Norton v. SUWA, 542 U.S. 55, 58 (2004) (quoting 43 U.S.C. § 1702(c)). BLM cannot strike that balance without even considering what it is balancing.</p>	<p>The alternatives considered adequately weigh the courses of actions that BLM could take based on potential resource conflicts. BLM has not yet rendered a final decision on the proposed action</p>

Comment	Response
<p>BLM's analysis of the cumulative impacts of GHG emissions is absent or unsupported</p>	<p>After careful review, BLM determined that past emissions related to BLM fossil fuel approvals over the preceding 5 years, estimated total emissions related to BLM fossil fuel approvals for the 12-month period including the lease sale, and projected total emissions for the lifecycle of potential BLM leases was the appropriate reasonably foreseeable scope of emissions for decision making by the BLM. This analysis scope provides a thorough cumulative assessment of GHG emissions. All past and in-process BLM leases were considered in the preparation of the estimates. Current lease approval timeframes along with current data on the development status of all approved and in-process leases were also considered. The 2020 BLM Specialist Report provides information on non-BLM related emissions by presenting data from the most recent EPA GHG Emissions and Sinks Report, which presents estimates of total U.S. GHG emissions as well as breakdown subtotals by economic sector and specific GHG. The EPA report represents an authoritative accounting of cumulative U.S. GHG emissions, including emissions related to BLM actions. In addition, the 2020 Specialists Report presents the range of projected Climate Change effects across basin and range states at length in Section 8.3, Section 8.4, and Chapter 9.0. This information is incorporated by reference in the EA. This analysis provides emissions estimates and describes actual environmental effects in terms of temperatures, drought, snowpack, growing season, and other impacts to vegetation with details from several representative states. These comparisons and examples are illustrative and support the decision-making process.</p>
<p>BLM's analysis of Federal or State law and policy is absent in regards to emissions.</p>	<p>The 2020 BLM Specialist Report presents 6 pages of analysis in Section 2.0 Relationship to Other Laws and Policies focused on orders, laws, and regulations related to GHGs and Climate Change. While the report was incorporated by reference in the lease sale EA, the BLM has included a direct citation to this information.</p>
<p>BLM may not arbitrarily assume the potential benefits of leasing outweigh the social and environmental costs</p>	<p>BLM has not yet rendered a final decision or reached such a conclusion. The alternatives considered adequately weigh the courses of actions that BLM could take based on potential resource conflicts and whether making certain lands available would meet the purpose and need for the action.</p>

APPENDIX D. CRITERIA FOR LEASING RELATED TO THE U.S. DEPARTMENT OF THE INTERIOR’S REPORT ON THE FEDERAL OIL AND GAS LEASING PROGRAM

1. Is the parcel considered to have low potential (for example, considering the oil and gas potential maps developed by the BLM for its RMPs)?
2. Is the parcel in proximity to existing oil and gas leases and development/operations?
3. Is the parcel in conflict with important habitats or connectivity (considering BLM data, state/tribal consultation, comments letters)?
4. Is the parcel in conflict with high cultural resource values/areas (considering BLM data, state/tribal consultation, comment letters)?

Parcel	Field Office	Criterion No. 1	Criterion No. 2	Criterion No. 3	Criterion No. 4
OK-2022-0039	Oklahoma FO	No – moderate to high potential	Yes	No	No

APPENDIX E. SUMMARY OF THE TYPICAL PHASES OF OIL AND GAS DEVELOPMENT

INTRODUCTION

The phases of oil and gas development include construction, drilling operations, completion operations, hydraulic fracturing, and production. During the construction activity phase, the area is cleared of vegetation and the pad is constructed. Throughout the drilling operation phase, equipment is moved on site and used to install the drill rig and other associated infrastructure. At this stage, the well is drilled. Well completion follows well drilling. Well completion includes setting the casing to depth, cementing the casing,² and perforating the casing in target zones. If a well is going to be drilled directionally,³ horizontally,⁴ or vertically⁵ this phase may be followed by hydraulic fracturing which involves pumping fracturing fluid into a formation at a calculated, predetermined rate and pressure to generate fractures or cracks in the target formation. The production phase begins when the well starts producing. The well abandonment and reclamation phases occur after the productive life of the well has concluded. Well abandonment and reclamation involve plugging wells and reclaiming the surface according to BLM guidelines and requirements.

CONSTRUCTION ACTIVITIES

First, new construction areas need to be cleared of all vegetation. Clearing of the proposed well pad and access road are typically limited to the smallest area possible to provide safe and efficient work areas for all phases of construction. All clearing activities are accomplished by cutting, mowing, and/or grading vegetation as necessary. Cut vegetation may be mulched and spread on-site or hauled to a commercial waste disposal facility.

