

No. 20-35411

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

350 MONTANA; et al.,
Plaintiffs / Appellants,

v.

DEBRA HAALAND, Secretary of the Department of the Interior; et al.,
Defendants / Appellees,

and

SIGNAL PEAK ENERGY, LLC,
Intervenor-Defendant / Appellee.

Appeal from the United States District Court for the District of Montana
No. 9:19-cv-00012-DWM (Hon. Donald W. Molloy)

**DEFENDANTS/APPELLEES'
PETITION FOR PANEL REHEARING**

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INTRODUCTION

Pursuant to Federal Rule of Appellate Procedure 40, Federal Defendants including the Secretary of the Interior (“Interior”) request panel rehearing of a narrow but important aspect of Part VI of this Court’s opinion, which concerns remedy. *See* Addendum (“Add.”) 36a–37a.

Interior does not seek review of the panel’s holdings in Parts IV and V that the agency violated the National Environmental Policy Act (“NEPA”) and the Administrative Procedure Act (“APA”) in the course of approving an expanded mining plan submitted by Intervenor Signal Peak Energy, LLC (“Signal Peak”). *See* Add. 19a–36a. Moreover, Interior agrees with the panel’s conclusion in Part VI that the district court should decide whether Interior’s approval decision should be vacated or left in effect while the agency revisits its NEPA analysis on remand. *See id.* at 37a.

But the panel’s directive to the district court to conduct “[a]dditional factfinding ... to determine whether preparation of an [Environmental Impact Statement] ... is warranted” risks injecting that court in a role Congress assigned to the agency. Add. 37a. The panel should grant rehearing and rescind that directive because it “overlooked or misapprehended,” Fed. R. App. P. 40(a)(2), the difference between two remedy questions: (1) whether an agency’s prior unlawful action should be vacated, and (2) whether (irrespective of vacatur) the

order remanding the action to the agency should specifically instruct the agency on how to comply with the law going forward.

The decisional frameworks that this Court employs to resolve those two questions are very different. Had the panel applied the correct framework—the “ordinary remand” rule—to the second question, it would not have directed the assembly of a new judicial record to determine whether Interior must prepare an Environmental Impact Statement (“EIS”) before reaching a decision on remand whether to approve the mining plan expansion. Because “it is not clear” that an EIS will be required on remand, *Add.* 37a n.28, Interior should be permitted to make that determination in the first instance given the state of the administrative record and governing law at the time Interior finalizes its decision on remand—subject, of course, to judicial review of that decision once it issues.

Interior respectfully requests that the panel grant this narrow rehearing petition and excise from its opinion the directive that the district court decide, based on new factfinding, whether the agency must prepare an EIS on remand.

STATEMENT

1. NEPA is a purely procedural statute that establishes a process by which Interior and other federal agencies must evaluate and disclose the environmental effects of, and alternatives to, proposed “major Federal actions significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(2)(C). An

agency must prepare a “detailed statement,” or EIS, if it anticipates that its proposed action may significantly affect the environment. *Id.* An agency need not complete an EIS if it finds, based on a shorter “environmental assessment” (“EA”), that the proposed action will not have significant environmental effects. 40 C.F.R. § 1508.1(h), (l). If the agency determines pursuant to an EA that no EIS is required, the agency issues a finding of no significant impact (“FONSI”), to briefly present the reasons why the proposed action will not have significant effects on the environment. *Id.* §§ 1501.6(a), 1508.1(l). One factor that agencies traditionally have considered when determining whether an action will have significant environmental effects is the “degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.” *Id.* § 1508.27(b)(5) (2018).

The APA provides for judicial review of an agency’s NEPA compliance based on “the whole record,” 5 U.S.C. § 706, which comprises “everything that was before the agency pertaining to the merits of its decision,” *Goffney v. Becerra*, 995 F.3d 737, 747 (9th Cir. 2021). “The focal point for judicial review should be the administrative record already in existence, not some new record made initially in the reviewing court.” *Camp v. Pitts*, 411 U.S. 138, 142 (1973). For “when a reviewing court considers evidence that was not before the agency, it inevitably leads the reviewing court to substitute its judgment for that of the

agency” and “effectively conduct[] a de novo review of the agency’s action rather than limiting itself to the deferential procedural review that the APA’s arbitrary or capricious standard permits.” *San Luis & Delta-Mendota Water Auth. v. Locke*, 776 F.3d 971, 992 (9th Cir. 2014) (cleaned up).

2. Signal Peak owns and operates an underground coal mine near Billings, Montana, partly on federal coal reserves. Add. 8a. In 2008, Signal Peak applied to Interior for a federal coal lease. *Id.* The agency prepared an EA and a FONSI in 2011 and approved the lease in a record of decision. *Id.* at 9a. That decision was successfully challenged in litigation and remanded to Interior for consideration whether to analyze additional alternatives to the action under NEPA. *Northern Plains Res. Council Inc. v. Bureau of Land Mgmt.*, No. CV 14-60-BLG-SPW, 2016 WL 1270983, at *14–*15 (D. Mont. Mar. 31, 2016). On remand, the Interior Board of Land Appeals determined that the EA adequately explained why the alternatives were either not analyzed or already incorporated into Signal Peak’s lease. *Northern Plains Res. Council*, 188 IBLA 19, 27-34 (2016).

Meanwhile, in 2013, Signal Peak sought Interior’s permission under the Mineral Leasing Act to modify the mine’s operating plan to allow expanded coal development. Add. 9a. Interior approved Signal Peak’s mining plan expansion in 2015 after preparing a second EA, FONSI, and record of decision. *Id.* Upon holding that Interior had not adequately assessed the effects of Signal Peak’s

expanded plan on coal train traffic and greenhouse gas emissions, in violation of NEPA and the APA, a federal district court vacated and remanded Interior's 2015 decision to the agency. *Id.* at 10a. After preparing a third EA and FONSI, Interior reapproved the mining plan expansion in a new decision in 2018. *Id.*

3. Plaintiffs challenged Interior's 2018 decision approving Signal Peak's mining-plan expansion. They argued, among other things, that Interior violated NEPA by failing to adequately consider the effects of expanded coal mining on greenhouse gas emissions and by not preparing an EIS. *Id.* 11a. The district court granted summary judgment to Interior on all NEPA claims except one that related to coal train derailments. *Id.* The district court thereafter "vacated" the EA, but not Interior's approval decision, and remanded the matter to the agency to address the identified NEPA deficiency. *Id.*

4. Plaintiffs appealed and argued that Interior's decision was unlawful on account of NEPA violations not limited to the one found by the district court. Plaintiffs asked this Court "to vacate Interior's approval of the Mine Expansion and direct Interior to prepare an EIS." *Id.* 36a. A panel of this Court reversed on the merits and remanded the case for the district court to determine the proper remedy. *Id.* at 6a–38a. Judge Ryan Nelson dissented. *Id.* at 48a–69a.

a. After finding the dispute justiciable, the panel held on the merits that Interior failed to adequately explain its conclusion that the environmental effects of its decision are not significant and thus do not require an EIS. Add. 22a–36a.

The panel identified two main flaws in Interior’s NEPA analysis. First, the panel declared that analysis unsound because it “lack[ed] ... a science-based standard for significance” of the project’s greenhouse gas emissions. Add. 23a. Second, although Interior had compared emissions from overseas combustion of coal mined under the expansion to global emissions from all sources, the EA’s analysis of the expanded mine’s domestic emissions (e.g., from transporting coal from the mine to a port) did not include emissions from overseas combustion. *Id.* at 26a–30a. The panel decided that “no cogent rationale” justified excluding emissions from overseas combustion from the EA’s analysis of domestic emissions, given Interior’s acknowledgment that greenhouses gases are a “global problem.” *Id.* at 27a. The panel noted that the domestic emissions analysis in the 2015 EA, prepared to support Interior’s original approval of the mining plan expansion, *did* account for overseas combustion emissions. *Id.* at 28a. The panel also observed that, for the 2018 EA at issue here, comparisons to emissions from nationwide and statewide sources “change dramatically if they are modified to account for [overseas] combustion of the Mine Expansion’s coal.” *Id.*

The panel thus held that Interior’s decision to reapprove the mining plan expansion violated NEPA and the APA. *See* Add. 8a. Judge Nelson dissented on the merits. *Id.* at 61a–67a.

b. As to remedy, the panel remanded the case to the district court for “[a]dditional factfinding,” Add. 37a, as a prelude to deciding both (1) whether to vacate Interior’s decision approving Signal Peak’s expanded mining plan, and (2) whether to specifically instruct Interior to prepare an EIS on remand.

Part VI of the opinion addresses, without clear distinction, both remedy issues. The panel began by quoting circuit precedent requiring preparation of an EIS “where uncertainty [about environmental effects] may be resolved by further collection of data, or where the collection of such data may prevent speculation on potential effects.” Add. 36a. Next, the panel recited this Court’s framework for deciding whether to vacate an agency’s unlawful action: It “depends on how serious the agency’s errors are and the disruptive consequences of an interim change that may itself be changed.” *Id.* at 36a–37a. The panel then restated Plaintiffs’ argument that vacating Interior’s decision would vindicate the “look before you leap” purpose of NEPA. *Id.* at 37a.

Returning to the standard for when to prepare an EIS, the panel observed that “the record is unclear about the extent to which [Interior] is capable of resolving uncertainty regarding the magnitude of the [expanded mining plan’s]

contribution to the environmental harms identified in the EA.” Add. 37a. The panel then turned back to vacatur and found a “dearth of evidence” in the record “concerning [its] impact.” *Id.*

In summation, the panel combined Plaintiffs’ two distinct remedy requests and announced that “[a]dditional factfinding is necessary to determine whether preparation of an EIS and vacatur of the plan approval is warranted at this juncture.” Add. 37a. The panel remanded the case “to the district court for further proceedings consistent with this opinion.” *Id.* at 38a.

Judge Nelson dissented on remedy as well. Add. 67a–68a. Rather than remand to the district court for factfinding on remedy, he would have remanded Interior’s decision to the agency without vacatur and without an instruction to prepare an EIS. *Id.* at 68a. On the latter point, Judge Nelson echoed the panel’s observation that the record was unclear as to whether an EIS must be prepared. *Id.* at 67a. But he took a different lesson from that ambiguity than did the panel. Judge Nelson reasoned that uncertainty about whether an EIS is required “is properly addressed by Interior on remand, not through an ambiguous endeavor by the district court.” *Id.* at 68a. He further stated that “for the district court to engage in factfinding to determine ... whether Interior can resolve the pending scientific uncertainty about [its action’s] incremental effects” contravened the principle that APA review is confined to the administrative record. *Id.* at 67a.

