August 2, 2024

BLM Rock Springs Field Office
Attn: Maura Bradshaw
280 US Highway 191
Rock Spring, WY 82901

Submitted via eplanning.blm.gov

Re: Comment on Draft Environmental Assessment, Moxa SW Wyoming Carbon Dioxide Sequestration Project, DOI-BLM-WY-D090-2023-0010-EA

Dear Ms. Bradshaw:

The Center for Biological Diversity, Western Organization of Resource Councils, and the Western Environmental Law Center submit the following comments on the Draft Environmental Assessment (Draft EA) for carbon dioxide (CO_2) pore space rights-of-way (ROWs) for the Moxa SW Wyoming Carbon Dioxide Sequestration Project (the Project), DOI-BLM-WY-D090-2023-0010-EA. BLM's Draft EA falls short on several grounds, summarized here:

- While it is true that a proposal for federal action triggers NEPA, it is also true that actions cannot be artificially broken into smaller components (called "piecemealing") such that environmental review of the whole of an action is hindered. Here, the ROWs cover *only* the occupation of federal pore space by CO_2. While injected CO_2 on its own impacts the environment and is tremendously dangerous, the Draft EA proceeds on the fiction that the CO_2 will just arrive in the pore space, almost as if by "immaculate injection." BLM must pause its consideration and review of the ROWs until the full suite of project activities—including injection infrastructure—is known.
- The Draft EA erroneously excludes crucial and foreseeably significant issue areas from analysis, such as climate, air quality, seismicity, water resources, and more.
- The issue areas covered by the Draft EA receive only cursory and general treatment because, according to BLM, the surface infrastructure is not reasonably foreseeable. As noted above this warrants a pause in review; that said, even injected CO_2 has consequences on the environment and safety and those impacts must be analyzed.
- Several Endangered Species Act (ESA) listed and candidate species are within the Project area. Because injected CO_2 can harm—or even kill—plant and animal species, and future surface-disturbing activities have the potential to cause species take and

habitat harms, BLM must therefore formally consult with the U.S. Fish and Wildlife Service (USFWS).

- The proposed ROWs must conform with the relevant land use and resource management plans (RMPs). Based on our analysis, the RMPs do not contemplate this type of activity, and should be amended to evaluate whether this type of action (namely, a ROW for federal subsurface pore space) conforms with the land use plans

The current Draft EA is overly general and ignores key components to make the Moxa Project a reality. BLM cannot possibly approve Moxa ROW application with such bare-bones information. We urge BLM to halt its review until all project activities are disclosed and can be analyzed. Because the impacts from carbon capture and storage (CCS) are foreseeably significant, this review should happen in an Environmental Impact Statement (EIS). Ultimately, because of this Project's vast array of harmful impacts, BLM should reject the application altogether.

Please note that we uploaded the sources cited herein. Those sources are available for viewing and download via https://diversity.app.box.com/s/cv4douaei6lxb8lw3wransacxh75h2a5.

I. BLM Must Obtain More Project Information Before Advancing Its Analyses and Consideration of the Project

Approving a ROW application for occupation of federal pore space *only*—in that, BLM's consideration and NEPA review is entirely and artificially devoid of any mention of how that CO_2 will enter federal pore space—is a serious error. BLM must obtain more information about the whole of the Moxa Project's activities before advancing the Project's requests. This information must include (but is not limited to):

- CO_2 sequestration amount, source, and chemical composition;
- How the CO_2 will be transported;
- How and where the CO_2 will be injected, including the injection depth;
- How the injected CO_2 is expected to "behave" and be contained in federal pore space once injected;
- What other surface infrastructure Moxa will require, including during construction;
- Plans for long-term monitoring of injected CO_2;
- Impacts of seismicity *on* the injected CO_2, as well likelihood of *induced* seismicity from the CO_2;
- Possibility of CO_2 leaks and impacts of those leaks to the environment and safety;
- Climate change, air quality, water resources, cultural, and other impacts of the whole of the Project's activities.

Conducting review on both CO_2 injection and other project activities directly and indirectly involving BLM lands is nothing new. The BLM Miles City Field Office is currently

reviewing a ROW application for a CO_2 injection project, and that NEPA review covers surface infrastructure and CO_2 injection on both federal and state/private lands.[1] And in 2022, one of the *same* field offices preparing the Moxa Draft EA—the Kemmerer Field Office—completed an EA for CO_2 injection on Wyoming BLM lands.[2]

BLM lacks any reasoned explanation for not reviewing the whole of Moxa's Project activities here. BLM further cannot justify departing from past agency practice of reviewing CCS projects involving federal lands as a whole. To proceed without disclosing and reviewing all the Project's activities would be arbitrary and capricious.

II. BLM Must Disclose and Analyze the Whole of the Project's Impacts to Avoid Unlawful Piecemealing

The Moxa Draft EA is legally deficient in that it excludes key—and highly likely—activities that are inextricably linked to injecting CO_2 into federal pore space. This legal deficiency amounts to unlawful piecemealing of NEPA review.

NEPA requires federal agencies to analyze potentially significant environmental consequences before initiating actions that might affect the environment. An agency impermissibly "segments" NEPA review "when it divides connected, cumulative, or similar federal actions into separate projects and thereby fails to address the true scope and impact of the activities that should be under consideration."[3] CEQ enshrined the requirement to analyze the whole of a project in its July 2024 regulations, directing agencies to "evaluate, in a single review, proposals *or parts of proposals* that are related closely enough to be, in effect, a single course of action."[4] They further added that agencies "shall consider whether there are *connected actions*, which are closely related

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[1] Bureau of Land Mgmt., Snowy River CO2 Sequestration Project (DOI-BLM-MT-C020-2023-0070-EA), https://eplanning.blm.gov/eplanning-ui/project/2026556/510, ("Denbury submitted a rights-of-way (ROW) application for a 30 year-term to construct, operate, and terminate the following elements: access roads, well pads, main bulklines (i.e., main supply pipelines), flowlines (i.e., branch supply pipelines), pump stations and offices, an electric powerline, and the use of approximately 100,200 acres of BLM pore space to sequester CO2 underground.").

[2] Bureau of Land Mgmt., Shute Creek 5-2 Project (DOI-BLM-WY-D090-2021-0039-EA), https://eplanning.blm.gov/eplanning-ui/project/2015194/510, ("The Applicant's need for the Proposed Action is to develop a well to permanently dispose of CO2 in the Madison and Bighorn-Gallatin Formations. The proposed pipeline is needed to transport CO2 from the existing Gas Plant to the proposed disposal well.").

[3] *Kleppe v. Sierra Club*, 427 U.S. 390, 410 (1976); *Indigenous Env't Network v. United States Dep't of State*, 317 F. Supp. 3d 1118, 1123 (D. Mont. 2018); *see also* National Environmental Policy Act Implementing Regulations Revisions Phase 2, 88 Fed. Reg. at 49,936 (July 31, 2023) (acknowledging "decades of case law prohibiting the segmentation of actions" and citing, *e.g., Sierra Club* v. *Marsh,* 769 F.2d 868 (1st Cir. 1985); *Kern v. U.S. Bureau of Land Mgmt.,* 284 F.3d 1062 (9th Cir. 2002)).

[4] 40 C.F.R. § 1501.3(b) (2024) (revised) (emphasis added); *see also id.* ("The agency shall not avoid a determination of significance under paragraph (c) of this section by terming an action temporary that is not temporary in fact or segmenting an action into smaller component parts.").

Federal activities or decisions that should be considered in the same NEPA review that (1) automatically trigger other actions that may require NEPA review; (2) Cannot or will not proceed unless other actions are taken . . . .; or (3) Are independent parts of a larger action and depend on the larger action for their justification."[5]

A project without "substantial independent utility"—such as a discussion of abstract CO_2 injection without discussing its origin, how it will be injected, etc.—cannot be segmented from the larger project as a whole. Such activities are "inextricably intertwined" and require a unified NEPA review.[6]

Despite this legal requirement, the Draft EA fundamentally errs by failing to disclose basic information about the Project. See section I, *supra*. Omitting activities and aspects of CO_2 injection is a piecemealing flaw on its own. This flaw is compounded by the fact that the Draft EA *explicitly contemplates* surface infrastructure and project expansion. According to the Draft EA:

> As Moxa Carbon explained in a letter submitting their application to the BLM, the pore space ROW is the "*first step in a larger project* that will consist of CO2 capture infrastructure at planned ammonia production facilities and other potential CO2 source points, CO2 compression and pumps, a CO2 pipeline, and sequestration surface facilities. Once the details of the larger sequestration project are finalized, [Moxa Carbon] will request the use of specific federal surface lands through a separate ROW application.[7]

For there to be clear acknowledgement that the Project will expand, combined with the fact that the current Draft EA is so bare-bones that it inhibits true disclosure to the public and decisionmakers, points to the need for a *whole of the Project* review, rather than a possible separate review of surface infrastructure.

BLM is misconstruing the meaning of "reasonably foreseeable future actions," a term defined in regulation as "federal and non-federal activities not yet undertaken, but *sufficiently likely to occur*, that a Responsible Official of ordinary prudence would take such activities into account in reaching a decision."[8] Such activities "must be taken into account in the analysis of cumulative impact[s].[9]" Reasonably foreseeable future actions "do not include those actions that are highly speculative or indefinite."[10] The Draft EA asserts (in direct contradiction to the letter from Moxa quoted above) that the "only actions

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[5] *Id.* (emphasis added).
[6] *See Del. Riverkeeper Network v. FERC*, 753 F.3d 1304, 1313-17 (D.C. Cir. 2014).
[7] Bureau of Land Mgmt., Draft Environmental Assessment: Southwest Wyoming CO2 Sequestration, (DOI-BLM-WY-D090-2023-0010-EA at 4 [hereinafter, "Moxa Draft EA"] (emphasis added).
[8] 40 C.F.R. § 46.30 (2008) (emphasis added).
[9] *Id.*
[10] *Id.*

for the project area which are highly probable are continued livestock grazing, range improvement projects and recreation."[11] That CO_2 occupation of federal pore space will require injection wells and surface infrastructure, however, is also "probable" and is not "highly speculative."

Nor can BLM avoid disclosure and analysis of the Project's impacts by claiming that it "cannot . . . determine at the pore space ROW state whether actual injection operations to use the pore space will eventually be proposed and authorized."[12] Without injection operations there is simply no project. That means BLM must either pause its review of the ROWs or obtain information about the full suite of Project activities from Moxa.