Next, heavy equipment, including but not limited to, bulldozers, graders, front-end loaders, and/or track hoes are used to construct the pad, along with other features, as needed for development. Other features may include, but are not limited to, an access road, reserve pit, pipeline, and/or fracturing pond. Cut and fills may be required to level the pad or road surfaces. Reserve pits, if authorized, are lined using an impermeable liner or other lining mechanism (i.e., bentonite or clay) to prevent fluids from leaching into the soil. Access roads may have cattle guards, gates, drainage control, or pull-outs installed, among a host of other features that may be necessary based on the site-specific situation. Long-term surface

² According to BLM regulations from 43 CFR 3160: Onshore Order No. 2, casing and cementing programs are conducted to protect and/or isolate all usable water zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. The casing setting depth is calculated to position the casing seat opposite a competent formation which will contain the maximum pressure to which it will be exposed during normal drilling operations. Determination of casing setting depth is based on all relevant factors, including presence/absence of hydrocarbons; fracture gradients; usable water zones; formation pressures; lost circulation zones; other minerals; or other unusual characteristics. Any isolating medium other than cement shall receive approval prior to use. The deepest casing may not be cemented and may remain open hole depending on the type of formation it is located in.

³ Vertical drilling is the process of drilling a well from the surface vertically to a subsurface location where the target oil or gas reservoir is located (U.S. Department of Energy 2015).

⁴ Horizontal drilling is the process of drilling a well from the surface to a subsurface location just above the target oil or gas reservoir called the "kickoff point," then deviating the well bore from the vertical plane around a curve to intersect the reservoir at the "entry point" with a near-horizontal inclination, and remaining within the reservoir until the desired bottom hole location is reached (North Dakota Department of Mineral Resources 2008).

⁵ Directional drilling is the process of controlling the direction and deviation of drilling a well from the surface to a subsurface location without disturbing the land directly above the target oil or gas reservoir (U.S. Department of Energy 2015).

disturbances such as pads and roads are typically surfaced with a layer of crushed rock. Areas not needed for long-term development are reclaimed by recontouring the surface and reestablishing vegetation.

A pipeline, if needed, is laid within a right-of-way that is first cleared of vegetation. A backhoe, or similar piece of equipment, digs a trench to a depth at least 36 inches below ground surface. After the trench is dug, the pipeline is assembled by welding pieces of pipe together to fit the contour of the pipeline's path. Once inspected, the pipe can be lowered into the trench and covered with stockpiled subsoil originally removed from the trench. Each pipeline undergoes hydrostatic testing prior to natural gas being pumped through the pipeline. This ensures the pipeline is strong enough and absent any leaks. Table C.1 includes some of the common wastes (hazardous and nonhazardous) that are produced during construction.

DRILLING OPERATIONS

When construction of the well pad is complete, the drilling rig and associated equipment are moved on-site and erected. Usually a conventional rotary drill rig is used. The drill rig must be capable of withstanding all the anticipated conditions that may be encountered while drilling. Wells may be drilled directionally, horizontally, or vertically based on the target formation. The depth of the well is entirely dependent on the target formation depth and may be several hundred feet deep to over 20,000 feet deep.

When a conventional reserve pit⁶ system is used, drilling fluid or mud is circulated through the drill pipe to the bottom of the hole, through the bit, up the bore of the well, and finally to the surface. When drilling mud emerges from the hole, it enters the reserve pit where it remains until all fluids are evaporated and the solids can be buried.

A closed-loop system operates in a similar fashion except that when the drilling mud emerges from the hole, it passes through equipment used to screen and remove drill cuttings (rock chips) and sand-sized solids rather than going into a pit. When the solids have been removed, the drilling mud is placed into holding tanks, and from the tank, used again.

In either situation the drilling mud is maintained at a specific weight and viscosity to cool the bit, seal off any porous zones (thereby protecting aquifers and preventing damage to producing zone productivity), control subsurface pressure, lubricate the drill string, clean the bottom of the hole, and bring the drill cuttings to the surface. Water-based or oil-based muds can be used. This choice is dependent on the site-specific conditions.

Once a well has been drilled, completion operations begin. Well completion involves setting casing to depth and perforating the casing in target zones.

Wells are often treated during completion to improve the recovery of hydrocarbons by increasing the rate and volume of hydrocarbons moving from the natural oil and gas reservoir into the wellbore. These processes are known as well-stimulation treatments, which create new fluid passageways in the producing formation or remove blockages within existing passageways. They include fracturing, acidizing, and other mechanical and chemical treatments often used in combination. The results from different treatments are additive and complement each other.

⁶ A conventional reserve pit is a lined earthen pit excavated adjacent to a well pad and is commonly used for the disposal of drilling muds and fluids in gas or oil fields (USFWS 2009).