REASONS FOR GRANTING THE PETITION

Rehearing is warranted because the panel overlooked or misapprehended that the legal framework for determining whether to vacate an agency's unlawful action is entirely different from the legal framework governing the determination whether to specifically instruct an agency on how to comply with the law (here, whether to instruct Interior to prepare an EIS in order to comply with NEPA). The panel's unprecedented directive to the district court to act as factfinder outside the administrative record to decide whether Interior should be ordered to prepare an EIS going forward injects the district court into a process that Congress and courts have made clear is best left to the agency. The panel should amend Part VI of its opinion to omit that directive, while still remanding to the district court the separate issue whether to vacate Interior's approval decision.

1. The panel failed to apply the legal framework that governs when a court should order preparation of an EIS on remand, rather than leave that decision to the responsible "agenc[y] of the Federal Government" that Congress charged with making it. 42 U.S.C. § 4332.

The proper legal framework, known as the "ordinary remand" rule, states that "[w]hen a reviewing court reverses an administrative agency determination, the proper course, except in rare circumstances, is to remand to the agency for additional investigation or explanation." *Miskey v. Kijakazi*, 33 F.4th 565, 574–

75 (9th Cir. 2022) (cleaned up). A court “is not generally empowered to conduct a *de novo* inquiry into the matter being reviewed and to reach its own conclusions based on such an inquiry.” *INS v. Ventura*, 537 U.S. 12, 16 (2002) (per curiam). A general remand, without specific instruction, ensures that “[t]he agency can bring its expertise to bear upon the matter; it can evaluate the evidence; it can make an initial determination; and, in doing so, it can, through informed discussion and analysis, help a court later determine whether its decision exceeds the leeway that the law provides.” *Id.* at 17. The ordinary remand rule governs this Court’s review of Interior’s approval of a mining plan amendment, no less than any other agency action. *Cf. Nat’l Wildlife Fed’n v. Burford*, 871 F.2d 849, 855 (9th Cir. 1989) (reciting the rule before reviewing coal leasing decision).

The presumption in favor of a general remand reaches its zenith where, as here, a review of the administrative record leaves the court “unclear” about what steps the agency will need to take on remand to ensure compliance with the law. Add. 37a. *Cf. Fernandez-Ruiz v. Gonzales*, 466 F.3d 1121, 1133 (9th Cir. 2006) (en banc). The appropriate response to ambiguity in the administrative record is, as Judge Nelson explained in dissent, to remand for the agency to resolve that ambiguity in the first instance—not to set the district court on a factfinding mission unaided by agency expertise and unchecked by the public-involvement process that attends Interior’s own NEPA review. *See, e.g.*, 40 C.F.R. § 1506.6.

In short, it is precisely because the panel could not “decide on this record that an EIS is required,” Add. 37a n.28, that it was obliged to remand that decision to the agency. As this Court has explained, “if there is uncertainty over whether the proposed project may have a significant impact, including uncertainty caused by an incomplete administrative record or an inadequate EA, the court should ordinarily remand for the agency to either prepare a revised EA or reconsider whether an EIS is required.” *Ctr. for Biol. Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1226 (9th Cir. 2008). This Court does not order the preparation of an EIS if it cannot, “in the abstract, categorically decide that [the agency’s] reasons for [a no-significant-effects] conclusion in a revised EA would be unconvincing.” *Id.* The panel appropriately declined to make that “categorical” judgment itself given uncertainty in the administrative record. Yet the district court is no better positioned to make that judgment, which Congress delegated to “the responsible official” within the agency. 42 U.S.C. § 4332(C).

Uncertainty in the record is not the only reason here to follow the ordinary remand rule. The law governing when agencies must prepare an EIS is itself in flux. After Interior issued the decision challenged in this case, the White House Council on Environmental Quality (“CEQ”) amended its “binding regulations implementing the procedural provisions of NEPA.” *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 354 (1989); *see* Add. 68a. Among the regulatory

provisions CEQ deleted was 40 C.F.R. § 1508.27(b)(5). *See* 85 Fed. Reg. 43,304, 43,351 (July 16, 2020). That is the provision that inspired the circuit precedent that the panel invoked when discussing whether Interior must prepare an EIS on remand.* Now, CEQ is considering “whether to revise additional provisions to revert to the language of the [prior] regulations or to propose other revisions.” 87 Fed. Reg. 23,453, 23,456 (Apr. 20, 2022). CEQ is also developing “guidance on assessing greenhouse gas emissions and climate change in environmental reviews.” *Id.* at 23,466. On remand, Interior should be allowed to consider any new NEPA regulations and guidance before deciding whether to prepare an EIS, without a court already having made that decision for the agency based on a possibly stale regulatory regime.

The panel did not identify any “rare circumstances,” *Miskey*, 33 F.4th at 575, in this case that could warrant a departure from the ordinary remand rule.

* The panel quoted a passage from *National Parks & Conservation Association v. Babbitt (NPCA)* that “[p]reparation 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.” Add. 36a (quoting another case quoting *NPCA*, 241 F.3d 722, 731–32 (9th Cir. 2001)). That passage chiefly relied on this Court’s discussion of 40 C.F.R. § 1508.27(b)(5) in *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1213–14 (9th Cir. 1998). None of this caselaw suggests that an agency’s mere failure to prepare an EIS in the face of scientific uncertainty justifies a departure from the ordinary remand rule. *Cf. Monsanto Co. v. Geertson Seed Farms*, 561 U.S. 139, 157 (2010) (explaining that it “invert[s] the proper mode of analysis” to “presume that an injunction is the proper remedy for a NEPA violation”).

The record does not reflect any “government[] intransigence,” *Earth Island Inst. v. Hogarth*, 494 F.3d 757, 770 (9th Cir. 2007), or “interminable delay,” *League of United Latin Am. Citizens v. Regan (LULAC)*, 996 F.3d 673, 702 (9th Cir. 2021). Regardless, such evidence could not justify departure from the ordinary remand rule if unaccompanied by a finding “[o]n the present record” that preparing an EIS “is the only reasonable action” Interior could take on remand. *LULAC*, 996 F.3d at 702. The panel already has recognized that it cannot make that finding.

None of the authorities cited by the panel, *see* App. 37a n.28, support its directive to the district court to conduct factfinding as to whether Interior must prepare an EIS. *Western Watersheds Project v. Abbey* remanded “for the district court to enter an appropriate order requiring [Interior] to remedy the deficiencies in the EA ... *or* to prepare a more detailed EIS, whichever is considered appropriate.” 719 F.3d 1035, 1054 (9th Cir. 2013) (emphasis added). *NRDC v. U.S. Forest Service* remanded an agency’s decision because the EIS it prepared was deficient. 421 F.3d 797, 816–17 (9th Cir. 2005). And *Ocean Advocates v. U.S. Army Corps of Engineers* determined, based solely on the administrative record, that an EIS was required, so this Court remanded for the district court to order the agency to prepare one. 402 F.3d 846, 871, 875 (9th Cir. 2005). The remand orders in these cases did not include factfinding directives like the one the panel issued here.

Accordingly, the panel contravened the ordinary remand rule by directing the district court to conduct factfinding to determine whether Interior must prepare an EIS, rather than remanding that determination to Interior. The panel should revise its opinion to remove that instruction to the district court. None of this is to say that the agency ultimately will not need to prepare an EIS on remand in light of the available evidence and governing law. Our submission in this petition is merely that this case does not present the rare circumstance where a district court should “usurp[] an administrative function,” *Fed. Power Comm’n v. Idaho Power Co.*, 344 U.S. 17, 20 (1952), by declaring ex ante that Interior cannot possibly comply with NEPA unless it prepares an EIS.

2. The panel was led astray on this point because it confused the ordinary remand rule with the framework that this Court uses to decide whether to vacate unlawful agency action. Under that equitable framework, as correctly described by the panel, “[w]hether agency action should be vacated depends on how serious the agency’s errors are and the disruptive consequences of an interim change that may itself be changed.” Add. 36a–37a (quoting *Nat’l Family Farm Coal. v. EPA*, 966 F.3d 893, 929 (9th Cir. 2020)).

A court may need to look outside the administrative record in deciding whether to vacate unlawful agency action. In this case, for example, the record lacks “findings concerning the consequences that would follow from vacatur” of

Interior’s decision approving the mining plan expansion, Add. 37a n.28, such as “whether Signal Peak is currently mining federal coal,” *id.* at 37a. Because an administrative record compiled in 2018 may lack the latest information about the effects of vacating Interior’s decision in 2022, the panel prudently remanded for the district court to receive evidence from the parties on that issue.

The problem is that the panel piggybacked onto that prudent remand the distinct remand to the district court to answer the question “whether preparation of an EIS ... is warranted at this juncture.” Add. 37a. That is not a proper part of the inquiry whether Interior’s decision should be vacated. In any event, the seriousness of Interior’s NEPA violations, and the ease with which they might be cured on remand, are not factors that can justify constricting the agency’s latitude to comply with the law going forward. There is a world of difference between factfinding as to the real-world effects of vacating Interior’s decision and factfinding as to whether and how Interior will be able to address scientific uncertainty regarding the environmental effects of the increased emissions from Signal Peak’s mine expansion. *Cf. San Luis & Delta-Mendota Water Authority v. Jewell*, 747 F.3d 581, 604 (9th Cir. 2014) (district court “overstepped its bounds” in admitting “technical testimony [that] was plainly elicited for the purpose of determining the scientific merit of the [agency’s] decision” (cleaned up)). The agency should be permitted to address that issue in the first instance on remand.

CONCLUSION

The panel should grant this petition and amend Part VI of its opinion to remove the directive to the district court to conduct factfinding on the question whether preparation of an EIS is warranted at this juncture.

Respectfully submitted,

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June 21, 2022

90-1-4-15635

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Signature s/ *Robert J. Lundman*

Date June 21, 2022

ADDENDUM

FOR PUBLICATION

**UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT**

350 MONTANA; MONTANA
ENVIRONMENTAL INFORMATION
CENTER; SIERRA CLUB; WILDEARTH
GUARDIANS,

Plaintiffs-Appellants,

v.

DEBRA HAALAND, Secretary of the
Department of the Interior; U.S.
OFFICE OF SURFACE MINING, an
agency within the U.S. Department
of the Interior; U.S. DEPARTMENT OF
THE INTERIOR; MARCELO CALLE, in
his official capacity as Program
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Region; DAVID BERRY, in his
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Director of U.S. Office of Surface
Mining Western Region; GLENDA
OWENS, in her official capacity as
Deputy Director of U.S. Office of
Surface Mining; LAURA DANIEL-
DAVIS, in her official capacity as
Principal Deputy Assistant Secretary
of Land and Minerals Management
of the U.S. Department of the
Interior; MARTHA WILLIAMS, in her

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9:19-cv-00012-
DWM

OPINION

official capacity as Director of U.S.
Fish and Wildlife Service; UNITED
STATES FISH AND WILDLIFE
SERVICE, an agency within the U.S.
Department of the Interior,

Defendants-Appellees,

SIGNAL PEAK ENERGY, LLC,

Intervenor-Defendant-Appellee.