Once BLM obtains information about the whole of the Project, *not only* must BLM analyze the impacts of granting ROWs for CO_2 injection (though the impacts of injecting CO_2 beneath 605,000 acres of federal lands certainly must be addressed); BLM must *also* disclose and analyze the totality of the Moxa Project's activities on the climate, air quality, community and wildlife safety, water, and more.[13] As reiterated throughout this comment, BLM must disclose and analyze information such as the sources of CO_2, how it will arrive at/be injected under federal lands, the composition of the CO_2, etc., as well as impacts from the any CO_2 pipelines (and possibly other CO_2 transport methods), injection wells, etc. To do anything else constitutes unlawful piecemealing.

Last, the "whole of the project" requirement is not just limited to project infrastructure and activities; it also embodies a temporal requirement.[14] Most CO_2 injection projects span decades, in that they propose to inject CO_2 for many years, and then are subject to post-injection site care that can span years.[15] BLM is therefore required to analyze impacts for the lifetime of the injection period, as well as the post-injection site closure period. With these impacts being foreseeably significant, BLM must conduct this analysis within a full EIS.

III. BLM Must Prepare an Environmental Impact Statement

While NEPA analysis of the Moxa Project at this point is premature, should the BLM wish to proceed, it must disclose and evaluate the whole of the Project's activities and impacts in an EIS.

[11] Moxa Draft EA at 8.
[12] *Id.* at 9.
[13] *See* 88 Fed. Reg. at 49,936.
[14] 88 Fed. Reg. 1196-1212 (CEQ recommends "that agencies quantify a proposed action's projected GHG emissions or reductions for the expected lifetime of the action."); *San Juan Citizens All.* v. *Bureau of Land Mgmt.,* 326 F. Supp. 3d 1227, 1244 (D.N.M. 2018).
[15] *See, e.g.*, 40 C.F.R. § 146.85 (1980).

a. An EIS is required under pre-2024 NEPA regulations

Congress requires that federal agencies prepare an EIS when a major federal action has a "reasonably foreseeable significant effect" on the quality of the environment.[16] According to pre-2024 NEPA regulations, the significant effect need only be foreseeable; meaning, any "likely" direct, indirect, or cumulatively significant effect triggers the need for an EIS.[17] Determining "significance" takes into account "the affected area (national, regional, or local) and its resources, such as listed species and designated critical habitat under the Endangered Species Act."[18] For a site-specific action, "significance would usually depend only upon the effects in the local area."[19] In contrast, an EA is appropriate only when an action "[i]s *not likely* to have significant effects *or the significance of the effects is unknown* and is therefore appropriate for an environmental assessment."[20]

Under these regulations BLM erred by preparing only an EA, rather than an EIS, on the whole of the project. There is ample evidence that the Project—which will span over 600,000 acres of federal subsurface land under protected species habitat and foreseeably expand to include surface infrastructure—will impact the environment in significant ways. Injected carbon dioxide (CO_2) waste can be harmful to soils and anything that needs oxygen, including people, wildlife, and plants. BLM's Draft EA treats this CO_2 waste as something benign when in fact, it can be deadly. And the Project's significant impacts are not just one-time effects on the environment; they are also durational. Though the Draft EA errs by not disclosing for how long CO_2 waste will be injected, the Draft EA acknowledges the aim is for "permanent" geologic storage,[21] meaning impacts to wildlife, vegetation, air quality, water features, and human uses are significant and persistent.

b. An EIS is required under the CEQ's updated NEPA regulations

On May 1, 2024, CEQ published its final NEPA regulatory revisions.[22] These new regulations become effective on July 1, 2024.[23] The BLM e-planning site published the Draft EA on that same date.[24] Because the Project's final NEPA review and record of decision will be issued after the effective date of CEQ's updated NEPA regulations, the BLM must apply these new regulations.

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[16] 42 U.S.C. § 4332(2)(C); *id.* § 4336(b)(1).
[17] 40 C.F.R. § 1501.3(a)(3).
[18] *Id.* § 1501.3(b).
[19] *Id.*
[20] *Id.* § 1501.3(a)(2) (emphasis added).
[21] Moxa Draft EA at 1.
[22] 89 FR 35442 (May 1, 2024).
[23] *Id.*
[24] Bureau of Land Mgmt., SW Wyoming Carbon Dioxide Sequestration, https://eplanning.blm.gov/eplanning-ui/project/2023000/510.

The goal of CEQ's revisions was to "to provide for an effective environmental review process; ensure full and fair public engagement; enhance efficiency and regulatory certainty; and promote sound Federal agency decision making that is grounded in science, including consideration of relevant environmental, climate change, and environmental justice effects."[25] CEQ's revised NEPA regulations further support that an EIS—rather than an Environmental Assessment (EA)—is necessary. This is based on CEQ's "context and intensity" factors, which are meant to guide an agency's determination of whether an EIS is warranted. Those factors and how they apply to the Moxa Project are discussed below.

First, it is worth highlighting some of CEQ's changes and why they were made. For example, CEQ restored "Significance determination—context and intensity" to address factors agencies must consider in determining the appropriate level of NEPA review.[26] CEQ noted that "[m]ultiple commenters expressed support for the overall restoration of the context and intensity factors, as well as the proposed expansion of the factors, asserting that doing so aligns with longstanding case law and adds certainty to the process."[27] CEQ further noted that "the concept of intensity and the intensity factors have long provided agencies with guidance in how the intensity of an action's effects may inform the significance determination."[28]

One new factor (though it harkens back to the 1978 regulations) to determine whether an EIS is necessary is "the degree to which the proposed action may adversely affect unique characteristics of the geographic area such as historic or cultural resources, park lands, Tribal sacred sites, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas."[29] CEQ notes that the list is illustrative and agencies "can consider other factors in their determination of significance as appropriate for the proposed action."[30]

CEQ also now directs agencies to consider the potential global, national, regional, and local contexts, which may be relevant depending on the scope of the action.[31] As part of this, CEQ "reconsidered the statement in the 2020 rule that the affected environment, is 'usually' only the local area, 40 C.F.R. 1501.3(b)(1) (2020)."[32] CEQ is now encouraging agencies to consider impacts beyond the local area "because many Federal actions have reasonably foreseeable effects that extend regionally, nationally, or globally."[33]

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[25] 89 Fed. Reg. 35442, 35442 (May 1, 2024).
[26] *Id.* at 35453.
[27] *Id.*
[28] *Id.* at 35465.
[29] *Id.* at 35467.
[30] *Id.*
[31] *Id.* at 35464.
[32] *Id.* at 35465.
[33] *Id.* (noting further that "agencies should determine the appropriate contexts to consider based on the scope of the action and its anticipated reasonably foreseeable effects.").

The table below summarizes some key CEQ revisions and compares the revisions to previous regulatory language.

Issue Area	Previous CEQ NEPA Regulations	2024 CEQ NEPA Revision
EIS Trigger	Any "likely" direct, indirect, or cumulatively significant effect triggers the need for an EIS.[34]	Unchanged.[35]
Determining "significance"	Consider "the affected area (national, regional, or local) and its resources, such as listed species and designated critical habitat under the Endangered Species Act."[36]	Take into account "context and intensity," using "intensity factors" listed below, as applicable to the proposed action and in relationship to one another:[37] (i) The degree to which the action may adversely affect public health and safety. (ii) The degree to which the action may adversely affect unique characteristics of the geographic area such as historic or cultural resources, parks, Tribal sacred sites, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. (iii) Whether the action may violate relevant Federal, State, Tribal, or local laws or other requirements or be inconsistent with Federal, State, Tribal, or local policies designed for the protection of the environment. (iv) The degree to which the potential effects on the human environment are highly uncertain. (v) The degree to which the action may adversely affect resources listed or eligible for listing in the National Register of Historic Places. (vi) The degree to which the action may adversely affect an endangered or threatened

[34] 40 C.F.R. § 1501.3(a)(3). Please note that NEPA regulations cited herein are marked as "revised" when altered by the CEQ's May 1, 2024 NEPA update.
[35] 40 C.F.R. § 1501.3(c)(3) (revised).
[36] 40 C.F.R. § 1501.3(b).
[37] 40 C.F.R. § 1501.3(d)(2) (revised).

		species or its habitat, including habitat that has been determined to be critical under the Endangered Species Act of 1973. (vii) The degree to which the action may adversely affect communities with environmental justice concerns. (viii) The degree to which the action may adversely affect rights of Tribal Nations that have been reserved through treaties, statutes, or Executive Orders.
Significance as it relates to geographic scope	"Significance would usually depend only upon the effects in the local area."[38]	"Agencies should consider the characteristics of the geographic area, such as proximity to unique or sensitive resources or communities with environmental justice concerns. Depending on the scope of the action, agencies should consider the potential global, national, regional, and local contexts as well as the duration, including short-and long-term effects."[39]
EA instead of an EIS	Only when an action "[i]s not likely to have significant effects or the significance of the effects is unknown and is therefore appropriate for an environmental assessment."[40]	Unchanged.[41]

The Moxa Project implicates most (if not all) of these intensity factors in local, regional, national, and global contexts, as explained below, meaning BLM must analyze the Project in an EIS. Further, CEQ instructed agencies when "assessing context and intensity, [to] consider the duration of the effect."[42] The Project will permanently impact over 605,000 acres of federal subsurface lands, and possibly more.[43] BLM's analysis must take

[38] 40 C.F.R. § 1501.3(b).
[39] 40 C.F.R. § 1501.3(d)(1) (revised).
[40] 40 C.F.R. § 1501.3(a)(2).
[41] 40 C.F.R. § 1501.3(c)(2) (revised).
[42] *Id.*
[43] Moxa Draft EA at 1.

the duration of this Project's impacts into account in determining the significance of the action, and then in the EIS itself.

Below are examples of Project effects mapped to the intensity factors. Other intensity factors listed in the revised NEPA regulations but not elaborated on below may still be implicated and must be considered by BLM.