HYDRAULIC FRACTURING

Hydraulic fracturing (HF) is a formation stimulation practice used to create additional permeability in a producing formation, thus allowing oil and/or gas to flow more readily toward and into the wellbore. Hydraulic fracturing can be used to overcome natural barriers, such as naturally low permeability or reduced permeability resulting from near wellbore damage, to the flow of fluids (gas or water) to the wellbore (Groundwater Protection Council 2017). The process has been a method for additional oil and gas recovery since the 1900s; however, with the advancement of technology in both hydraulic fracturing and horizontal drilling, it is more commonly used than previous hydraulic fracturing and horizontal drilling technologies.

Hydraulic fracturing uses high-pressure pumps to pump fracturing fluid into a formation at a calculated, predetermined rate and pressure to generate fractures or cracks in the target formation. For shale developments (within Mancos shale geologic formations, for example), fracture fluids are primarily water-based fluids mixed with additives that help the water to carry “proppants” into the fractures. Proppants, which may be made up of sand, walnut hulls, or other small particles, are needed to “prop” open the fractures once the pumping of fluids has stopped. Once the fracture has initiated, additional fluids are pumped into the wellbore to continue the development of the fracture and to carry the proppant deeper into the formation. The additional fluids are needed to maintain the downhole pressure necessary to accommodate the increasing length of opened fracture in the formation.

Hydraulic fracturing increases the flow rate and volume of reservoir fluids that move from the producing formation into the wellbore. The fracturing fluid is typically more than 99% water and sand, with small amounts of readily available chemical additives used to control the chemical and mechanical properties of the water and sand mixture. Because the fluid is composed mostly of water, large volumes of water are usually needed to perform hydraulic fracturing. However, in some cases, water is recycled or produced water is used.

The predominant fluids currently being used for fracture treatments in the shale gas plays are water-based fracturing fluids mixed with friction-reducing additives, also known as slick water (Groundwater Protection Council 2017). The number of chemical additives used in a typical fracture treatment varies depending on the conditions of the specific well that is to be fractured. A typical fracture treatment uses very low concentrations of between three and 12 additive chemicals, depending on the characteristics of the water and the shale formation being fractured. Each component serves a specific, engineered purpose, from limiting the growth of bacteria to preventing corrosion of the well casing. The make-up of fracturing fluid varies from one geologic basin or formation to another. Because the make-up of each fracturing fluid varies to meet the specific needs of each area, there is no one-size-fits-all formula for the volumes for each additive. In classifying fracture fluids and their additives, it is important to realize that service companies that provide these additives have developed a number of compounds with similar functional properties to be used for the same purpose in different well environments. The difference between additive formulations may be as small as a change in concentration of a specific compound (Groundwater Protection Council 2017).

Before operators or service companies perform a hydraulic fracturing treatment, a series of tests are performed. These tests are designed to ensure that the well, including casing and cement, well equipment, and fracturing equipment are in proper working order and would safely withstand the application of the fracture treatment pressures and pump flow rates.

Hydraulic fracturing of horizontal shale gas wells is most commonly performed in stages. Lateral lengths in horizontal wells for development may range from 1,000 feet to more than 5,000 feet. Depending on the lengths of the laterals, treatment of wells may be performed by isolating smaller portions of the lateral.

The fracturing of each portion of the lateral wellbore is called a stage. Stages are fractured sequentially beginning with the section at the farthest end of the wellbore, moving up hole as each stage of the treatment is completed until the entire lateral well has been stimulated. During drilling, the BLM is on location during the casing and cementing of the surface casing, which is often the string of casing that protects groundwater, along with other critical casing and cementing intervals. Before hydraulic fracturing takes place, all surface casing and some deeper, intermediate zones are required to be cemented from the bottom of the cased hole to the surface. The cemented well is pressure tested to ensure there are no leaks, and in some cases a cement bond log is run to ensure the cement has bonded to the casing and the formation. If the fracturing of the well is considered to be a “non-routine” fracturing job for the area, the BLM would always be on-site during those operations as well as when abnormal conditions develop during the drilling or completion of a well.

Some soils and geologic formations contain low levels of radioactive material. This naturally occurring radioactive material (NORM) emits low levels of radiation, to which everyone is exposed on a daily basis. When NORM is associated with oil and natural gas production, it begins as small amounts of uranium and thorium within the rock. These elements, along with some of their decay elements, notably Radium-226 and Radium-228, can be brought to the surface in drill cuttings and produced water. Radon-222, a gaseous decay element of radium, can come to the surface along with the shale gas. When NORM is brought to the surface, it remains in the rock pieces of the drill cuttings, remains in solution with produced water, or, under certain conditions, precipitates out in scales or sludges. The radiation is weak and cannot penetrate dense materials such as the steel used in pipes and tanks.