Appeal from the United States District Court
for the District of Montana
Donald W. Molloy, District Judge, Presiding

Argued and Submitted June 16, 2021
Anchorage, Alaska

Filed April 4, 2022

Before: Johnnie B. Rawlinson, Morgan Christen, and
Ryan D. Nelson, Circuit Judges.

Opinion by Judge Christen;
Dissent by Judge R. Nelson

SUMMARY*

Mining / Environmental Law

The panel affirmed in part, and reversed in part, the district court’s summary judgment in favor of the U.S. Department of the Interior (“Interior”) on all but one claim in an action brought by environmental groups challenging Interior’s Office of Surface Mining Reclamation and Enforcement’s approval of a proposal to expand a coal mine in south-central Montana.

Signal Peak Energy, LLC, an intervenor-appellee, sought to expand its mining operations. The expansion is expected to result in the emission of 190 million tons of greenhouse gases (GHGs). Interior published an Environmental Assessment (EA) in which it explained that the amount of GHGs emitted over the 11.5 years the Mine is expected to operate would amount to 0.44 percent of the total GHGs emitted globally each year. Based on a 2018 EA, Interior found that the project’s GHG emissions would have no significant impact on the environment.

The district court granted summary judgment in favor of Interior on all but plaintiffs’ claim that Interior failed to consider the risk of coal train derailments. The district court vacated the 2018 EA, but not Interior’s approval of the Mine Expansion, and remanded the matter to Interior to consider the risk of train derailment. Interior subsequently published

* This summary constitutes no part of the opinion of the court. It has been prepared by court staff for the convenience of the reader.

a fourth EA that incorporated the 2018 EA and considered train derailment risks for the first time.

As a threshold issue, Signal Peak argued that the case was moot because plaintiffs challenged the 2018 EA, but the 2018 EA was superseded by the EA Interior published in 2020 after the district court remanded the case to the agency to consider the risk of train derailments. The panel held that the parties' dispute was not moot. The 2018 EA pertaining to the Mine Expansion neither disappeared nor was it replaced. The relevant portions of it were expressly incorporated into the 2020 EA and reissued. Accordingly, the panel retained the ability to order relief in this case.

The panel held that Interior violated the National Environmental Policy Act (NEPA) by failing to provide a convincing statement of reasons why the project's impacts were insignificant. The 2018 EA failed to articulate any science-based criteria of significance in support of its finding of no significant impact (FONSI), but instead relied on the arbitrary and conclusory determination that the Mine Expansion project's emissions would be relatively minor. The panel, however, was not persuaded that Interior was required to use the Social Cost of Carbon metric (a method of quantifying the impacts of GHGs that estimates the harm, in dollars, caused by each incremental ton of carbon dioxide emitted into the atmosphere in a given year) to quantify the environmental harms stemming from the project's GHG emissions. The panel further held that it was less clear whether the agency had any other metric available to assess the impact of this project. Because additional factfinding was necessary to decide whether an environmental impact statement (EIS) was required, and the record concerning the

consequences of vacatur was not developed, the panel remanded to the district court.

Judge R. Nelson dissented. He would hold that the agency's finding – that the incremental effects of 0.04% of annual GHG emissions were “minor” – was not arbitrary or capricious under the Administrative Procedure Act (APA); and the majority's contrary holding was wrong given the deferential APA review. Judge Nelson agreed with the majority's decision not to vacate Interior's approval of the Mine Expansion or direct Interior to prepare an EIS. He would hold that Interior's FONSI was neither arbitrary nor capricious under NEPA. Even if it were, the action should be remanded to the agency to compile a new administrative record and final decision, not to the district court.

COUNSEL

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OPINION

CHRISTEN, Circuit Judge:

In 2018, the Department of the Interior’s Office of Surface Mining Reclamation and Enforcement (Interior) approved a proposal to expand a coal mine in south-central Montana. The expansion is expected to result in the emission of 190 million tons of greenhouse gases (GHGs). Interior published an Environmental Assessment (EA) in which it explained that the amount of GHGs emitted over the 11.5 years the Mine is expected to operate would amount to 0.44 percent of the total GHGs emitted globally each year.¹

¹ The 11.5 years includes two years during which the Mine would be operating regardless of the approval at issue in this case. Interior’s approval of the project will allow the Mine to operate an additional nine

The 2018 EA also calculated the project’s GHG emissions as a percentage of the United States’ annual emissions and Montana’s annual emissions, but these domestic calculations only included the emissions generated by extracting and transporting the coal. Emissions from combustion of the coal—which account for 97 percent of the projected GHG emissions from the project—were not included in the domestic calculations. Based on the above comparisons, Interior found that the project’s GHG emissions would have no significant impact on the environment. Interior did not prepare an environmental impact statement (EIS).

We conclude that Interior violated the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321 *et seq.*, by failing to provide a “convincing statement of reasons to explain why [the] project’s impacts are insignificant.” *Bark v. United States Forest Serv.*, 958 F.3d 865, 869 (9th Cir. 2020). The 2018 EA fails to articulate any science-based criteria for significance in support of its finding of no significant impact (FONSI), relying instead on the arbitrary and conclusory determination that the Mine Expansion project’s emissions will be relatively “minor.” But comparing the emissions from this point source against total global emissions predestined that the emissions would appear relatively minor, even though, for each year of its operation, the coal from this project is expected to generate more GHG emissions than the single largest source of GHG emissions in the United States. Separately, the EA’s domestic comparisons fail to satisfy NEPA because Interior did not account for the emissions generated by coal

years. During that time, approximately 190 million tons of GHGs are expected to be emitted. Over the entire 11.5 years, 240.1 million tons of GHGs are expected to be emitted.

combustion, obscuring and grossly understating the magnitude of the Mine Expansion’s emissions relative to other domestic sources of GHGs. *See League of Wilderness Defs./Blue Mountains Biodiversity Project v. Connaughton*, 752 F.3d 755, 761 (9th Cir. 2014). Though we conclude that Interior failed to articulate convincing reasons to support its FONSI, we are not persuaded that Interior was required to use the Social Cost of Carbon metric to quantify the environmental harms stemming from the project’s GHG emissions. What is less clear is whether the agency had any other metric available to assess the impact of this project.

The presumptive remedy for violations of NEPA and the Administrative Procedure Act is vacatur. 5 U.S.C. § 706 (“The reviewing court shall . . . hold unlawful and set aside agency action, findings, and conclusions found to be . . . arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.”); *All. for the Wild Rockies v. U.S. Forest Serv.*, 907 F.3d 1105, 1121–22 (9th Cir. 2018). Here, because additional factfinding is necessary to decide whether an EIS is required and, in any event, the record concerning the consequences of vacatur is not developed, we remand to the district court.

I

i

Intervenor-Appellee Signal Peak Energy, LLC operates Bull Mountains Mine No. 1 (the Mine), which is located approximately thirty miles north of Billings, Montana. In 2008, Signal Peak applied to the Bureau of Land Management (BLM) to lease approximately 2,679.76 acres of federal coal. *See Mont. Env’t. Info. Ctr. v. U.S. Off. of*

Surface Mining, 274 F. Supp. 3d 1074, 1083 (D. Mont. 2017). BLM processed Signal Peak’s application, prepared an Environmental Assessment in conjunction with Interior, and issued a FONSI in 2011.²

In 2012, Signal Peak applied to the Montana Department of Environmental Quality (Montana DEQ) to amend its mining permit. Specifically, Signal Peak sought to expand its mining operation by 7,161 acres, “adding 176 million tons of coal to its permitted mineable reserves.” *Mont. Env’t Info. Ctr.*, 274 F. Supp. 3d at 1084. The Montana DEQ approved Signal Peak’s application. *Id.*

In 2013, Signal Peak requested approval of a mining plan modification for its federal coal lease from OSMRE. *Id.* The 2013 modification request sought to expand coal development and mining operations into 2,539.76 acres of the remaining federal coal lands. *Id.* Signal Peak describes the area as “a ‘checkerboard’ of federal minerals interspersed with privately-owned and state-owned minerals.” Interior prepared a second EA, issued a FONSI, and approved the mining plan modification in 2015.

² BLM and the Office of Surface Mining Reclamation and Enforcement (OSMRE) are agencies within the Department of Interior. BLM oversees the leasing of federal coal, 43 C.F.R. § 3480.0-6(a)(3) and OSMRE oversees surface coal mining operations, 43 C.F.R. § 3480.0-6(a)(1). Because Signal Peak applied to lease and mine federal coal in 2008, BLM and OSMRE cooperatively prepared an EA in 2011. Signal Peak’s subsequent requests did not concern leasing new federal coal but only sought to expand Signal Peak’s mining operation to the remaining federal coal lands it had leased. Accordingly, OSMRE was the lead agency in preparing the 2018 EA, and BLM was only identified as a “cooperator in preparation” of the 2018 EA that “provided technical review and assistance in the analysis.”

Plaintiffs filed a complaint in the United States District Court for the District of Montana challenging Interior’s 2015 EA, FONSI, and approval of the Mine Expansion on several different grounds. *Mont. Env’t Info. Ctr.*, 274 F. Supp. 3d at 1084–85. Relevant here, plaintiffs argued Interior arbitrarily and capriciously quantified the socioeconomic benefits of the Mine Expansion while failing to use an available metric called the Social Cost of Carbon (SCC) to quantify the costs of GHG emissions. *Id.* at 1094–99. The district court agreed, reasoning that because the SCC was available and capable of quantifying the costs of GHG emissions, Interior improperly “place[d] [its] thumb on the scale by inflating the benefits of the [Mine Expansion] while minimizing its impacts.” *Id.* at 1098. The district court partially granted plaintiffs’ motion for summary judgment, vacated the 2015 EA, and enjoined mining of federal coal in the expanded Mine area pending Interior’s compliance with NEPA.