The degree to which the action may adversely affect public health and safety.[44]

CCS projects are inherently unsafe. CCS projects threaten the local environment and public health of communities in areas where CCS is deployed and where CO_2 is injected (and spreads) underground. The capture, compression, transportation, injection, and storage of carbon dioxide pose significant environmental, health, and safety risks that are not adequately assessed or addressed under existing regulations.[45]

CO_2 gas is "odorless, colorless, doesn't burn, is heavier than air, and is an asphyxiant and intoxicant."[46] These properties make CO_2 releases potentially deadly—as well as difficult to observe and avoid.[47] The danger zone of compressed CO_2 leaking is measured in miles, and a CO_2 leak can harm—or even kill—both people and animals.[48] We list examples of compressed CO_2 harming the environment in section IV, *infra*.

In one example, the long-ranging harms of leaking CO_2 became reality in February 2020 when a CO_2 pipeline ruptured in Mississippi and led to the evacuation of hundreds and hospitalization of dozens of residents.[49] People suffered extreme disorientation, unconsciousness, and seizures.[50]

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[44] 40 C.F.R. § 1501.3(d)(2)(i) (revised).
[45] *See, e.g.*, Pipeline Safety Trust, CO2 Pipelines – Dangerous and Under-Regulated (2022), https://pstrust.org/wp-content/uploads/2022/03/CO2-Pipeline-Backgrounder-Final.pdf (citing Accufacts, Inc., Accufacts' Perspectives on the State of Federal Carbon Dioxide Transmission Pipeline Safety Regulations as it Relates to Carbon Capture, Utilization, and Sequestration within the U.S. (2022), https://pstrust.org/wp-content/uploads/2022/03/3-23-22-Final-Accufacts-CO2-Pipeline-Report2.pdf) [hereinafter "PST Report"].
[46] PST Report at 8.
[47] *Id.*
[48] *Id.* at 9-10.
[49] "Pipeline Ruptures in Yazoo County, Dozens Rushed to the Hospital," MISSISSIPPI EMERGENCY MANAGEMENT AGENCY, Feb. 23, 2020, https://www.msema.org/news/pipe-ruptures-in-yazoo-county-dozens-hospitalized/.
[50] Fowler, Sarah, "'Foaming at the mouth': First responders describe scene after pipeline rupture, gas leak," THE CLARION-LEDGER, Feb. 27, 2020, https://www.clarionledger.com/story/news/local/2020/02/27/yazoo-county-pipe-rupture-co-2-gas-leak-first-responders-rescues/4871726002/; Zegart, Dan, "The Gassing of Satartia," HUFFINGTON POST, Aug. 26, 2021, https://www.huffpost.com/entry/gassing-satartia-mississippi-co2-pipeline_n_60ddea9fe4b0ddef8b0ddc8f.

The risks of injected CO_2 leaking also undermines the Project's purported climate benefits. As explained by the UN's Intergovernmental Panel on Climate Change, "CO_2 is denser than air and can therefore accumulate to potentially dangerous concentrations," and "any leak transfers CO_2 to the atmosphere."[51]

BLM must take these risks into account when evaluating the Moxa Project. Even ROWs only for CO_2 occupation of pore space could lead to significant harms to workers, nearby residents, recreationalists, wildlife, and ecosystems. These impacts must be analyzed in an EIS.

> ***The degree to which the action may adversely affect unique characteristics of the geographic area such as historic or cultural resources, parks, Tribal sacred sites, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.***[52]

The Project proposes to permanently impact over 600,000 acres of federal lands that contain numerous special and protected wildlife species and plants, water features, Tribal cultural sites, recreational and historical areas, and more. For example, the Draft EA acknowledges that the Project area "contains sites that have been identified by regional Native American tribes, through agency consultation, as being culturally sensitive due to their sanctity and significance to traditional tribal values."[53] Moreover, the subregion "contains the greatest concentration of cultural resources" in the Kemmerer Field Office.[54] Dismissing the impacts of dangerous CO_2 as having "no potential to affect historic properties" ignores the evidence of CO_2 harms. Instead, there is a high likelihood that the Project may adversely affect Tribal sites, and those impacts warrant an EIS.

There is also a high likelihood the action may adversely affect wildlife and plants. As put bluntly in a headline from the Politico publication E&E News: "Wyoming CO_2 storage project likely to disturb wildlife."[55] For one, the Project area is within greater sage-grouse (GRSG) General Habitat Management Area and Priority Habitat Management Areas (PHMAs), containing 51 active leks.[56] A CO_2 leak could harm, or even kill, the GRSG and other animals. Similarly, for some plants, the Project will underlay vast swaths of their known habitat—such as the Uinta green-thread, where 80% of the plant's habitat occurs

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[51] IPCC, Chapter 4: Transport of CO_2, in Special Report on Carbon Dioxide Capture and Storage (2005), at 188.
[52] 40 C.F.R. § 1501.3(d)(2)(ii) (revised).
[53] Moxa Draft EA at 48.
[54] *Id.*
[55] Anchondo, Carlos, "BLM: Wyoming CO2 storage project likely to disturb wildlife," E&E NEWS, July 8, 2024, https://subscriber.politicopro.com/article/eenews/2024/07/08/blm-wyoming-co2-storage-project-likely-to-disturb-wildlife-00166443.
[56] Moxa Draft EA at 9-10.

within the Project area.[57] As noted in the section below, CO_2 leaks can harm soil microbiomes and even kill plants. An EIS is needed to evaluate these possible impacts.

There is also a strong likelihood that the CO2 injectate may come from an ammonia plant, as indicated in the Draft EA and from the Project developer: "As Moxa Carbon explained in a letter submitting their application to the BLM, the pore space ROW is the 'first step in a larger project that will consist of CO2 capture infrastructure at planned ammonia production facilities . . . .'"[58] As noted in an article about the Project, "Ammonia plants are typically built in remote locations like southwest Wyoming because of inherent dangers. A large release of ammonia would burn the leaves of downwind vegetation."[59] These potentially harmful impacts must be analyzed in an EIS.

The degree to which the potential effects on the human environment are highly uncertain.[60]

The "highly uncertain" factor originated in the 1978 NEPA regulations and is discussed in case law. For example, the Ninth Circuit, in explaining the "highly uncertain" factor, stated:

> An agency must generally prepare an EIS if the environmental effects of a proposed agency action are highly uncertain. Preparation of an EIS is mandated *where uncertainty may be resolved by further collection of data*, or where the collection of such data may prevent "speculation on potential ... effects. The purpose of an EIS is to obviate the need for speculation by insuring that available data are gathered and analyzed prior to the implementation of the proposed action."[61]

There are numerous instances here where the Project's effects are highly uncertain, in that they may be resolved by further data collection. For example, BLM failed entirely to consider the potentially devastating impact of a CO_2 leak on any environmental or human factor. BLM also improperly excluded issue areas—including climate change, cultural/Tribal resources, recreation, vegetation, and soils—from its Draft EA largely because the Draft EA assumes only surface infrastructure has impacts, not dangerous injected waste.[62] BLM must gather data on how the specific plants, animals, and

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[57] *Id.* at 44.
[58] *Id.* at 4.
[59] Maio, Pat, "BLM May Limit Plan For 600,000 Acres Of CO2 Storage For Wyoming Ammonia Plant," COWBOY STATE DAILY, July 10, 2024, https://cowboystatedaily.com/2024/07/10/blm-may-limit-plan-for-600-000-acres-of-co2-storage-for-wyoming-ammonia-plant/.
[60] 40 C.F.R. § 1501.3(d)(2)(iv) (revised).
[61] *Native Ecosystems Council v. U.S. Forest Serv.*, 428 F.3d 1233, 1240 (9th Cir. 2005) (citation omitted) (emphasis added).
[62] *See* Moxa Draft EA, Appendix 1.

environmental features could be impacted by injected CO_2 (leaks, seismicity, water contamination, etc.), as well as the attendant surface infrastructure. The Project's effects on these excluded resources are both foreseeably significant and in need of further data collection.

> ***The degree to which the action may adversely affect an endangered or threatened species or its habitat, including habitat that has been determined to be critical under the Endangered Species Act of 1973.***[63]

The Draft EA identifies at least three federally protected species that could be impacted by the Project: Canada lynx (*Lynx canadensis*), yellow-billed cuckoo (*Cuccyzus americanus*), and the Ute ladies'-tresses (*Spiranthes diluvialis*).[64] There are also numerous species of special concern, such as the GRSG (*Centrocercus urophasianus*).[65] Because CO_2 waste can be harmful or even deadly to animals, see section IV, infra, the Project has a high degree to which it may adversely affect endangered or other protected species, thus warranting an EIS.

IV. Comments on Environmental and Local Impacts

BLM's NEPA analysis must disclose and analyze the direct, indirect, and cumulative impacts of the whole of the Project. The "whole of the project" includes impacts from the lifecycle of the carbon capture, transport, storage, injection, and post-injection activities.

In 2022, the U.S. EPA submitted a comment to BLM on the Shute Creek 5-2 Disposal Well Pad and Pipeline ROW application for CO_2 injection ("EPA Letter," included with our references). It is appropriate for BLM to consider the recommendations in EPA's letter here because of the projects' similarities. For example, both projects are seeking ROWs to facilitate the applicant's underground injection of CO_2 in Wyoming. We have incorporated excerpts of EPA's Shute Creek recommendations into our comments below, but our incorporation does not comprehensively address all of EPA's previous concerns and suggestions.

A. CO_2 Source/Composition, Transport, Injection and Storage

Moxa aims to inject captured and compressed CO_2 waste under over a half-million federal acres. There are immense risks associated with CO_2 capture, transport, injection, and storage. BLM cannot move this Project forward until it obtains information about these Project activities, including where Moxa plans to source its CO_2, how that CO_2 will be transported, the CO_2 injection volume (and duration), CO_2 composition, injection depth, CO_2 plume behavior, leak monitoring plans, and more. As explained elsewhere in this

[63] 40 C.F.R. § 1501.3(d)(2)(vi) (revised).
[64] Moxa Draft EA at 32-34.
[65] *Id.* at 9.

comment, CO_2 leaks—whether from a pipeline or geologic storage—pose a potential hazard for people, wildlife, and plants.