In Oklahoma, there are no state regulations regarding the handling and disposal of NORM wastes produced during the exploration and production of oil and gas. However, testing is required prior to disposal of pipes, tanks, and pipe deposits per BLM’s APD requirements.

PRODUCTION OPERATIONS

Production equipment used during the life of the well may include a three-phase separator-dehydrator, flowlines, a meter run, tanks for condensate, produced oil and water, and heater treater. A pumpjack may be required if the back pressure of the well is too high. Production facilities are arranged to facilitate safety and maximize reclamation opportunities. All permanent aboveground structures not subject to safety considerations are painted a standard BLM environmental color or as landowner specified.

Workovers may be performed multiple times over the life of the well. Because oil and gas production usually declines over the years, operators perform workover operations, which involve cleaning, repairing, and maintaining the well for the purposes of increasing or restoring production.

ABANDONMENT AND RECLAMATION

Well abandonment (whether dry hole or depleted producer) and reclamation of location, access road, and other facilities requires BLM approval. After approval, wellbores are plugged with cement as necessary to prevent fluid or pressure mitigation and to protect and isolate mineral and water resources. Wellheads are removed, and both the surface casing and the production casing are cut off below ground in compliance with federal and state regulations. The well pad, reserve pit, and access are reclaimed according to BLM guidelines. This may include backfilling the pit, recontouring the surface to blend with natural surroundings and redistributing topsoil. All surfaces are then reseeded per BLM and state requirements specified in the Application for Permit to Drill (APD) approval.

COMMON WASTES

Table C.1 includes some of the common wastes (hazardous and nonhazardous) that are produced during oil and gas development.

Table C.1. Common Wastes Produced during Oil and Gas Development

Phase	Waste	
Construction, Well Drilling and Completion (including hydraulic fracturing)	Domestic wastes (i.e., food scraps, paper, etc.)	
	Excess construction materials	Woody debris
	Used lubricating oils	Paints
	Solvents	Sewage
	Drilling muds, including additives (i.e., chromate and barite) and cuttings Well drilling, completion, workover, and stimulation fluids (i.e., oil derivatives such as polycyclic aromatic hydrocarbons (PAHs), spilled chemicals, suspended and dissolved solids, phenols, cadmium, chromium, copper, lead, mercury, nickel)	
	Equipment, power unit and transport maintenance wastes (i.e., batteries; used filters, lubricants, oil, tires, hoses, hydraulic fluids; paints; solvents)	
	Fuel and chemical storage drums and containers	
	Cementing wastes	Rig wash
	Production testing wastes	Excess drilling chemicals
	Excess construction materials	Processed water
	Scrap metal	Contaminated soil including hazardous and non-hazardous materials (potential)
	Sewage	Domestic wastes
	Production	Power unit and transport maintenance wastes (i.e., batteries; used filters, lubricants, filters, tires, hoses, coolants, antifreeze; paints; solvents, used parts)
Discharged produced water		
Production chemicals		
Workover wastes (e.g., brines)		
Abandonment / Reclamation	Construction materials	
	Decommissioned equipment	
	Contaminated soil (potential)	
	Equipment or wastes that could contain hazardous and nonhazardous materials	

LITERATURE CITED

- Bureau of Land Management (BLM). 2019. *BLM New Mexico Water Support Document*. Santa Fe: U.S. Department of the Interior, Bureau of Land Management, New Mexico State Office. Available at: https://www.blm.gov/sites/blm.gov/files/2019%20BLM%20NM%20Water%20Support%20Document_07122019_508.pdf. Accessed March 2020.
- Groundwater Protection Council. 2017. *State Oil and Natural Gas Regulations Designed to Protect Water Resources*. 3rd ed. Available at: <http://www.gwpc.org/sites/default/files/State%20Regulations%20Report%202017%20Final.pdf>. Accessed March 2020.
- North Dakota Department of Mineral Resources. 2008. *Horizontal Drilling*. Available at: <https://www.dmr.nd.gov/ndgs/documents/newsletter/2008Winter/pdfs/Horizontal.pdf>. Accessed March 2020.
- U.S. Department of Energy. 2015. *Quadrennial Technology Review 2015, Oil and Gas Technologies. Chapter 7: Advancing Systems and Technologies to Produce Cleaner Fuels*. Available at: <https://www.energy.gov/sites/prod/files/2016/05/f32/Ch.7-SI-Oil-and-Gas-Technologies.pdf>. Accessed March 2020.
- U.S. Fish and Wildlife Service (USFWS). 2009. *Reserve Pits*. Available at: <https://www.fws.gov/mountain-prairie/contaminants/documents/ReservePitsBirdMortality.pdf>. Accessed March 2020.