On remand from the district court, Interior completed a third EA and FONSI and again approved Signal Peak’s Mine Expansion in 2018. Interior’s 2018 EA declined to employ the SCC to quantify the costs of the project’s anticipated GHG emissions for four reasons: (1) the SCC was originally developed for use in rulemakings, not individual adjudications; (2) the technical supporting documents and associated guidance underlying the SCC had been withdrawn; (3) NEPA does not require agencies to perform cost-benefit analyses; and (4) the 2018 EA did not fully quantify the social benefits of “coal-fired energy production,” and therefore using the SCC to quantify the costs of GHG

emissions from the Mine Expansion “would yield information that is both potentially inaccurate and not useful.”³

Plaintiffs returned to district court to challenge Interior’s 2018 EA, FONSI, and approval of the Mine Expansion. Plaintiffs’ first argument was that Interior violated NEPA again by declining to employ the SCC analysis. *350 Montana v. Bernhardt*, 443 F. Supp. 3d 1185, 1197 (D. Mont. 2020). Plaintiffs also argued:

Signal Peak argues the Office acted reasonably when it quantified the greenhouse gas emissions from the mine expansion, calculated what percentage of total annual global emissions the mine’s emissions represent (0.04%), and determined that the mine expansion’s contribution would be minor. (Doc. 42 at 16.) The comparison of the mine expansion’s emissions to global emissions is not reasonable; it is misleading; and it is unlawful. *See supra* note 10. It is easy, but misleading, to make highly significant effects appear trivial, merely by swelling the denominator, as the EA did. *Sw. Elec. Power Co. v. EPA*, 920 F.3d 999, 1032-33 (5th Cir. 2019) (a “very small portion” of a “gargantuan source of [harmful]

³ Concerning the SCC’s accuracy, the 2018 EA explained that “the dollar cost figure [produced by the SCC] is generated in a range and provides little benefit in assisting” the decision maker. For example, the 2018 EA noted that the SCC produced a cost figure ranging from \$4.2 billion to \$22.1 billion “depending on dollar value and the discount rate used.”

pollution” may nevertheless “constitute[] a gargantuan source of [harmful] pollution on its own terms”); *accord Guardians*, 2019 WL 2404860, at *9 (dilution misleading).

Pls.’ Response-Reply at 15–16, *350 Montana v. Bernhardt*, 443 F. Supp. 3d 1185 (D. Mont. 2020) (No. 9:19-CV-12), 2019 WL 4954687. The district court was persuaded that Interior’s rationale for not using the SCC was supported by the record and satisfied NEPA. *350 Montana*, 443 F. Supp. 3d at 1196. Implicit in the district court’s ruling was the conclusion that the metric Interior *did* use constituted the required “hard look” at the Mine Expansion’s environmental effects and adequately supported Interior’s FONSI. The district court granted summary judgment in favor of Interior on all but plaintiffs’ claim that Interior failed to consider the risk of coal train derailments along the corridor between the Mine site and the port at Vancouver, British Columbia. *Id.* at 1202. The district court vacated the 2018 EA, but not Interior’s approval of the Mine Expansion, and remanded the matter to Interior to consider the risk of train derailments. Interior has since published a fourth EA that incorporates the 2018 EA and considers the risk of train derailments for the first time (the 2020 EA).⁴

⁴The 2020 EA only addresses the risk of environmental impacts from train derailments. It incorporated in full the 2018 EA’s analysis and conclusions relating to GHGs and climate change to determine the Mine Expansion will not have a significant impact on the environment. U.S. DEP’T OF INTERIOR OFF. OF SURFACE MINING RECLAMATION AND ENF’T, BULL MOUNTAINS MINE NO. 1 FEDERAL MINING PLAN MODIFICATION ENVIRONMENTAL ASSESSMENT at 11, 15 (Oct. 2020), https://www.osmre.gov/sites/default/files/inline-files/102020BullMtnMineEA_Final.pdf.

Plaintiffs timely appealed. We have jurisdiction pursuant to 28 U.S.C. § 1291.

ii

At the outset, we note a stark contrast between this appeal and previous cases, in which the impact of GHGs on global warming, climate change, and the environment was debated. *See, e.g., Massachusetts v. E.P.A.*, 549 U.S. 497, 507–13 (2007) (citation omitted) (discussing the status of the scientific consensus concerning GHGs and climate change and noting EPA’s determination that regulating GHG emissions would be unwise because “a causal link between [GHGs and climate change] cannot be unequivocally established”). Here, the parties do not dispute that GHGs cause global warming, that global warming causes climate change, or that human activity is likely the primary cause of these phenomena.⁵ Indeed, Interior’s 2018 EA includes dozens of sobering and unchallenged observations concerning the effects of global warming and climate change on the environment, including:

- “This period is now the warmest in the history of modern civilization,” and “[b]ased on extensive evidence, it is extremely likely that human activities, especially emissions of GHGs, are the dominant cause

⁵ The 2018 EA explains that “global warming refers to the gradual increase, observed or projected, in global surface temperature,” while climate change refers to “[c]hanges in average weather conditions that persist over multiple decades or longer” and “encompasses both increases and decreases in temperature, as well as shifts in precipitation, changing risk of certain types of severe weather events, and changes to other features of the climate system.”

of the observed warming since the mid-20th century.”⁶

- “Thousands of studies conducted by researchers around the world have documented changes in surface, atmospheric, and oceanic temperatures; melting glaciers; diminishing snow cover; shrinking sea ice; rising sea levels; ocean acidification; and increasing atmospheric water vapor.”⁷
- “Global sea level rise has already affected the US; the incidence of daily tidal flooding is accelerating in more than 25 Atlantic and Gulf Coast cities.”⁸
- “Global average sea levels are expected to continue to rise by at least several inches in the next 15 years and by 1 to 4 feet by 2100. A rise of as much as 8 feet by 2100 cannot be ruled out.”⁹
- “The incidence of large forest fires in the western US and Alaska has increased since the early 1980s and is projected to further increase in those regions as the

⁶ U.S. DEP’T OF INTERIOR OFF. OF SURFACE MINING RECLAMATION AND ENF’T, BULL MOUNTAINS MINE NO. 1 FEDERAL MINING PLAN MODIFICATION ENVIRONMENTAL ASSESSMENT at D-2-D-4, App’x D (Aug. 2018) (citing U.S. GLOBAL CHANGE RSCH. PROGRAM, FOURTH NATIONAL CLIMATE ASSESSMENT (2017)).

⁷ *Id.*

⁸ *Id.*

⁹ *Id.*

climate changes, with profound changes to regional ecosystems.”¹⁰

- “It is very likely that heat waves will occur more often and last longer, and that extreme precipitation events will become more intense and frequent in many regions.”¹¹
- “The magnitude of climate change beyond the next few decades will depend primarily on the amount of GHGs (especially CO₂) emitted globally.”¹²
- “Continued emission of GHGs will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive, and irreversible impacts for people and ecosystems.”¹³

Far from reflecting an ongoing debate, the 2018 EA succinctly depicts the impact of GHGs on the environment in the following graphic illustration: “GHG emissions and other

¹⁰ *Id.*

¹¹ *Id.* (citing INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC), CLIMATE CHANGE 2014: SYNTHESIS REPORT (2014)). We note that the information contained in the 2014 IPCC report has been updated. *See* INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2021: THE PHYSICAL SCIENCE BASIS (2021), https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WG1_Full_Report.pdf.

¹² *Id.*

¹³ *Id.*

climate drivers → global warming → climate change → environmental effects.”

Against this uncontroverted backdrop, Interior found that the Mine Expansion will have no significant impacts on the climate or the environment relative to cumulative statewide, national, and global GHG emissions. Interior based its FONSI on three simple comparisons: (1) a comparison of the total projected GHG emissions generated by the 11.5 year Mine Expansion project against total annual global GHG emissions; (2) a comparison of the projected GHG emissions from the Mine Expansion’s activities in the United States against the United States’ annual GHG emissions; and (3) a comparison of the projected GHG emissions from the Mine Expansion’s activities in the United States against Montana’s annual GHG emissions. Though Interior asserts it “quantifie[d] the emissions estimated to result from burning the coal . . . [and] analyzes them in the global, national, and regional contexts,” this statement is somewhat misleading. The comparison of the emissions generated by the Mine Expansion’s activities in the United States against national GHG emissions and Montana’s emissions did not account for combustion of the coal overseas; the two domestic comparisons only considered emissions generated by mining the coal and transporting it to a port in Vancouver, British Columbia.

II

We review de novo a district court’s order granting summary judgment. *Bark*, 958 F.3d at 869. “The Administrative Procedure Act (APA), 5 U.S.C. § 706(2)(A), provides the governing standard for courts reviewing an agency’s compliance with NEPA” *Id.* Pursuant to the

APA, we must “hold unlawful and set aside agency action, findings, and conclusions” that are found to be “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” § 706(2)(A). Agency action is arbitrary and capricious “if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.” *Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto. Ins.*, 463 U.S. 29, 43 (1983).

III

As a threshold issue, Signal Peak argues this case is moot because plaintiffs challenge the 2018 EA. Signal Peak contends the 2018 EA has been superseded by the EA Interior published in 2020 after the district court remanded the case to the agency to consider the risk of train derailments. Interior takes no position on whether the 2020 EA moots this appeal.

“The doctrine of mootness, which is embedded in Article III’s case or controversy requirement, requires that an actual, ongoing controversy exist at all stages of federal court proceedings.” *Bayer v. Neiman Marcus Grp., Inc.*, 861 F.3d 853, 862 (9th Cir. 2017) (citation and internal quotation marks omitted). “The basic question in determining mootness is whether there is a present controversy as to which effective relief can be granted.” *Id.* (citation and internal quotation marks omitted). An action ““becomes moot only when it is impossible for a court to grant any effectual relief whatever to the prevailing party.”” *Id.* (quoting *Chafin v. Chafin*, 568 U.S. 165, 172 (2013)).

Here, though the district court’s 2020 opinion and order vacated the 2018 EA, the court remanded only for Interior to consider the risk of train derailments. The district court neither vacated Interior’s approval of the Mine Expansion nor ordered reconsideration of the rest of the 2018 EA, 350 *Montana*, 443 F. Supp. 3d at 1202, and the 2020 EA unequivocally explained that “[m]ost of the information provided in the 2018 EA has not changed and, therefore, is herein incorporated by reference in this EA.”¹⁴ Significant for purposes of this appeal, the 2020 EA incorporated in full the 2018 EA’s analysis of the Mine Expansion’s GHG emissions and the impact of those emissions on global warming, climate change, and the environment. *Id.* at 15.

That the 2018 EA is expressly incorporated into the 2020 EA distinguishes this case from the cases *Signal Peak* cites. For example, in *Wyoming v. U.S. Department of Agriculture*, 414 F.3d 1207 (10th Cir. 2005), Wyoming challenged a rule implemented by the U.S. Forest Service. *Id.* at 1210–11. The rule was enjoined by the district court and, the day after argument in the circuit court, the Forest Service “replac[ed]” the challenged rule with a materially different one. *Id.* at 1211. Because “[t]he portions of the [original rule] that were substantively challenged by Wyoming no longer exist[ed],” the Tenth Circuit held that the parties’ dispute was moot because the court could not “render a decision on the validity of the now nonexistent [original rule].” *Id.* at 1212–13. Similarly, in *Theodore Roosevelt Conservation Partnership v. Salazar*, the plaintiff argued the Bureau of Land Management failed to adhere to the requirements found

¹⁴ DEP’T OF INTERIOR OFF. OF SURFACE MINING RECLAMATION AND ENF’T, BULL MOUNTAINS MINE NO. 1 FEDERAL MINING PLAN MODIFICATION ENVIRONMENTAL ASSESSMENT at 1 (Oct. 2020).

in a then-superseded Record of Decision. 661 F.3d 66, 78–79 (D.C. Cir. 2011). Because the Record of Decision had been superseded, the D.C. Circuit reasoned that it could “neither invalidate, nor require the Bureau to adhere to, a Record of Decision that has ‘disappeared into the regulatory netherworld.’” *Id.* at 79 (quoting *Nw. Pipeline Corp. v. F.E.R.C.*, 863 F.2d 73, 77 (D.C. Cir. 1988)).