Should the Project employ CO_2 pipelines, the EIS must analyze those as well. This is because CO_2 pipelines are, in the words of the preeminent national organization that addresses pipeline safety, "dangerous" and "under-regulated."[66] CO_2 pipelines are also more prone to ductile, or "zipper," fractures, than hazardous liquids or natural gas pipelines.[67] These fractures can throw tons of pipe, pipe shrapnel, and ground covering, generating large craters along the failed pipeline.[68] Federal regulations do *not* contain any detailed requirements that specifically identify how to address fracture propagation threats.[69]

BLM's NEPA analysis must consider and account for the fact that any amount of free water in a CO_2 stream leads to the formation of carbonic acid, which has "a ferocious appetite for carbon steel."[70] If a CO_2 pipeline is not made from sufficiently tough steel, it will be susceptible to zipper factures.[71] Existing natural gas pipelines may not have sufficiently tough steel to stop these types of fractures.[72] Existing natural gas pipelines may also include components that may be dissolved by CO_2 and result in leaks, ruptures, and damage to pipeline equipment.[73]

BLM must not move the Project review and approvals forward until more is known about where Moxa plans to source its CO_2 waste. Sources of CO_2 can vary widely, and the composition of CO_2 can therefore vary. The sources and composition are important data for BLM to disclose because that information impacts how CO_2 may behave in pipelines and once injected.[74] As explained by the Pipeline Safety Trust:

> The types and amounts of impurities in a CO_2 pipeline is largely driven by the source of CO_2, and proper operation of associated upstream treatment equipment to assure the material meets pipeline quality specifications, which is not always assured. . . . [H]igher impurity concentrations, such as impurities measured in percentage concentrations should not be ignored as they can

[66] PST Report at 7-9, 11.
[67] *Id.* at 6.
[68] *Id.*
[69] *Id.*
[70] *Id.* at 11.
[71] Blackburn, Paul, "Risks of Converting Natural Gas Pipelines to CO2 Service," PIPELINE FIGHTERS HUB , Mar. 24, 2022, https://pipelinefighters.org/news/risks-of-converting-natural-gas-pipelines-to-co2-service/#:~:text=Existing%20natural%20gas%20pipelines%20may,%2C%20gaskets%2C%20valves%20and%20lubricants.
[72] *Id.*
[73] *Id.*
[74] PST Report at 10.

> impact the critical pressure, but more importantly the critical temperature, such that even a percent or two change in impurity levels can result in unexpected phase change from dense phase fluid to other phases.[75]

Federal regulations recognize the importance of knowing the source of CO_2 and require that the owner or operator of a proposed Class VI well "shall submit" data on "*the source(s) of the carbon dioxide stream*" and "an analysis of the chemical and physical characteristics of the [CO_2] stream."[76] This is required, in part, because injected CO_2 can contaminate groundwater. BLM must therefore either seek out this information the State of Wyoming, which administers Class VI permitting for the state, or obtain it from the project operator. Simply waiting for information about the sources of the CO_2 to come to light in Wyoming's permitting process is insufficient for meeting BLM's disclosure and analysis requirements under NEPA.

B. Climate Change

Though the Moxa Draft EA declines to consider the Project's impacts on climate change and greenhouse gases (GHGs), this decision fails to take into account both 1) that CCS is pitched as a climate solution, when in fact it is ineffective and ca lead to its own climate harms; and 2) the whole of the project, including carbon waste generation, capture, transport, and injection—all of which are GHG-intensive activities. BLM must obtain more information from Moxa about these two issue areas and analyze their climate change-related impacts in an EIR before moving the Project forward.

NEPA requires a robust consideration of the impacts of a project's GHG emissions in terms of its relationship to climate change.[77] Thus, although some "speculation is . . . implicit in NEPA," agencies may not "shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as crystal ball inquiry."[78] In its Phase II rulemaking, CEQ reiterated that the NEPA process should "inform the public about the potential environmental effects of Federal Government actions and enable full and fair public participation; and ultimately promote better informed Federal decisions that protect and enhance the quality of the human environment, including by ensuring climate

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[75] *Id.* at 11.
[76] 40 C.F.R. § 146.82(a)(7) (2010) (emphasis added).
[77] 88 Fed. Reg. 1196-1212 (Jan 9, 2023); *San Juan Citizens All.* v. *Bureau of Land Mgmt.,* 326 F. Supp. 3d 1227, 1241–44 (D.N.M. 2018) ("[I]t is erroneous to fail to consider, at the earliest stage feasible, the environmental consequences of the downstream combustion of the coal, oil, and gas resources potentially open to development, . . . This error also requires that BLM reanalyze the potential impact of such greenhouse gases on climate change in light of the recalculated amount of emissions in order to comply with NEPA.") (internal quotations omitted.).
[78] *N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1079 (9th Cir. 2011) (citation omitted).

change, environmental justice, and other environmental issues are fully accounted for in agencies' decision-making processes."[79]

CCS is not a necessary or appropriate approach to addressing the climate crisis. After billions of dollars of investment and decades of development, deployment of CCS has consistently proven to be ineffective, uneconomic, and unnecessary. CCS projects around the world have failed to meet their GHG emission reduction promises and have harmed people and the environment.[80]

These real-world failures of CCS projects don't even take into account the *lifecycle* emissions of CCS projects.[81] A Stanford study calculated the lifecycle emissions associated with CCS projects used with energy production from fossil fuels and found that "the equipment captured the equivalent of only 10-11 percent of the emissions they produced, averaged over 20 years."[82] This research also considered the social cost of carbon capture—in other words, the resulting air pollution, potential health problems, economic costs and overall contributions to climate change—and concluded that these costs are similar to or higher than a fossil fuel plant *without* carbon capture, meaning "it is always better to use the renewable electricity instead to replace coal or natural gas electricity or to do nothing."[83] Similarly, the Institute for Energy Economics and Financial Analysis ("IEEFA") concluded that the energy required to capture, transport, and inject carbon underground "materially reduces its net benefit."[84] For example, coal-fired power plants with carbon capture have an energy penalty of 25% or more, with the efficiency penalty as high as 15%.[85] These "penalties" mean more fuel has to be burned to produce

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[79] 88 Fed. Reg. 49,924, 49,928 (July 31, 2023).
[80] Schlissel, David, "Reality of carbon capture not even close to proponents' wishful thinking," IEFFA, Aug. 8, 2019, https://ieefa.org/reality-of-carbon-capture-not-even-close-to-proponents-wishful-thinking/.
[81] *See, e.g. c.f.*, 88 Fed. Reg. at 49,935 ("For example, leases for oil and gas extraction or natural gas pipelines have local effects, but also have reasonably foreseeable global indirect and cumulative effects related to GHG emissions."). Similarly to leases for oil and gas extraction or natural gas pipelines, permitting use of federal pore space for CCS likewise has reasonable foreseeable GHG emissions impacts which must be evaluated under NEPA.
[82] Kubota, Taylor, "Stanford Study casts Doubt on Carbon Capture," STANFORD REPORT, Oct. 25, 2019, https://news.stanford.edu/2019/10/25/study-casts-doubt-carbon-capture/, citing Jacobson, Mark Z., The health and climate impacts of carbon capture and direct air capture, 12 Energy Envt. Sci. 3567 (2019), https://pubs.rsc.org/en/content/articlelanding/2019/ee/c9ee02709b/unauth#!divAbstract [hereinafter, "Stanford Report Summary"].
[83] *Id.* (noting that the social cost of coal with carbon capture powered by natural gas was about 24 percent higher, over 20 years, than the coal without carbon capture, and only when wind replaced the fossil fuel did the social cost decrease).
[84] Butler, Clark, Carbon Capture and Storage Is About Reputation, Not Economics, IEFFA (2020) at 4, https://ieefa.org/wp-content/uploads/2020/07/CCS-Is-About-Reputation-Not-Economics_July-2020.pdf.
[85] Climate Action Network, Position: Carbon Capture, Storage, and Utilization (2021), https://climatenetwork.org/resource/can-position-carbon-capture-storage-and-utilisation/ at 9.

the same amount of power, which means higher energy costs, greater emissions of non-CO_2 air pollutants, and increased demand on the grid.[86] And any CO_2 that is stored underground risks leakage back to the atmosphere, based on the long track record of fossil fuel industry leaks and spills.[87]

The federal Environmental Protection Agency (EPA), commenting on a similar CO_2 sequestration project for federal lands in Wyoming, wrote: BLM should "quantify[] the GHG emissions associated with such activities."[88] One potential tool BLM might use to describe some of the impacts of the project would be the Social Cost of Greenhouse Gases ("SC-GHG"). EPA recommended that BLM "give specific information regarding the social estimate related to individual gases."[89] EPA also recommended that BLM analyze how changes in GHG emissions associated with the project might "help or hinder meeting GHG reduction targets set at the federal, state, and local level."[90] BLM must also analyze all of the energy and associated emissions required to capture, compress, transport, and inject the Project's CO_2.

C. Air Pollution

The Moxa Draft EA purposefully—and erroneously—excludes a discussion on the Project's impacts on air quality.[91] BLM must analyze the Project's impacts on air quality, including from the CCS operations that will lead to the CO_2 being injected under BLM lands.

Carbon capture and injection operations can result in the emission of harmful air pollutants such as fine particulate matter, ammonia, and hazardous volatile organic compounds.[92] And because CCS enables the underlying emissions-generating activity (such as fossil fuel power generation) to continue, upstream and downstream impacts from activities such as fossil fuel extraction, refining, transport, use, and disposal will continue to harm people's health.[93] A recent study confirmed that the lifecycle pollution and social harms from CCS fossil fuel-fired powerplants result in more harm than good.

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[86] *Id.*
[87] The myth of permanent carbon sequestration is echoed in regulations that merely kick the climate problem down the road and onto future generations. Under EPA's regulations for Class VI injection wells for CO_2, for example, a permit applicant need only show that they can store CO_2 for 50 years in order to qualify for subsidies. 40 C.F.R. § 146.93 (2010).
[88] EPA Letter at 6.
[89] *Id.* at 7.
[90] *Id.*
[91] Moxa Draft EA, Appendix 1.
[92] *See* Stanford Report Summary.
[93] CIEL, Confronting the Myth of Carbon-Free Fossil Fuels: Why Carbon Capture is Not a Climate Solution (2021) at 7, https://www.ciel.org/wp-content/uploads/2021/07/Confronting-the-Myth-of-Carbon-Free-Fossil-Fuels.pdf (citing, for example, a Harvard study finding that fine particulate matter emitted with fossil fuel burning is responsible for millions of deaths worldwide).

The researchers examined the net CO_2 reduction and total lifecycle cost of carbon capture from a coal plus CCS power plant, and a plant that removes carbon directly from the air.[94] They "account[ed] for the electricity needed to run the carbon capture equipment, the combustion and upstream emissions resulting from that electricity, and, in the case of the coal plant, its upstream emissions," with the upstream component including leaks and combustion, mining, and fuel transportation, and found that CCS "reduces only a small fraction of carbon emissions, and it usually increases air pollution."[95] Because of the lifecycle pollution and the harms arising from that, the study authors recommended replacing fossil fuels with renewables such as wind or solar rather than encouraging and investing in CCS.[96]

BLM must analyze both the existing state of air quality in the affected region as well as the likely impacts that the Project, as a whole, would have on local air quality. BLM should also follow EPA's recommendation on a similar CO_2 project on BLM lands in Wyoming by disclosing "the potential for elevated pollutant concentrations during drilling and completion of the well and construction of the pipeline."[97]

D. Water Resources

The Draft EA does not adequately disclose and analyze the water features of the Project Area and the foreseeable impacts from Project activities.

On the issue of riparian areas and wetlands, the Draft EA acknowledges vaguely that "[s]urface and subsurface disturbances can affect the flow of surface and groundwater upon which riparian areas are dependent."[98] This statement is so general as to be almost meaningless. What specific surface and groundwater features might be impacted by the Moxa Project? How could CO_2 waste injected into rock layers impact groundwater integrity and recharge? What might CO_2 leaks to the surface do to water features? How could injection wells, pipelines, and other CCS surface infrastructure impact the specific water features and hydrology of the Project area? BLM needs to address these, and other, questions, with specificity. Merely saying then that RMP guidelines "reduce and minimize" impacts is insufficient, particularly given that the applicable RMPs do not address CO_2 injection and storage, or related CCS activities. See section V, *infra*.

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[94] *See* Stanford Report Summary.
[95] *Id.* (emphasis added).
[96] *Id.* ("There is a lot of reliance on carbon capture in theoretical modeling, and by focusing on that as even a possibility, that diverts resources away from real solutions. It gives people hope that you can keep fossil fuel power plants alive. It delays action. In fact, carbon capture and direct air capture are always opportunity costs.").
[97] EPA Letter at 4.
[98] Moxa Draft EA at 35.

Because of the Project area's semi-arid location (making water features scarce but important), BLM should disclose and analyze the potential impacts on intermittent streams and ephemeral drainages. EPA urged this analysis this in its comment on Shute Creek 5-2 Disposal Well Pad and Pipeline carbon injection, noting that these watercourses "provide key ecological and hydrological functions by moving water, nutrients, and sediment throughout the watershed."[99] BLM should study the potential for the project to interrupt or destroy the capacity for these watercourses to function properly by providing "landscape hydrologic connections; stream energy dissipation during high-water flows to reduce erosion and improve water quality; surface and subsurface water storage and exchange; groundwater recharge and discharge; sediment transport, storage, and deposition to aid in floodplain maintenance and development; nutrient storage and cycling; wildlife habitat and migration corridors; support for vegetation communities to help stabilize stream banks and provide wildlife services; and water supply and water-quality filtering."[100] These considerations are especially relevant when a project proposes significant excavation since the movement of sediment can risk negatively impacting drainage patterns.

The Draft EA must also consider ephemeral or intermittent water bodies. BLM must also propose enforceable protections, such as distances that vehicles, pipelines, and injection wells will stay from the outer edge of riparian areas, wet areas, and drainages.

Finally, while BLM is correct that the State of Wyoming issues Class VI injection permits,[101] that fact does not relieve BLM of its "hard look" obligation under NEPA to analyze how injected CO_2 could impact water quality.[102] One of the risks of CO_2 injection and storage "is the leakage of injected CO_2 into overlying groundwater resources, resulting in potential deterioration of the quality of the groundwater due to the increase in acidity, the release of trace metals and organic compounds, and potential changes in microbial activities."[103] The ROW is for use of federal pore space, which includes subsurface water features. BLM therefore has an obligation to analyze the Project's impacts on water quality.

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[99] EPA Letter at 5.
[100] *Id.* at 5-6.
[101] Moxa Draft EA at 9.
[102] *Id.*
[103] Zheng, Liange et al., Potential impacts of CO2 leakage on groundwater quality of overlying aquifer at geological carbon sequestration sites: A review and a proposed assessment procedure, GHG Sci. and Tech (2021), https://escholarship.org/content/qt4rh4f9t3/qt4rh4f9t3_noSplash_745ce748c5cc8740a8e1881696052119.pdf?t=raxxb4.

E. Wildlife, Plants, and Habitats

Under NEPA, BLM must evaluate potential impacts of the whole of the Project on wildlife, plants, and habitats in the project area.[104] This includes species listed under the Endangered Species Act (ESA), as well as those that are not listed. Additionally, where listed species or designated critical habitat may be affected by the proposed project to be permitted, licensed or otherwise authorized by BLM, the agency must consult with the USFWS on impacts of the proposed project to protected species and habitat under the ESA.[105] Notably, the Project area includes numerous listed species as well as non-listed species, such as the GRSG and the pygmy rabbit.[106]

BLM's Draft EA does not satisfy NEPA's "hard look" requirement. Because of its erroneous interpretation of its obligation to evaluate reasonably foreseeable future actions, *see* section II, *supra*, BLM decided to disclose only the "general effects and potential mitigation that could be applied . . . acknowledging that actual injection operations (if proposed and authorized) would result in potential effects" on wildlife.[107]

Even if BLM were to only analyze the impacts of CO_2 injection on biological resources (which as mentioned earlier, we contend would be an error), BLM must take into account the well-documented threats large quantities of CO_2 pose to wildlife and plants, such as:

- In 1986, a sudden, catastrophic release of CO_2 from Lake Nyos in Cameroon killed 1,700 people and 3,000 cattle. The CO_2 spread 10 km from the lake. Bird, insect, and small mammal populations in the area were not seen for at least 48 hours after the event.[108]
- Experiments with controlled injections of CO_2 into soil showed adverse effects on plants in response to CO_2 exposure. Biomass changes were seen in all plants studied; for example, clover plants decreased by 79% while grass decreased by 42%. The researchers' overarching conclusion was that elevated concentrations of soil CO_2 damages both soil microbiology and growing vegetation.[109]
- Other research on CO_2 and plants showed reduced plant growth and extensive mortality at the point with CO_2 concentrations were greatest in the soil. For the plants that survived, root and shoot growth was significantly lower than in controls.

[104] 40 C.F.R. § 1501.3(d)(2)(viii) (2024).
[105] 16 U.S.C. § 1536.
[106] Moxa Draft EA at 8-34.
[107] *Id.* at 8.
[108] Kling, G.W. et al., The 1986 Lake Nyos Gas Disaster in Cameroon, West Africa, 236 Science 169 (1987).
[109] Smith, K.L. et al., Environmental impacts of CO2 leakage: recent results from the ASGARD facility, UK, 37 Energy Procedia 791 (2013).

> Reproductive variables such as number of seeds per plant and seed dry weight per plant were also reduced compared to controls. [110]

Further, the Project area includes numerous burrowing species, such as white-tailed prairie dogs, Idaho pocket gophers, and pygmy rabbits. Permitting CO_2 occupation of subsurface pore space could adversely impact these species. BLM must analyze these impacts.

But BLM is not permitted to cabin its analysis of impacts only to CO_2 injection. Instead, BLM must analyze impacts on species from activities such as Project construction, noise, light pollution, traffic, and ongoing CO_2 injection and monitoring activities.

Additionally, BLM must fully disclose and analyze the whole of the Project's impacts on species that are federally listed: the Canada lynx, yellow-billed cuckoo, and Ute Ladies'-tresses.[111] BLM notes that there are six designated critical habitat areas for the Canada lynx, known as Lynx Analysis Units (LAUs), along the southern border of the Project area.[112] Also, the Project area is within the area of influence (AOI) of the yellow-billed cuckoo and Ute Ladies'-tresses.[113] For each species, BLM concludes in the EA that "[p]otential impacts … include loss of habitat or displacement from construction activities."[114] BLM's description of potential impacts on habitat is not sufficiently specific. Without greater specificity, the public cannot assess whether mitigation strategies in programmatic biological evaluations will result in effective habitat conservation and prevent take.

BLM must also fully disclose and analyze the Project's impacts on species that are not listed, such as the GRSG and pygmy rabbit. As we explain later in this comment, BLM fails to analyze the Project's impacts on the GRSG and pygmy rabbit in a way that violates the RMP and NEPA.

Greater sage-grouse

The Project area occurs within the Wyoming GRSG Priority Habitat Management Area (PHMA).[115] The EA projects there to be as many as 51 leks within the project and a total of 340,790 acres of PHMA occur within the project area.[116] BLM ultimately concludes

[110] Al-Traboulsi et al., Potential impact of CO2 leakage from carbon capture and storage (CCS) systems on growth and yield in spring field bean, 80 Environ. Exper. Botany 43 (2012).
[111] Moxa Draft EA at 32-35.
[112] *Id.* at 32.
[113] *Id.* at 33-34.
[114] *Id.* at 32-35.
[115] *Id.* at 10.
[116] *Id.*

that "[a]ny development associated with the project would adversely impact nesting habitat, both through direct loss and avoidance of the area by Greater Sage-grouse."[117] Indeed, research has shown that leks in close proximity to oil and gas infrastructure and powerlines have fewer males and significantly lower growth rates then less disturbed leks.[118] In BLM's own words, "managing for healthy and resilient sagebrush habitat is considered essential to the long-term health of GRSG populations that continue to experience pressure from a variety of factors, including invasive grasses, wildfire, drought exacerbated by climate change, and development."[119] In light of this, the prudent choice for BLM would be to deny the requested ROW applications. If, however, BLM decides to consider granting them, BLM must consider various design features which would minimize the effect of these ROWs. For example, BLM should explore strategies to ensure that the species retains extensive sagebrush landscapes capable of supporting a robust population during all seasons and to protect vital breeding habitats. These strategies could include buffers,[120] a surface-disturbance cap,[121] seasonal restrictions,[122] and noise restrictions.[123]

[117] *Id.*

[118] Braun, Clait E. et al., Oil and Gas Development in Western North America: Effects on Sagebrush Steppe Avifauna with Particular Emphasis on Sage-grouse, Transactions of the North American Wildlife and Natural Resources Conference (2002), at 10-11.

[119] Bureau of Land Mgmt., Greater Sage-Grouse Planning: Update Newsletter (2023) at 3.