The 2018 EA pertaining to the Mine Expansion has neither disappeared nor been replaced. The relevant portions of it were expressly incorporated into the 2020 EA and reissued. Accordingly, we retain the ability to order relief in this case, and the parties’ dispute is not moot.

IV

Plaintiffs argue that Interior violated NEPA by failing to take a “hard look” at the actual environmental effects of the Mine Expansion’s GHG emissions, and by failing to provide a convincing statement of reasons for its finding that the Mine Expansion will not have a significant effect on the environment. Plaintiffs again press their argument that the agency should have used the Social Cost of Carbon metric, and also argue that the three comparisons the agency did use fall short of the mark:

Without some actual analysis of the incremental impacts “it would be impossible for [an agency] to know whether a change in GHG emissions of 0.2%, or 1% or 5% or 10% will be a significant step toward averting the tipping point and irreversible adverse climate change.” *Ctr. For Biological Diversity*, 538 F.3d at 1221 (internal quotation marks

and ellipses omitted) (argument of appellant); *id.* at 1221–23 (accepting argument). . . .

Here, in direct contravention of the teaching of *Center for Biological Diversity*, OSM’s analysis of the mine’s 240 million tons of GHG emissions consisted of nothing more than comparing this figure to total global GHG emissions and then discounting it as less than one percent and therefore “minor” and “insignificant.” ER0135–36. As in *Center for Biological Diversity*, this unenlightening analysis violated NEPA.”

“We examine the EA with two purposes in mind: to determine whether it has adequately considered and elaborated the possible consequences of the proposed agency action when concluding that it will have no significant impact on the environment, and whether its determination that no EIS is required is a reasonable conclusion.” *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1215 (9th Cir. 2008). “Federal agencies must undertake a ‘full and fair’ analysis of the environmental impacts of their activities,” and “NEPA imposes procedural requirements designed to force agencies to take a ‘hard look’ at environmental consequences” of their proposed actions. *League of Wilderness Defs./Blue Mountains Biodiversity Project*, 752 F.3d at 762–63 (citation omitted). To satisfy the “hard look” requirement, an agency must provide “a reasonably thorough discussion of the significant aspects of the probable environmental consequences.” *Ctr. for*

Biological Diversity, 538 F.3d at 1194 (citation and internal quotation marks omitted).¹⁵

“In reviewing an agency’s decision not to prepare an EIS, the arbitrary and capricious standard under the APA requires this court ‘to determine whether the agency has taken a ‘hard look’ at the consequences of its actions, ‘based [its decision] on a consideration of the relevant factors,’ and provided a ‘convincing statement of reasons to explain why a project’s impacts are insignificant.’” *Barnes v. U.S. Dep’t of Transp.*, 655 F.3d 1124, 1132 (9th Cir. 2011) (quoting *Env’t Prot. Info. Ctr. v. U.S. Forest Serv.*, 451 F.3d 1005, 1009 (9th Cir. 2006)). “The unequivocal intent of NEPA is to require agencies to consider and give effect to the environmental goals set forth in the Act”—informing the public and ensuring agency consideration of the environmental impacts of its actions—“not just to file detailed impact studies which will fill governmental archives.” *Ctr. for Biological Diversity*, 538 F.3d at 1214–15 (quoting *Env’t Def. Fund, Inc. v. Corps of Eng’rs of U.S. Army*, 470 F.2d 289, 298 (8th Cir. 1972)).

The 2018 EA thoroughly supported the relationship between GHG emissions and climate change and included an unvarnished summary of the broad consensus that has emerged from the scientific community—that climate change

¹⁵ Regulations in effect at the time Interior issued its FONSI required agencies to consider “both context and intensity” when determining whether an action has a significant effect on the human environment. 40 C.F.R. § 1508.27. “Context . . . means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality.” *Id.* § 1508.27(a). “Intensity . . . refers to the severity of impact.” *Id.* § 1508.27(b).

is having, and is expected to continue to have, alarming effects on our environment. The 2018 EA also calculated that the GHG emissions generated over the life of the Mine Expansion would total “approximately 0.44 percent of annual (single year) global GHG emissions.” But in the single sentence that followed, the EA merely asserted that “while the [Mine Expansion] would contribute to the effects of climate change,” its “contribution *relative to other global sources [of GHGs]* would be minor in the short- and long-term on an annual basis.” With that, the EA summarily concluded that the Mine Expansion will not have a significant impact on the environment.

Interior did not cite any scientific evidence supporting the characterization of the project’s emissions as “minor” compared to global emissions, nor did it identify any science-based criteria the agency used in its determination. “Without some articulated criteria for significance in terms of contribution to global warming that is grounded in the record and available scientific evidence,” *id.* at 1224–25 (internal quotation marks and citation omitted), Interior’s conclusion that the Mine Expansion’s GHG emissions will be “minor” is deeply troubling and insufficient to meet Interior’s burden.

Counsel for Interior and Signal Peak both directed the court to Appendix D as support for Interior’s FONSI. Appendix D is included as an addendum to this decision. It reflects the scientific community’s agreement that GHGs cause global warming and climate change, and identifies consequences of climate change that the agency describes as “profound,” but Appendix D is untethered to the agency’s conclusion that the Mine Expansion will have no significant impact on the environment. The reader is left with the agency’s unsupported assertion that the Mine Expansion’s

GHG emissions will be “minor,” which boils down to an observation that could be applied to any other domestic source of GHGs if compared to global GHG emissions. Essentially, the EA tells the reader that the Mine Expansion will add more fuel to the fire but its contribution will be smaller than the worldwide total of all other sources of GHGs. The reader is left to guess how or why the GHG emissions from the Mine Expansion represent an insignificant contribution to the environmental consequences identified in the EA.¹⁶

The lack of a science-based standard for significance is critical because the record before us reflects no dispute that GHGs cause global warming and have had dramatic effects on the environment. The only question is the extent to which this particular project’s GHGs will add to the severe impacts of climate change. It is worth repeating that the parties do not dispute the Mine is anticipated to generate more GHGs annually than the “largest single point source of GHG emissions in the United States.” When asked at oral argument, Interior did not dispute that if a project of this scale can be found to have no significant impact, virtually *every* domestic source of GHGs may be deemed to have no significant impact as long as it is measured against total global emissions. *Cf. Sw. Elec. Power Co. v. E.P.A.*, 920 F.3d 999, 1032 (5th Cir. 2019) (observing, in a Clean

¹⁶ See Kevin M. Stack & Michael P. Vandenberg, *The One Percent Problem*, 111 COLUM. L. REV. 1385, 1388 (2011) (“With regard to climate change, it is natural to frame the problem in global terms; it is a global problem. But once it is framed that way, the size of the denominator—all activities that produce [GHGs], viewed globally—is staggering, and this framing makes almost any source of emissions, including entire industrial sectors within a given country, or even entire countries,” appear negligible.).

Water Act case, that a pollutant “may form a ‘very small portion’ of a gargantuan source of water pollution” while still “constitut[ing] a gargantuan source of water pollution on its own terms”).

Plaintiffs argue that our opinion in *Center for Biological Diversity* requires reversal of Interior’s FONSI determination. In *Center for Biological Diversity*, a group of states and public interest organizations petitioned for review of a final rule promulgated by the National Highway Traffic Safety Administration (NHTSA). 538 F.3d at 1180. The EA in that case catalogued the total tonnage of CO₂ emissions that would result from its final rule and compared that number to the total GHG emissions generated in the United States to forecast that the rule would “result in cumulative reductions . . . ranging from 0.2 to 0.3 percent of U.S. greenhouse gas emissions.” *Id.* at 1215–16. Petitioners challenged the rule pursuant to the Energy Policy and Conservation Act of 1975 (EPCA) and NEPA, arguing that NHTSA’s EA violated NEPA because it “fail[ed] to take a ‘hard look’ at the greenhouse gas implications of its rulemaking and fail[ed] to analyze a reasonable range of alternatives or examine the rule’s cumulative impact.” *Id.* at 1181.

In *Center for Biological Diversity*, we agreed that the final rule failed to satisfy NEPA’s “hard look” and “convincing statement of reasons” requirements. *Id.* at 1181–82, 1220–21. Though the agency determined the projected 0.2 percent decrease in the rate of GHG emissions would not have a significant impact on the environment, petitioners had argued that other fuel-economy standards would have yielded a significantly greater reduction in GHG emissions and NHTSA’s conclusion was “unaccompanied by

any analysis or supporting data[.]”¹⁷ *Id.* at 1216–17, 1223. On that record, we concluded the EA did not “provide a ‘statement of reasons’ for a finding of no significant impact, much less a ‘convincing statement of reasons.’” *Id.* at 1223. Thus, we ordered NHTSA to prepare a revised EA or, as necessary, a complete EIS. *Id.* at 1227. Plaintiffs rely heavily on *Center for Biological Diversity* to argue that the global and domestic comparisons supporting the 2018 EA must be rejected because they are not backed by the “best available science.”

Interior counters that our opinion in *Barnes*, 655 F.3d at 1139, requires the conclusion that the FONSI in this case was adequately supported. In *Barnes*, the Federal Aviation Administration prepared an EA and FONSI concerning a proposal to construct a new runway at Hillsboro Airport in Oregon. 655 F.3d at 1126. Relevant here, the FAA’s EA estimated that “global aircraft emissions account for about 3.5 percent of the total quantity of greenhouse gas from human activities and that U.S. aviation accounts for about 3 percent of total U.S. [greenhouse] gas emissions from human sources.” *Id.* at 1140. Because the Hillsboro Airport “represent[ed] less than 1 percent of U.S. aviation activity,” the EA estimated that GHG emissions from existing and future aviation activity at the airport would “represent less than 0.03 percent of U.S.-based greenhouse gases.” *Id.*

Interior calls our attention to *Barnes* because that case recognized that the effect of greenhouse gases on climate is

¹⁷ See Opening Brief of Pub. Int. Petitioners on Nat’l Env’t Pol’y Act Issue, *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172 (9th Cir. 2008) (Nos. 06-71891, 06-72317, 06-72641, 06-72694, 06-73807, 06-73826), 2006 WL 3884218.

a global problem, and we upheld the agency’s FONSI determination even though part of the FAA’s analysis included a comparison of the project’s expected emissions against global and domestic GHG emissions. *Id.* But *Barnes* is easily distinguished. The project at issue in that case was expected to reduce airport congestion and delay, thereby reducing aircraft ground idle emissions, and the net result was expected to be “long-term, ongoing emission reductions.” *Id.* at 1130 (emphasis added). The Mine Expansion represents a far greater percentage of U.S.-based GHG emissions than the Hillsboro Airport expansion, and in contrast to the proposal in *Barnes*, which represented a reduction in an existing airport’s GHG emissions, the Mine Expansion unquestionably represents an overall increase in GHG emissions. Our approval of the FONSI in *Barnes* cannot be stretched to excuse the lack of support for the EA in this case. *See id.* at 1140–41 (recognizing that its ruling “creat[ed] no binding precedent” because “EAs are usually highly specific to the project and the locale”).