[120] The NTT (2011) report recommends a 4-mile lek buffer for siting industrial development in sage grouse habitat. Sage-grouse National Technical Team (NTT), A Report on National Greater Sage-grouse Conservation Measures (2011); Aldridge and Boyce (2007) suggested that even larger buffers (10 km) are warranted. Aldridge, C. L. et al., Linking occurrence and fitness to persistence: Habitat-based approach for endangered greater sage-grouse, 17(2) Ecological Applications 508 (2007); The bi-state forest plan amendment adopted a 4-mile buffer around leks. Bureau of Land Mgmt., Record of Decision for the Rocky Mountain Region, Including the Greater Sage-grouse Sub-Regions (2015) at 5.

[121] See High Country Conservation Advocates (HCCA) et al., Comments on the Draft Revised Land Management Plan and Draft Environmental Statement for the Grand Mesa, Uncompahgre, and Gunnison National Forests (2021) at 136.

[122] HCCA et al. (2021) at 105-07, 109, 111, 115, 119-20, 123, 125, 129-30. The need for such restrictions is reinforced by the findings in Denbury Carbon Solutions, LLC, Plan of Development: Snowy River CO2 Sequestration Project, Appendix N – Winter Habitats Survey (2023), which demonstrates how prevalent the species is within the project area during winter.

[123] Olnes, Justin et al., Sagebrush Soundscapes and the Effects of Gas-Field Sounds on Greater Sage-Grouse, 52 Western Birds (2021) at 23, doi: 10.21199/WB52.1.2.

Pygmy rabbit

Pygmy rabbits require intact sagebrush for virtually all their winter diet and for cover from predators.[124] They also need areas with deep soil to construct burrows where they shelter from predators and safeguard their babies.[125] The Draft EA notes that the Wyoming Natural Diversity Database (WYNDD) places approximately 918,465 acres of pygmy rabbit habitat within the Project boundary.[126] The Draft EA confirms that the species has been observed throughout the Project area and mapped burrows are concentrated in the northern portion of the project area.[127]

BLM failed, however, to sufficiently analyze the Project's impacts to the pygmy rabbit and propose possible mitigations. At most, BLM concludes that "any construction of infrastructure would result in direct loss of habitat or burrows" and "noise and human disturbance" could cause displacement.[128] BLM contends that pre-construction surveys can be conducted to avoid surface disturbing activities in occupied pygmy rabbit habitats.[129]

However, avoiding only "occupied" pygmy rabbit habitat (based on undefined surveys) seems implausible given the vast amount of habitat in the Project area. Moreover, this mitigation ignores the impacts that injected CO_2 (including leaks) could have on this ground-dwelling species.

The Project may also fragment habitat. One of the largest concerns for pygmy rabbits is loss of habitat and subsequent habitat fragmentation.[130] Research has demonstrated a clear negative relationship among development density of gas field infrastructure and pygmy rabbits, with impacts extending far beyond the physical disturbance footprint.[131] Pygmy rabbits are particularly vulnerable to habitat fragmentation because the rabbits are hesitant to cross open habitats or areas with sparse shrub cover,

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[124] Center for Biological Diversity, Pygmy Rabbit One Step Closer to Endangered Species Act Protection, Press Release (Jan. 24, 2024), https://biologicaldiversity.org/w/news/press-releases/pygmy-rabbit-one-step-closer-to-endangered-species-act-protection-2024-01-24/.
[125] *Id.*
[126] Moxa Draft EA at 20.
[127] *Id.*
[128] *Id.*
[129] *Id.*
[130] Jones, Allison, Rulemaking Petition to List the Pygmy Rabbit (*Brachylagus idahoensis*) under the Endangered Species Act as an Endangered or Threatened Species and to Concurrently Designate Critical Habitat (2023), https://westernwatersheds.org/wp-content/uploads/2023/03/FINAL-030623-Pygmy-Rabbit-ESA-listing-petition-WWP-v2.pdf at 23 [hereinafter, "Pygmy Rabbit Petition"].
[131] Germaine, Steven S. et al., Distance effects of gas field infrastructure on pygmy rabbits in southwestern Wyoming, 11 Ecosphere 1 (2020), doi: 10.1002/ecs2.3230.

significantly limiting dispersal capabilities.[132] BLM must provide additional detail about the extent of fragmentation caused by Project activities and should consider strategies to maintain habitat connectivity.

Existing and future oil and gas development poses a considerable threat to pygmy rabbit populations, especially in Wyoming, which represents a significant portion of the species range.[133] While the Moxa Project is not likely an oil and gas project, its known and likely activities—roads, night lighting, injection wells, injection into the subsurface, chemical storage, pipelines, etc.—are similar. Research shows that gas field infrastructure—specifically buried utility corridors and a complex of gas well pads, adjacent disturbed areas, and well pad access roads—were negatively correlated with pygmy rabbit presence.[134] Studies concluded that pygmy rabbits in southwestern Wyoming may be sensitive to gas field development at levels similar to those observed for GRSG, and may suffer local population declines at lower levels of development than are allowed in existing plans and policies designed to conserve GRSG by limiting the surface footprint of energy development.[135] Other studies show consistent results demonstrating higher pygmy rabbit extinction rates in oil and gas development zones compared to the undisturbed reference areas, demonstrating that fossil fuel development is "deleterious to viable pygmy rabbit populations."[136] BLM cannot ignore this evidence when evaluating the pore-space occupation ROWs and the whole of the Project's impacts.

BLM must also consider that the USFWS is considering affording the pygmy rabbit protection under the ESA in response to petition submitted by conservation groups.[137] It the decision, the USFWS found that protecting the pygmy rabbit as threatened or endangered throughout its entire range may be warranted.[138] The Draft EA fails to mention the petition and the implications of possible ESA protection for the species.

Finally, the Wyoming Natural Heritage Program (Wyoming Natural Diversity Database) has assigned the State's pygmy rabbit population with a Status of S2, or

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[132] Keinath, Douglas A. et al, Species Assessment For Pygmy Rabbit (Brachylagus Idahoensis) in Wyoming (2004) at 11, https://www.uwyo.edu/wyndd/_files/docs/reports/speciesassessments/pygmyrabbit-mar2004.pdf.
[133] Pygmy Rabbit Petition at 44.
[134] *Id.* at 45.
[135] *Id.* at 46.
[136] *Id.*
[137] Center for Biological Diversity, Pygmy Rabbit One Step Closer to Endangered Species Act Protection, Press Release (Jan. 24, 2024), *available at* https://biologicaldiversity.org/w/news/press-releases/pygmy-rabbit-one-step-closer-to-endangered-species-act-protection-2024-01-24/.
[138] *Id.*

"Imperiled."[139] The Draft EA does not acknowledge this fact nor account for its significance, and must do so.

Other species

BLM also did not sufficiently analyze impacts to raptors, bats, and migratory birds. Like the agency's analyses of potential impacts to the GRSG and pygmy rabbit, BLM's analyses of impacts to raptors, bats, and migratory birds lack sufficient detail. The agency merely contends that construction activities would "impact foraging areas and habitat" and that resulting infrastructure could lead to "direct and indirect mortalities" to sensitive bats.[140] Additionally, BLM only states that "direct impacts to migratory birds would occur throughout the entire project area if surface disturbing activities were to occur via removal of habitat and noise disturbance from development activities."[141] BLM must provide far more detail about the severity of disturbances and extent of harm. Additionally, studies have shown that birds and bats can be harmed by wastes associated with deep-well injection activities.[142] BLM should clarify whether construction activities or project operations could result in wastes detrimental to the health of raptors, bats, and migratory birds.

Climate change impacts to species

Finally, in so far as this Project facilitates increased consumption of fossil-fuels and thereby worsens the climate crisis, BLM should consider the ways that global warming will degrade the habitat in the Project area.[143] For example, since the survival of the GRSG depends in large part on the preservation and persistence of wide-open sagebrush plains that are increasingly threatened by climate change, wildfires and the spread of invasive plants, BLM must evaluate how the proposed Project would affect species' survival.

The project's impacts to priority habitat for this federally protected, imperiled species warrant thorough consideration in a full EIS. We explain in section V, *infra*, how the proposed mitigation measures are not supported by evidence and violates the Green River RMP.

[139] Pygmy Rabbit Petition at 14.
[140] Moxa Draft EA at 23-24.
[141] *Id.* at 25.
[142] Lester, Stephen et al., Deep Well Injection: an Explosive Issue, Center for Health, Environment & Justice (2009) at 34.
[143] For example, BLM's own 2021 GRSG Amendments cite the necessity of ensuring that its policies "be durable in light of the rapid effects of climate change." 2021 Greater Sage-grouse Land Use Plan Amendments, DOI-BLM-WO-2300-2022-0001-RMP-EIS.

F. Seismicity

CO_2 injection can be impacted by seismic events and itself induce seismicity. Without explanation, the Moxa Draft EA fails to even mention this important topic. This is an error.

Induced seismicity occurs when a new or pre-existing fault moves as a result of anthropogenic activities. Seismicity can be a result of increased shear stress, increased pore pressure, or decreased normal stress. One direct way to induce seismicity is through pore pressure increase from fluid injection, as there becomes an additional volume requirement in the defined space of a reservoir.[144] This increase in pore pressure can reduce the effective normal stress, then having the potential to trigger fault failure and generate earthquakes. Injection can also lead to expansion of the reservoir, thus altering the stress field in the surrounding rocks, opening the door for a fault slip beyond the reservoir itself.[145] Following the initial slip of a fault, further changes in stress due to displacement along the fault can trigger seismic events. Additional concerns surrounding induced seismicity at carbon storage sites include the possible leakage of CO_2 through compromised seal integrities following minor injection-induced seismicity ("IIS") events.[146] Even small earthquakes can create fractures in the upper cap rock or re-activate existing faults. Concerning leakage, storage locations in deeper formations have been thought to be a more ideal location due to the larger distance that leaked CO_2 would have to travel prior to reaching the surface. However, studies have suggested that deeper formations may pose a higher risk of IIS if they are connected hydraulically to the crystalline basement, which is often critically stressed.[147]

In addition to modelling possible IIS events from injection of CO_2 in the future, there are also several cases in the literature of induced seismicity from past CCS projects. Between 2004 and 2011, over 3.8 million tons of CO_2 were injected into the water in a natural gas reservoir at In Salah. The reservoir had relatively low porosity and permeability, so injection resulted in significant pore pressure increases, thus leading to significant geo-mechanical deformation over the course of injection.[148] From this CCS project, P- and S-waves for over 6,000 events between August 2009 and June 2011 were identified, with the

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[144] Verdon, J. P. et. al., Carbon capture and storage, geomechanics and induced seismic activity, 8 J. of Rock Mechanics and Geotechnical Engineering 928 (2016), doi: 10.1016/j.jrmge.2016.06.004.
[145] *Id.*
[146] Zoback, Mark D., Earthquake triggering and large-scale geologic storage of carbon dioxide, Proceedings of the National Academy of Sciences, 109 (2012), https://www.pnas.org/doi/epdf/10.1073/pnas.1202473109.
[147] *See* Verdon (2016), *supra*.
[148] Onuma, Takumi et al.,, Detection of surface deformation related with CO2 injection by DInSAR and In Salah, Algeria, 1 Energy Procedia 217 (2009), https://doi.org/10.1016/j.egypro.2009.01.283.

largest event having a magnitude of 1.7.[149] This project was eventually terminated over concerns of seal integrity.

A CCS project in Decatur, Illinois was another case where injection was followed by seismic events near injection wells. Roughly 180 earthquakes with magnitudes up to M1.26 occurred during about a two-year span, near and at the approximate depth of CO_2 injection.[150] In this instance, despite the number of earthquakes, it was determined that there was little hazard posed to the formation given the size and locations of the earthquakes.[151] Another instance of seismicity believed to be induced by injection of CO_2 was at the Cogdell Oilfield. Injection at the Cogdell Oilfield began in 2001, and over the five years following, 18 events over M3.0 were observed and one over M4.0.[152] The Cogdell Oilfield is a subsurface limestone reef mound and there are no nearby mapped faults.[153]

While the potential maximum magnitudes of future IIS events remain unknown, the risk of small and potentially large earthquakes remains a concern that must be addressed in any NEPA review. Risk assessment will be a critical component for safely establishing CCS projects and should include the installation of a microseismic array as well as forecasting of reservoir response to the anticipated pressure changes.[154] Induced seismicity forecasts should incorporate site specific observations related to stress conditions, rock integrity, as well as location and properties of all existing, mapped faults.[155] This information can then be built into models designed for each specific site. It is important to acknowledge that small or blind faults, which cannot be detected easily, might result in an induced seismic event or act as a pathway for CO_2 leakage.[156]

As EPA recommended in its comment on a similar Wyoming BLM CO_2 injection project, BLM should consider the risk that the target sequestration formation may not be able to "accommodate the volume of injectate and injection pressures without risk of induced seismicity, and without compromising the sequestration of injectate."[157] At this stage, BLM should also determine not just the volume of formations suitable for storage, but also the maximum amount that can be safely stored over time and the maximum safe

[149] Stork, Anna L. et al., The microseismic response at the In Salah Carbon capture and storage (CCS) site, 32 International Journal of Greenhouse Gas Control 159 (2015), doi: 10.1016/j.ijggc.2014.11.01.
[150] Foulger, G. R. et al., Global review of human-induced earthquakes, 178 Earth-Science Reviews 438 (2018), doi: 10.1016/j.earscirev.2017.07.008.
[151] *Id*.
[152] *Id*.
[153] *Id*.
[154] Nicol, Andy et al., Induced seismicity; observations, risks and mitigation measures at CO2 storage sites, 37 Energy Procedia 4749 (2013), doi: 10.1016/j.egypro.2013.06.384.
[155] *Id*.
[156] Mortezaei, Kimia et al., Numerical simulation of induced seismicity in carbon capture and storage projects, 33 Geotechnical and Geological Engineering 411 (2015), doi: 10.1007/s10706-015-9859-7.
[157] EPA Letter at 5.

storage rate. When a formation will be used for carbon storage, BLM should determine that the formations is likely to remain stable and capable of storing carbon for at least 1,000 years.

V. The Project Must Comply with Applicable Resource Management Plans

All "management authorizations and actions" on BLM lands must conform to the approved Resource Management Plan (RMP) for the proposed project area.[158] The Draft EA claims the Project conforms with three applicable land use plans: 1) the Green River Resource Management Plan, 2) the Kemmerer Resource Management Plan, and 3) the Resource Management Plan Amendments for the Rocky Mountain Region including the Greater Sage-Grouse Sub-Regions of: Lewiston, North Dakota, Northwest Colorado and Wyoming and the Approved Resource Management Plans for Billings, Buffalo, Cody, HiLine, Miles City, Pompeys Pillar National Monument, South Dakota and Worland.[159] However, the Draft EA does not substantively evaluate or discuss whether the proposed action complies with the appropriate resource management and land use plans for the project area. Rather, this type of use (pore space subsurface right-of-way) is not contemplated by any of the applicable RMPs.

The Draft EA asserts that the proposed action conforms with the Green River RMP because "it is *specifically* provided for" in the RMP's "land and realty management objectives."[160] However, it beggars belief that the activity proposed here—issuing a right of way for perpetual use of subterranean pore space—was "specifically" contemplated by the agency in 1997 when preparing the RMP, as asserted by the Draft EA.[161] Rather than substantively engage with the question of whether allowing this type of project conforms with the Green River RMP, the Draft EA glosses over this novel and very likely unforeseen use of federal public land. The Green River RMP discusses making public lands" available throughout the planning area for rights-of-way, permits, and leases" but contemplates this only in the context of "utility/transportation systems."[162] The Green River RMP does not contemplate the type of subterranean right-of-way at issue here. Furthermore, BLM regulations require that proposed actions that do not conform with existing land use plans and which "warrant[] further consideration before a plan revision is scheduled" should be

[158] 43 C.F.R. § 1610.5-3(a).
[159] Moxa Draft EA at 7 (emphasis added).
[160] Bureau of Land Mgmt., Green River Resource Management Plan and Record of Decision (1997), https://eplanning.blm.gov/public_projects/lup/63096/75581/83689/greenriver-rmp.pdf at 9 [hereinafter "GRRMP"].
[161] While the Draft EA notes that the Green River RMP is in the process of being revised (and renamed as the Rock Springs RMP) and therefore that "[m]anagement decisions in the pending Rock Springs RMP and ROD could affect development within the project area in the future," the current proposed project's "conformance is assessed against the existing Green River [] RMP." Moxa Draft EA at 7.
[162] GRRMP at 9.

evaluated thoroughly in an amendment to the RMP.[163] Here, the unprecedented use of subterranean pore space of federal lands for carbon injection in the Green River Resource Management Area should be thoroughly evaluated in a plan amendment before any such projects are approved. A plan amendment should consider the impacts of opening federal pore space to commercial carbon injection discussed throughout this comment, particularly those raised in Section VI *supra*. However, even at a bare minimum, the Draft EA fails to take a "hard look" at this issue by merely citing to the Green River RMP without undertaking any meaningful analysis, and thus violates NEPA.

Likewise, the Draft EA asserts that the proposed project conforms with the Kemmerer RMP, particularly goal "LR:3,"[164] which is to "[m]anage public lands to meet access and (or) ROW needs."[165] The Kemmerer RMP discusses the application of Land Resource Goal 3 (i.e., LR:3) to numerous project types, including utility corridors (such as for "powerlines, pipelines, and fiber optic lines"), "[n]ew intrastate pipeline authorizations," and "[g]athering pipelines for individual wells."[166] However, the Kemmerer RMP does not contemplate the permitting of rights-of-way for federal pore space. There is no discussion of "pore space" at all, nor is such permitting implied in the laundry list of project types contemplated for potential right-of-way applications.[167] Furthermore, the Final EIS for the Kemmerer RMP—which the Draft EA tiers from and incorporates by reference[168]—additionally does not evaluate potential environmental impacts or land use conformance related to use of federal subterranean pore space for commercial carbon injection; rather, the EIS merely notes the existence of pore space as the likely location of leasable oil and gas deposits, and does not evaluate the issuance of a right-of-way for use of federal pore space.[169] It is disingenuous for the Draft EA to assert that the proposed

[163] 43 C.F.R. § 1610.5-3(c).
[164] Moxa Draft EA at 7.
[165] Bureau of Land Mgmt., Kemmerer Resource Management Plan and Record of Decision (2010) at 2-42 [hereinafter "KRMP"], https://eplanning.blm.gov/public_projects/lup/63198/77649/86669/Record_Of_Decision_Approved_RMP.pdf.
[166] *Id*.
[167] For example, the Draft EA cites "management buffers" required in both the Green River and Kemmerer RMPs to reduce impacts to raptor nests which exclusively discuss prohibitions on surface occupancy and disturbance. Moxa Draft EA at 15. This additionally highlights the problematic piecemealing of the project, discussed *supra* Section II, as well as emphasizes that neither RMP contemplated the potential impacts to land resources, species, and the environment, such as those discussed *supra* Section VI, from the type of subterranean right-of-way at issue here.
[168] Moxa Draft EA at 7.
[169] Bureau of Land Mgmt., Proposed Resource Management Plan and Final Environmental Impact Statement for the Kemmerer Field Office Planning Area (2008), https://eplanning.blm.gov/public_projects/lup/63198/77655/86703/01_Complete_Proposed_RMP_&_Final_EIS.pdf, at 3-23. The only other reference (to "pores," not pore space) discusses carbon dioxide

project conforms with land use plans where neither the Kemmerer RMP nor its EIS undertake any analysis of the type of project proposed here, in violation of NEPA's "hard look" requirement. Furthermore, before finding the proposed project conforms with the Kemmerer RMP, this type of action must be thoroughly evaluated in a plan amendment.