The 2018 EA’s domestic comparisons also failed to provide a convincing rationale in support of the FONSI, and fell short of NEPA’s requirement that environmental information be made available to citizens before decisions are made,¹⁸ because the U.S.- and Montana-based comparisons do not account for emissions generated by combustion of the project’s coal. The district court cited the EA’s domestic comparisons, *350 Montana*, 443 F. Supp. 3d at 1198–99, but did not specifically discuss that those calculations only include the emissions generated by mining the coal and transporting it to Vancouver, where it is shipped overseas. As the EA explains, 97 percent of GHGs from the project will

¹⁸ 40 C.F.R. § 1500.1(b).

result from coal combustion, primarily in Japan and the Republic of Korea.

The failure to account for combustion-related emissions in the domestic comparisons cannot be explained as an attempt to measure the Mine Expansion's local impact because there is no question that the coal from the Mine Expansion is intended to be sold for combustion.¹⁹ The omission of combustion-related emissions also contradicts a key premise of the 2018 EA—that climate change is a global problem. None of the parties argue that the fact the coal will be burned overseas minimizes the significance of the resulting GHGs. Yet when asked at oral argument about the failure to account for combustion-related emissions, counsel demurred. Put simply, there is no cogent rationale that justifies excluding combustion-related emissions from the 2018 EA's domestic comparisons. The starting point of the agency's analysis was its recognition that GHGs are a global problem. It follows that any meaningful measure of a local point source's contribution to global GHGs cannot exclude combustion-related emissions, regardless of where the coal is burned.²⁰

¹⁹ The partial dissent responds by speculating that Japanese and South Korean purchasers may stockpile coal rather than burning it. But there is no indication of this in the record, and neither of the parties engage in similar speculation.

²⁰ Only the partial dissent suggests that the agency need not concern itself with the environmental consequences caused by burning the project's coal overseas. The EA frankly acknowledges that climate change is a global problem and that “[t]he magnitude of climate change beyond the next few decades will depend primarily on the amount of GHGs (especially CO₂) emitted globally.” *See supra* note 6.

Notably, Interior’s domestic comparisons in the 2015 EA did include combustion-related emissions. The 2015 EA “compar[ed] the estimated yearly amount of greenhouse gas emission from the Mine (23.16 million metric tons) to the total [annual] amount of greenhouse gas emissions in the United States (6,526 million metric tons in 2012)[.]” *Mont. Env’t Info. Ctr.*, 274 F. Supp. 3d at 1094–95. The 23.16 million metric tons of GHGs included 22.3 million metric tons (approximately 96.3 percent) of GHGs attributable to the combustion of shipped coal. Interior offers no explanation for why, after the district court ordered it to provide *more* context than it presented in the 2015 EA, *see id.* at 1101–02, it backpedaled and *omitted* combustion-related emissions in the 2018 EA.

The EA’s U.S.- and Montana-based comparisons change dramatically if they are modified to account for combustion of the Mine Expansion’s coal. The estimate of the project’s domestic emissions jumps from .04 percent of annual U.S.-based GHG emissions to approximately 3.33 percent if combustion-generated emissions are included. And the calculation jumps from 6.43 percent of Montana’s annual GHG emissions to 519 percent of Montana’s annual GHG emissions if combustion-related GHG emissions are included.²¹ We do not specify a particular format for

²¹ Plaintiffs argue the project’s GHG emissions would be more than six times the annual Montana emissions, but they do not detail how they calculated that estimate and it appears to be somewhat high. Below, we show the same comparisons Interior used in the 2018 EA, but account for GHG emissions generated by combustion of the project’s coal. The Mine Expansion represents approximately 9 years of the 11.5 year project, but the figures below are based on 11.5 years of operation, in keeping with Interior’s calculation.

disclosing the projected impact of the project, but a more complete comparison of the Mine Expansion's GHG emissions against U.S.- and Montana-based emissions would go a long way toward contextualizing the significance of the project's environmental consequences, as required by NEPA. 40 C.F.R. § 1508.27 (“[T]he significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality.”). For example, the 2018 EA did not explain to the public that every year the Mine Expansion is in operation, Montana's annual GHG emissions are expected to be about 45 percent greater than that state's projected 2020 emissions.²²

Our conclusion that the 2018 EA failed to provide a convincing statement of reasons to explain why the Mine Expansion's impacts are insignificant begins with Interior's

54,000 = annual global Mt-CO₂e.

7,261 = annual US Mt-CO₂e.

46.3 = annual Montana Mt-CO₂e (2020 projection).

240.1 = total Mine expansion emissions over the life of the project.

240.1 / 11.5 = 20.9 Mt-CO₂e = approximate average annual Mine emissions

240.1 / 7,261 = .033 = 3.33%

240.1 / 46.3 = 5.19 = 519%

²² Interior's analysis used 2020 as the base year for comparing Montana's GHG emissions.

20.9 / 46.3 = 0.45 = 45%

own uncontested summary of the scientific evidence concerning the cause and effects of climate change. The EA describes the consequences of climate change as “profound,” and explains researchers’ broad consensus that “the magnitude of climate change beyond the next few decades will depend primarily on the amount of GHGs (especially CO₂) emitted globally.” The only question is the extent of this project’s contribution to the problem. *See* 42 U.S.C. § 4332(C); 40 C.F.R. § 1508.13; 40 C.F.R. § 1508.27 (“‘Significantly’ as used in NEPA requires considerations of . . . intensity,” and intensity “refers to the severity of impact.”).²³ By relying on an opaque comparison to total global emissions and failing to account for combustion-related emissions in its domestic calculations, the 2018 EA hid the ball and frustrated NEPA’s purpose. *See League of Wilderness Defs./Blue Mountains Biodiversity Project*, 752 F.3d at 761 (“Informed public participation in reviewing environmental impacts is essential to the proper functioning of NEPA.”). Interior’s FONSI does not measure up to the “high quality” and “[a]ccurate scientific analysis” that NEPA’s implementing regulations demand of environmental information produced by agencies. 40 C.F.R. § 1500.1.

Beginning in its first paragraph, the partial dissent attributes findings to the agency that it did not make,²⁴ sets up

²³ Title 40 of the Code of Federal Regulations has since been amended. *See* 85 Fed. Reg. 43,304, 43,357–76 (July 16, 2020) (amending 40 C.F.R. Parts 1500 *et seq.*). We cite to the regulations in force at the time Interior published the 2018 EA.

²⁴ The partial dissent asserts the agency found “that the incremental effects of 0.04% of annual global greenhouse gas [] emissions were ‘minor.’” But the agency made no such finding. Rather, the agency’s

a series of straw man arguments, and curiously and persistently attributes to this opinion the agency's quantification of GHGs, even asserting that "the majority overstates the actual impact of the project more than ten-fold[.]" The suggestion that plaintiffs barely challenged the agency's conclusion that the project's environmental effects would be "minor" is refuted by plaintiffs' arguments, excerpted in this opinion. Our opinion relies on the three metrics the agency used in its EA—and the agency did indeed compare the GHGs emitted over the course of the project to one year of total annual GHG emissions and concluded, without analysis or elaboration, that the project's contributions would be "minor." The partial dissent's concern that these are "apples to oranges" comparisons cannot be correctly aimed at the majority. Further, it was the agency, not the panel majority, that omitted from the 2018 EA any consideration of combustion-related GHGs from the domestic calculation of the project's GHGs. This omission is particularly glaring because the agency included the GHGs generated by burning the coal in its 2015 EA domestic calculations and then stripped the GHGs generated from combustion of the coal out of the 2018 EA's domestic calculations.

At oral argument, the agency did not deny that every domestic project, viewed individually, will generate GHGs that can be described as "minor" when compared to global

2018 EA found that "total direct and indirect emissions resulting from mining over 11.5 years would be approximately 0.44 percent of annual (single year) global GHG emissions (2010). Therefore, while the Proposed Action would contribute to the effects of climate change, its contribution relative to other global sources would be minor in the short- and long-term on an annual basis."

GHG emissions. And if domestic measures of this admittedly global problem omit the GHGs generated by burning the coal overseas, the calculations provide the public no indication at all of the project's contributions to the threat presented by global warming.

V

Plaintiffs also argue that Interior arbitrarily and capriciously failed to use the Social Cost of Carbon metric to quantify the environmental harms that may result from the project's GHG emissions. The SCC is “a method of quantifying the impacts of GHGs” that estimates the harm, in dollars, caused by each incremental ton of carbon dioxide emitted into the atmosphere in a given year. The SCC was developed in 2010 by the Interagency Working Group on the Social Cost of Carbon (IWG), which consisted of experts from various federal agencies, including Interior.

Plaintiffs strenuously argue that the SCC is “[r]ooted in extensive, peer-reviewed scientific literature” and has been widely accepted by scientists, agencies, and courts alike. *See, e.g., Zero Zone, Inc. v. U.S. Dep’t of Energy*, 832 F.3d 654, 660–61, 677–78 (7th Cir. 2016) (approving the Department of Energy’s use of the Social Cost of Carbon when considering environmental impacts of two final rules aimed at improving the energy efficiency of commercial refrigeration equipment); *High Country Conservation Advocs. v. U.S. Forest Serv.*, 52 F. Supp. 3d 1174, 1189–93 (D. Colo. 2014) (rejecting Forest Service’s contention that there is no method to predict the impact of one project’s GHG emissions on climate change because “a tool is and was available: the social cost of carbon protocol”). Another agency within the Department of Interior, the Bureau of Reclamation, explained

in a draft EIS that “SCC estimates provide valuable and critical insights for decision[] makers and the public as they consider the costs and benefits of alternative policy choices”²⁵

Interior did not use the SCC in its 2015 EA, and plaintiffs argued in the district court that the decision was arbitrary and capricious. The court was persuaded by plaintiffs’ argument and concluded that Interior’s analysis weighed the economic benefits of the Mine Expansion but failed to use the SCC to quantify the resulting environmental harms. When Interior again declined to employ the SCC in the 2018 EA, it pointed to four reasons:

- 1) [Interior] is not engaged in a rulemaking for which the [SCC] protocol was originally developed;
- 2) the [Interagency Working Group on Social Cost of Greenhouse Gases], technical supporting documents, and associated guidance have been withdrawn;
- 3) NEPA does not require cost-benefit analysis; and
- 4) the full social benefits of coal-fired energy production have not been monetized, and quantifying only the costs of GHG emissions for the project but not other costs and benefits would yield information that is both potentially inaccurate and not useful.

²⁵ BUREAU OF RECLAMATION, DRAFT ENVIRONMENTAL IMPACT STATEMENT: NAVAJO GENERATING STATION-KAYENTA MINE COMPLEX PROJECT at § 3.2.1 (Sept. 2016), <https://www.usbr.gov/ngs/docs/NGS-KMC-DEIS-Text.pdf>.

Interior's primary explanation for declining to use the SCC was that the method is too uncertain to provide a benefit because it produces a wide range of values to quantify the environmental impacts of incremental GHG emissions. But it also stressed that the SCC was developed for rule-making. The district court ruled that Interior adequately explained its decision not to use the SCC and rejected plaintiffs' argument that Interior arbitrarily and capriciously declined to employ the methodology.

On appeal to our court, plaintiffs argue the district court erred because even the lowest value in the range of estimates generated by the SCC indicates that the environmental damages caused by the Mine Expansion's GHG emissions will significantly exceed the total value of the coal, including all economic benefits.²⁶ Plaintiffs also strenuously argue that the SCC analysis applies with equal force—and produces equally valid results—to project-level agency decisions as it does to rulemaking proceedings. But plaintiffs' arguments overlook that prescribing a specific metric for the agency to use on remand is not our role. *See Friends of Endangered Species, Inc. v. Jantzen*, 760 F.2d 976, 986 (9th Cir. 1985). “NEPA does not require that we decide whether an [EA] is based on the best scientific methodology available, nor does NEPA require us to resolve disagreements among various scientists as to methodology.” *Id.*; *The Lands Council v. McNair*, 537 F.3d 981, 1003 (9th Cir. 2008) (en banc).

What NEPA does require is that agencies provide “high quality” information and “[a]ccurate scientific analysis.” 40 C.F.R. § 1500.1. For the reasons explained, the global and

²⁶ The SCC produces a range of values depending on the year of the emissions and the discount rate used.

domestic comparisons employed in the 2018 EA fall short of that mark. The 2018 EA asserts, without citation or explanation, that incremental effects of climate change “cannot be attributed to anyone [sic] source at a small scale.” But NEPA requires that agencies ask a broader question and consider the direct, indirect, and cumulative effects of proposed agency action. *See Barnes*, 655 F.3d at 1136, 1141; 40 C.F.R. §§ 1508.7–8. Interior does not cite any authority in support of its implied proposition that an agency may decline to consider evidence relevant to indirect and cumulative impacts simply because it cannot *precisely* identify direct effects.

As far as we can tell, Interior resorted to a global comparison of the Mine Expansion’s GHG emissions because it could not define, with precision, the incremental impacts of this project’s emissions. Interior suggests that it could do no better, but the authorities cited in the 2018 EA make plain that the scientific community’s understanding has advanced considerably since we decided *Barnes* in 2011.²⁷ We are not persuaded by plaintiff’s argument that Interior was required to use the SCC, but Interior must use some methodology that satisfies NEPA and the APA. At a minimum, this approach requires providing the information that is known, and the

²⁷ The agency hedged on its implied assertion that, if the SCC is not used, no other metrics were available. Interior refers to the Intergovernmental Panel on Climate Change (IPCC) as “the leading international body for the assessment of climate change.” The 2018 EA heavily relied upon the fifth edition of the IPCC’s report. We note that the IPCC’s recently published sixth edition assessment report integrates and synthesizes scientific, technical, and socioeconomic studies relevant to understanding the causes and effects of climate change. *See* INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2021: The Physical Science Basis (2021).

2018 EA provided less detail than the 2015 EA. The Mine Expansion will emit millions of tons of GHGs into the atmosphere, and the bare comparisons employed in the 2018 EA are of almost no utility in the absence of additional information concerning the Mine Expansion’s scale and scope relative to the industry and commodity. *Ctr. for Biological Diversity*, 538 F.3d at 1223–25.

VI

Plaintiffs urge us to vacate Interior’s approval of the Mine Expansion and direct Interior to prepare an EIS. “[P]reparation of an EIS is not mandated in all cases simply because an agency has prepared a deficient EA or otherwise failed to comply with NEPA,” *id.* at 1225, but “[p]reparation 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,” *Native Ecosystems Council v. U.S. Forest Service*, 428 F.3d 1233, 1240 (9th Cir. 2005) (internal quotation marks and alteration omitted) (quoting *Nat’l Parks & Conservation Ass’n v. Babbitt*, 241 F.3d 722, 731–32 (9th Cir. 2001), *abrogation on other grounds recognized by Monsanto Co. v. Geertson Seed Farms*, 561 U.S. 139, 157–58 (2010)).

Plaintiffs are correct that vacatur is the presumptive remedy under the APA, *Alliance for the Wild Rockies v. United States Forest Service*, 907 F.3d 1105, 1121–22 (9th Cir. 2018), and “[w]e order remand without vacatur only in ‘limited circumstances,’” *Pollinator Stewardship Council v. U.S. Environmental Protection Agency*, 806 F.3d 520, 532 (9th Cir. 2015) (quoting *Cal. Cmities. Against Toxics v. EPA*, 688 F.3d 989, 994 (9th Cir. 2012)). “Whether agency action should be vacated depends on how serious the agency’s errors

are and the disruptive consequences of an interim change that may itself be changed.” *Nat’l Family Farm Coal. v. E.P.A.*, 966 F.3d 893, 929 (9th Cir. 2020) (quoting *Cal. Cmities.*, 688 F.3d at 992).

Plaintiffs strenuously argue that permitting the Mine Expansion to go forward while Interior prepares a new, NEPA-compliant EA or EIS will “frustrate NEPA’s purpose of requiring agencies to look *before* they leap.” See *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989) (“NEPA ensures that important effects will not be overlooked or underestimated only to be discovered after resources have been committed or the die otherwise cast.”).

Plaintiffs’ argument is well taken, but the record is unclear about the extent to which the agency is capable of resolving uncertainty regarding the magnitude of the project’s contribution to the environmental harms identified in the EA. Further, there is a dearth of evidence concerning the impact of vacatur, including whether Signal Peak is currently mining federal coal or state coal. See *Cal. Cmities. Against Toxics*, 688 F.3d at 993–94 (considering environmental, economic, and energy-related consequences of vacatur). Additional factfinding is necessary to determine whether preparation of an EIS and vacatur of the plan approval is warranted at this juncture. See *id.* We are mindful of the need for prompt reconsideration of the plan’s approval but must remand to the district court to make that determination as expeditiously as possible.²⁸

²⁸ There is no merit to the partial dissent’s contention that this opinion requires the agency to make up new science, and contrary to its concern that we ought to remand to the agency, we have repeatedly remanded to the district court to determine whether preparation of an EIS is

The district court's order is **AFFIRMED IN PART**, **REVERSED IN PART**, and the case is **REMANDED** to the district court for further proceedings consistent with this opinion.

appropriate. *See, e.g., W. Watersheds Project v. Abbey*, 719 F.3d 1035, 1054 (9th Cir. 2013); *Ocean Advocs. v. U.S. Army Corps of Engineers*, 402 F.3d 846, 875 (9th Cir. 2005); *Nat. Res. Def. Council v. U.S. Forest Serv.*, 421 F.3d 797, 816, 816 n.29 (9th Cir. 2005). Here, it is not clear whether an EIS would resolve uncertainty. But even if we could decide on this record that an EIS is required, remand would be necessary because there are no findings concerning the consequences that would follow from vacatur.

APPENDIX

APPENDIX D - CLIMATE CHANGE

This appendix provides additional information related to climate change to supplement descriptions of the existing condition (recent conditions and trends) in **Section 3.3** and provides global, national, and regional context (projections) to support impact analysis in **Section 4.3**.

1.0 Recent Conditions and Trends

As the leading international body for the assessment of climate change, IPCC reviews and assesses the most recent scientific, technical and socio-economic information produced worldwide relevant to the understanding of climate change. IPCC's fifth assessment report (IPCC 2014) presents details pertaining to observed climate changes and their causes; future climate changes, risks and impacts; future pathways for adaptation, mitigation and sustainable development; and adaptation and mitigation.

IPCC (2014) findings related to recent global conditions and trends include the following.

- Each of the last three decades has been successively warmer at the Earth's surface than any preceding decade since 1850. The period from 1983 to 2012 was likely the warmest 30-year period of the last 1400 years in the Northern Hemisphere, where such assessment is possible.
- The globally averaged combined land and ocean surface temperature data as calculated by a linear trend show a warming of 0.85 [0.65 to 1.06] °C 2 over the period 1880 to 2012, when multiple independently produced datasets exist. It is extremely likely that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic factors together.
- In recent decades, changes in climate have caused impacts on natural and human systems on all continents and across the oceans. Impacts are due to observed climate change, irrespective of its cause, indicating the sensitivity of natural and human systems to changing climate.
- Changes in many extreme weather and climate events have been observed since about 1950. Some of these changes have been linked to human influences, including a decrease in cold temperature extremes, an increase in warm temperature extremes, an increase in extreme high sea levels and an increase in the number of heavy precipitation events in a number of regions.
- In many regions, changing precipitation or melting snow and ice are altering hydrological systems, affecting water resources in terms of quantity and quality.
- Many terrestrial, freshwater and marine species have shifted their geographic ranges, seasonal activities, migration patterns, abundances and species interactions in response to ongoing climate change.
- Studies covering a wide range of regions and crops show that negative impacts of climate change on crop yields have been more common than positive impacts.

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- Cascading impacts of climate change can now be attributed along chains of evidence from physical climate through to intermediate systems and then to people.
- At present the worldwide burden of human ill-health from climate change is relatively small compared with effects of other stressors and is not well quantified.

As a key part of the *Fourth National Climate Assessment*, the US Global Change Research Program (USGCRP) oversaw production of a report describing the state of science relating to climate change and its physical impacts. USGCRP (2017) concluded that the climate of the US is strongly connected to the changing global climate and provided the following statements highlighting past and recent conditions related to climate change in the US and the globe.