Furthermore, the Draft EA notes that the requested right-of-way for the proposed project "is situated within the Green River Basin Subregion (GBS), a physiographic-based, cultural resource study area," as defined in the Kemmerer RMP.[170] It also explains that the GBS "contains the greatest concentration of cultural resources" in the Kemmerer Resource Management Area, including "[a] total of 4,837 cultural resources, consisting of 4,335 prehistoric sites and 502 historic sites."[171] The Draft EA notes viewshed and surface disturbance buffers from the Kemmerer RMP for 3 specific historic properties which would apply to the proposed project and concludes that "the proposed subsurface ROW request for geologic sequestration of CO2 has no potential to affect historic properties because the issuance of leases, easements, and rights-of-way does not authorize or promote surface disturbance."[172] This conclusion utterly ignores that any subsurface carbon injection authorized by the proposed permitting of a right-of-way would occur only with concomitant surface disturbance; as previously discussed, *supra* Section II, piecemealing environmental review of the project violates NEPA. Further, the Draft EA uncritically assumes that permitting commercial use of the federal subsurface pore space would have no effect on the thousands of cultural resources, prehistoric sites, and historic sites named in the Kemmerer RMP despite evidence that injected carbon migrates across vast areas through subsurface pore space, and often leaks. The Draft EA fails to evaluate whether the risks associated with carbon injection outside of and in addition to any viewshed or surface disturbing impacts, including, *inter alia*, CO_2 migration and leakage, could affect the numerous invaluable cultural and historic sites present in or directly adjacent to the project area. This failure violates NEPA and renders the Draft EA unlawful.

Finally, the Draft EA claims that the proposed project conforms with the Record of Decision and Approved Resource Management Plan Amendments for the Rocky Mountain Region including the Greater Sage-Grouse Sub-Regions of: Lewiston, North Dakota, Northwest Colorado and Wyoming and the Approved Resource Management Plans for Billings, Buffalo, Cody, HiLine, Miles City, Pompeys Pillar National Monument, South Dakota and Worland.[173] First, the Draft EA fails to cite any particular section of the Rocky Mountain Region RMP Amendments at all in support of this claim. And, in fact, there is no

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flooding in the context of "enhanced oil recovery" and similarly does not contemplate a right-of-way for carbon injection. *Id*. at Glossary-1.

[170] Moxa Draft EA at 47.

[171] *Id*.

[172] *Id*. at 48-49 (emphasis added).

[173] Moxa Draft EA at 7.

discussion of subsurface pore space rights-of-way in the Rocky Mountain Region RMP Amendments.[174] The Draft EA's does not adequately discuss the proposed project's potential impacts to the GRSG because it piecemeals the activities associated with the issuance of a subsurface pore space right-of-way, as discussed *supra* Section II. For example, the Draft EA states that "BLM cannot reasonably determine at the pore space ROW stage: whether actual injection operations to use the pore space will eventually be proposed and authorized, or the exact location and nature of such operations," and so admits that the Draft EA only "discloses the general effects and potential mitigation that could be applied by the BLM, acknowledging that actual injection operations (if proposed and authorized) would result in potential effects to" GRSG general *and* priority habitat.[175]

As discussed in this comment, the Draft EA fails to adequately discuss and take a "hard look" at these potential impacts to GRSG, as well as fails to substantively grapple with whether the proposed project and the associated and piecemealed concomitant project components render this project out of conformance with the GRSG-specific provisions of the Rocky Mountain Region RMP Amendments. Further, the proposed mitigation measures and conditions of approval named in the Draft EA would apply to as-yet-determined surface activities (resulting in undetermined cumulative impacts of unknown size) outside the scope of limited Draft EA. Additionally, the Draft EA fails to evaluate whether potential subsurface impacts of the proposed project, such as impacts to GRSG from CO2 leakage, conform with the Rocky Mountain Region RMP Amendments.

The Draft EA acknowledges that the affected environment for the proposed action includes both general habitat and priority habitat for GRSG.176 The potential impacts to the GRSG that would accompany any surface disturbing activities concomitant with the proposed action undermine the claim of conformance with the Rocky Mountain Region RMP Amendments. According to the Draft EA, "[t]he Proposed Action occurs within mapped Wyoming Greater Sage-grouse priority habitat management area (PHMA)" i.e., the "lands that have the highest value for sustaining sage-grouse populations."177 The Draft EA notes that cumulative impacts to GRSG could occur given likely subsurface activities that would accompany the proposed action, but—as a result of unlawful piecemealing—does not discuss whether or what level of cumulative impacts would raise to the level of nonconformance with the Rocky Mountain Region RMP Amendments.178 The proposed

[174] *See generally* Bureau of Land Mgmt., Record of Decision and Approved Resource Management Plan Amendments for the Rocky Mountain Region (2015). The Draft EA noted again that "land use plans regarding Greater Sage-grouse conservation in a number of Western states, including Wyoming" are currently undergoing amendment, but that the current proposed project's "conformance is assessed against the existing [Rocky Mountain Region RMP Amendments]." Moxa Draft EA at 7 (emphasis added).
[175] Moxa Draft EA at 9, 9-10.
[176] *Id*. at 9, 10.
[177] *Id.* at 10.
[178] *Id*. at 11.

project's impacts to GRSG and their priority habitat not only implicate RMP compliance, but also compliance with NEPA as a potentially significant impact warranting preparation of an EIS.

VI. BLM Must Consider Regulatory Gaps

The Pipeline Safety Trust made clear in its recent report that CO_2 pipelines and "dangerous and under-regulated."[179] In fact, PHMSA is set to undertake a CO_2 pipeline rulemaking (expected in 2024-25) to address many of the regulatory gaps.[180] While the current ROW application covers CO_2 subsurface pore space occupation only, it is implausible that the Project would proceed without CO_2 pipelines. BLM should therefore pause consideration of this Project's ROW application until PHMSA completes its rulemaking.

VII. BLM Must Formally Consult with the U.S. Fish and Wildlife Service

In enacting the ESA, Congress made the deliberate decision "to give endangered species priority over the 'primary missions' of federal agencies" to "halt and reverse the trend toward species extinction, whatever the cost."[181] To meet this mandate, Section 7(a)(2) "imposes two obligations upon federal agencies": a procedural requirement "that agencies consult with the [Services] to determine the effects of their actions on endangered or threatened species and their critical habitat," and a substantive duty to "insure that their actions not jeopardize endangered or threatened species or their critical habitat."[182]

Section 7 consultation is required for "any action [that] may affect listed species or critical habitat."[183] If the proposed action "may affect" and is "likely to adversely affect" listed species or their critical habitat, the federal agency must initiate formal consultation with the Service.[184] In making its "effects determination" the agency must assess whether a proposed action "may affect" listed species or critical habitat.[185] The term "may affect" is

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[179] *See* PST Report.
[180] Dep't of Transp. & Pipeline and Hazardous Materials Safety Admin., Pipeline Safety: Safety of Carbon Dioxide and Hazardous Liquid Pipelines , https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202310&RIN=2137-AF60.
[181] *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 184–185 (1978).
[182] *Oceana v. Bureau of Ocean Energy Mgmt.*, 37 F. Supp. 3d 147, 174–175 (D.D.C. 2014); 16 U.S.C. § 1536(a)(2).
[183] 50 C.F.R. § 402.14.
[184] *Id.* ESA regulations further require that "[e]ach Federal agency shall review its actions at the earliest possible time to determine whether any action may affect listed species or critical habitat. If [so], formal consultation is required." *Id.* § 402.14(a).
[185] *Id.*

broadly construed to include "[a]ny possible effect, whether beneficial, benign, adverse, or of an undetermined character," and is easily triggered.[186]

Section 7(d) of the ESA further provides that once a federal agency initiates or reinitiates consultation under the ESA, the agency, as well as any applicant for a federal permit, "shall not make any irreversible or irretrievable commitment of resources with respect to the agency action which has the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative measures which would not violate subsection (a)(2) of this section."[187]

In its Draft EA, BLM identifies at least three federally protected species and/or designated critical habitat within the project area: Canada lynx, yellow-billed cuckoo, and Ute Ladies' -tresses. Under the ESA, BLM must complete consultation with the USFWS on potential impacts to each of these species and their protected habitat from the proposed Project. BLM has failed to complete this required task.

There is significant evidence in the Draft EA from BLM that the proposed Project crosses the low "may affect" threshold triggering ESA consultation requirements. For example, BLM notes that "[p]otential impacts to [Canada lynx, yellow-billed cuckoo, and Ute Ladies' -tresses] include loss of habitat or displacement from construction activities."[188] However, when assessing impacts to Canada lynx, yellow-billed cuckoo, and Ute Ladies' -tresses, BLM only concludes that "if surface disturbance or disruptive activities were to occur, an informal/formal endangered species act consultation may be required for any surface disturbing activities within identified habitat for listed species."[189]

The agency misunderstands its obligations under Section 7. Injection of CO_2 on its own—due to the potential for leaks, contamination, etc.—triggers consultation requirements. Further, as previously established, surface disturbance and disruptive activities are reasonably foreseeable future actions, see section II, *supra*. Approving the pore space ROW could foreseeably lead to disturbances which "may affect" either a species listed as threatened or endangered under the Act or any critical habitat designated under it.[190] In other words, since surface disturbance or disruptive activities *may* occur, BLM *must* engage in a Section 7 consultation with USFWS.

The agency repeatedly acknowledges that consultation would identify "ways to mitigate and/or reduce impacts . . . including following best management practices

[186] Endangered Species Act of 1973, as Amended; Final Rule, 51 Fed. Reg. 19,926, 19,949 (June 3, 1986); *Nat'l Parks Conservation Ass'n v. Jewell*, 62 F. Supp. 3d 7, 12 (D.D.C. 2014) ("The 'may affect' threshold for triggering the consultation duty … is low.").
[187] 16 U.S.C. § 1536(d).
[188] Moxa Draft EA at 32-34.
[189] *Id.* at 32.
[190] 16 U.S.C. § 1536.

outlined in the programmatic biological evaluation,"[191] but that consultation and those mitigations must happen now. Absent incidental take authorization obtained through the consultation process, Moxa is subject to the ESA's take prohibitions for these species if take occurs as a result of this Project.[192]

Finally, given the broad definition of "action area" as all areas that would be "affected directly or indirectly by the Federal action and not merely the immediate area involved in the action,"[193] BLM must consider the whole of the Project's CCS activities in its consultation, such as CO_2 transport, storage, injection, and underground CO_2 plume spread.[194]

CONCLUSION

We appreciate the opportunity to comment on this proposed project. Please note that we are attaching the EPA letter referenced herein, as well as our sources cited in footnotes. These sources are available via https://diversity.app.box.com/s/cv4douaei6lxb8lw3wransacxh75h2a5.

Thank you,

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[191] Moxa Draft EA at 32-34.
[192] 16 U.S.C. § 1536(d).
[193] 50 C.F.R. § 402.02.
[194] While the underground plume spread is typically modeled in in a Class VI application, BLM could obtain this information from Wyoming. BLM must not advance the ROW application without obtaining this information for ESA purposes.