- Global annually averaged surface air temperature has increased by about 1.8°F (1.0°C) over the last 115 years (1901–2016). This period is now the warmest in the history of modern civilization. The last few years have also seen record-breaking, climate-related weather extremes, and the last three years have been the warmest years on record for the globe. These trends are expected to continue over climate timescales.
- Based on extensive evidence, it is extremely likely that human activities, especially emissions of GHGs, are the dominant cause of the observed warming since the mid-20th century. For the warming over the last century, there is no convincing alternative explanation supported by the extent of the observational evidence.
- In addition to warming, many other aspects of global climate are changing, primarily in response to human activities. Thousands of studies conducted by researchers around the world have documented changes in surface, atmospheric, and oceanic temperatures; melting glaciers; diminishing snow cover; shrinking sea ice; rising sea levels; ocean acidification; and increasing atmospheric water vapor.
 - For example, global average sea level has risen by about 7–8 inches since 1900, with almost half (about 3 inches) of that rise occurring since 1993. Human-caused climate change has made a substantial contribution to this rise since 1900, contributing to a rate of rise that is greater than during any preceding century in at least 2,800 years. Global sea level rise has already affected the US; the incidence of daily tidal flooding is accelerating in more than 25 Atlantic and Gulf Coast cities.
- Changes in the characteristics of extreme events are particularly important for human safety, infrastructure, agriculture, water quality and quantity, and natural ecosystems. Heavy rainfall is increasing in intensity and frequency across the US and globally and is expected to continue to increase. The largest observed changes in the US have occurred in the Northeast.
- Heatwaves have become more frequent in the US since the 1960s, while extreme cold temperatures and cold waves are less frequent. Recent record-setting hot years are projected to become common in the near future for the US, as annual average temperatures continue to rise. Annual average temperature over the contiguous US has increased by 1.8°F (1.0°C) for the period 1901–2016.
- The incidence of large forest fires in the western US and Alaska has increased since the early 1980s and is projected to further increase in those regions as the climate changes, with profound changes to regional ecosystems.

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- Annual trends toward earlier spring melt and reduced snowpack are already affecting water resources in the western US and these trends are expected to continue.
- The global atmospheric carbon dioxide (CO₂) concentration has now passed 400 parts per million (ppm), a level that last occurred about 3 million years ago, when both global average temperature and sea level were significantly higher than today.
- The observed increase in carbon emissions over the past 15-20 years has been consistent with higher emissions pathways. In 2014 and 2015, emission growth rates slowed as economic growth became less carbon-intensive. Even if this slowing trend continues, however, it is not yet at a rate that would limit global average temperature change to well below 3.6°F (2°C) above preindustrial levels.

The Montana Climate Assessment (Whitlock et al. 2017) identified the following key messages about recent trends related to regional climate change in Montana.

- Annual average temperatures, including daily minimums, maximums, and averages, have risen across Montana between 1950 and 2015. The increases range between 2.0-3.0°F (1.1-1.7°C) during this period.
- Winter and spring in Montana have experienced the most warming. Average temperatures during these seasons have risen by 3.9°F (2.2°C) between 1950 and 2015.
- Montana's growing season length is increasing due to the earlier onset of spring and more extended summers, and there are more warm days and fewer cool nights. From 1951-2010, the growing season increased by 12 days. In addition, the annual number of warm days has increased by 2.0 percent, and the annual number of cool nights has decreased by 4.6 percent over this period.
- Despite no historical changes in average annual precipitation between 1950 and 2015, there have been changes in average seasonal precipitation over the same period. Average winter precipitation has decreased by 0.9 inches (2.3 cm), which can mostly be attributed to natural variability and an increase in El Niño events, especially in the western and central parts of the state. A significant increase in spring precipitation (1.3-2.0 inches [3.3-5.1 cm]) has also occurred during this period for the eastern portion of the state.

The Montana Climate Assessment (Whitlock et al. 2017) also provided findings related climate change to effects on water, forests, and agriculture, which have been and will continue to be affected by changes in climate.

2.0 Projected Climate Conditions and Effects

The most recent findings and predictions about climate change and its effects are presented in IPCC's report titled *Climate Change 2014: Synthesis Report*, the *Fourth National Climate Assessment* (USGCRP 2017), and *Montana Climate Assessment* (Whitlock et al 2017). Recent conditions and trends discussed in **Section I** are expected to continue. Projected effects of climate change are discussed in each of these documents at varying scales covering a variety of

topics and resources as summarized below in **Section 2.1** to **2.3**. In support of **Section 4.3.2** of the EA, a detailed discussion of the SCC protocol is provided in **Section 2.4**

2.1 Global Projections

Projected global climate conditions and effects identified by IPCC (2014) include the following.

- Cumulative emissions of CO₂ largely determine global mean surface warming by the late 21st century and beyond. Projections of GHG emissions vary over a wide range, depending on both socio-economic development and climate policy.
- Continued emission of GHGs will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive, and irreversible impacts for people and ecosystems.
- Surface temperature is projected to rise over the 21st century under all assessed emission scenarios. It is very likely that heat waves will occur more often and last longer, and that extreme precipitation events will become more intense and frequent in many regions. The ocean will continue to warm and acidify, and global mean sea level to rise.
- Climate change will amplify existing risks and create new risks for natural and human systems. Risks are unevenly distributed and are generally greater for disadvantaged people and communities in countries at all levels of development. Increasing magnitudes of warming increase the likelihood of severe, pervasive and irreversible impacts for people, species and ecosystems. Continued high emissions (globally) would lead to mostly negative impacts for biodiversity, ecosystem services and economic development and amplify risks for livelihoods and for food and human security.
- Many aspects of climate change and its associated impacts will continue for centuries, even if anthropogenic emissions of GHGs are stopped. The risks of abrupt or irreversible changes increase as the magnitude of the warming increases.

2.2 National Projections

The Fourth National Climate Assessment (USGCRP 2017) projects changes in temperature and precipitation, increased frequency of droughts, floods, wildfires, and extreme storms, changes in land cover and terrestrial biogeochemistry, changes in arctic conditions, sea level rise, and ocean acidification (and other ocean changes). EPA (2016a) identifies potential subsequent effects to health and society and ecosystems such as heat-related deaths and illness, disease spread, changes in growing seasons. Examples of projected effects identified by USGCRP (2017) include the following.

- Over the next few decades (2021–2050), annual average temperatures are expected to rise by about 2.5°F for the US, relative to the recent past (average from 1976-2005), under all plausible future climate scenarios.
- Global average sea levels are expected to continue to rise by at least several inches in the next 15 years and by 1 to 4 feet by 2100. A rise of as much as 8 feet by 2100 cannot be ruled out. Sea level rise will be higher than the global average on the East and Gulf Coasts of the US.

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- The magnitude of climate change beyond the next few decades will depend primarily on the amount of GHGs (especially CO₂) emitted globally. Without major reductions in emissions, the increase in annual average global temperature relative to preindustrial times could reach 9°F (5°C) or more by the end of this century. With significant reductions in emissions, the increase in annual average global temperature could be limited to 3.6°F (2°C) or less.
- Under higher scenarios, and assuming no change to current water resources management, chronic, long-duration hydrological drought is increasingly possible before the end of this century.
- Continued growth in CO₂ emissions over this century and beyond would lead to an atmospheric concentration not experienced in tens to hundreds of millions of years. There is broad consensus that the further and the faster the Earth system is pushed towards warming, the greater the risk of unanticipated changes and impacts, some of which are potentially large and irreversible.

2.3 *Montana Projections*

Key projections (effects) identified in the Montana Climate Assessment (Whitlock et al. 2017) include the following.

- The state of Montana is projected to continue to warm in all geographic locations, seasons, and under all emission scenarios throughout the 21st century. By mid-century, Montana temperatures are projected to increase by approximately 4.5-6.0°F (2.5-3.3°C) depending on the emission scenario. By the end-of-century, Montana temperatures are projected to increase 5.6- 9.8°F (3.1-5.4°C) depending on the emission scenario. These state-level changes are larger than the average changes projected globally and nationally.
- The number of days in a year when daily temperature exceeds 90°F (32°C) and the number of frost-free days is expected to increase across the state and in both emission scenarios studied. Increases in the number of days above 90°F (32°C) are expected to be greatest in the eastern part of the state. Increases in the number of frost-free days are expected to be greatest in the western part of the state.
- Across the state, precipitation is projected to increase in winter, spring, and fall; precipitation is projected to decrease in summer. The largest increases are expected to occur during spring in the southern part of the state. The largest decreases are expected to occur during summer in the central and southern parts of the state.
- Hydrologic impacts may include reduced snowpack; changes in runoff timing, streamflows and resultant water availability; and increased drought severity and duration.
- Forest impacts may include: variable impacts to forest-wide processes, but negative effects of extreme heat; increased forest mortality and net loss of forested areas; altered forest disturbance regimes; increase in fire risk; increase in bark beetle survival; and reduction in the amount of carbon stored in forests.
- Agricultural impacts may include both favorable and disruptive effects on crop and forage; production; less reliable irrigation water; changes to commodity prices; increases

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in native plains vegetation, but declines in forage quality; and an overall increase in the need for innovation and adaptation to address climate change effects.

2.4 Social Cost of Carbon

A protocol to estimate what is referenced as the “social cost of carbon” (SCC) associated with GHG emissions was developed by a IWG, to assist agencies in addressing EO 12866, which requires Federal agencies to assess the domestic costs and the benefits of proposed regulations as part of their regulatory impact analyses. The SCC is an estimate of the economic damages associated with an increase in carbon dioxide emissions internationally and is intended to be used as part of a cost-benefit analysis for proposed rules. As explained in the Executive Summary of the 2010 SCC Technical Support Document “the purpose of the [SCC] estimates...is to allow agencies to incorporate the social benefits of reducing carbon dioxide (CO₂) emissions into cost-benefit analyses of regulatory actions that have small, or ‘marginal,’ impacts on cumulative global emissions.” Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis under EO 12866 February 2010 (withdrawn by EO13783). While the SCC protocol was created for regulatory impact analyses during rulemakings, there have been requests by public commenters or project applicants to expand the use of SCC estimates to project-level NEPA analyses. These requests are not appropriate for project-level NEPA analyses for a number of reasons.

First, NEPA does not require a cost-benefit analysis (40 C.F.R. § 1502.23). NEPA requires agencies to take a hard look at the environmental impacts of their actions. OSMRE completed an analysis of the potential impacts under all applicable resource areas including air quality and climate change. OSMRE calculated potential emissions (including greenhouse gases) from mining operations, transportation, export, and coal combustion. This analysis contained quantitative or detailed qualitative information. OSMRE evaluated the best available information and the quantitative and or qualitative analyses provided a reasoned basis for making a choice among alternatives.

Further, the decision not to expand the use of the SCC protocol for this EA is supported by the fact that this action is not a rulemaking for which the SCC protocol was originally developed. On March 28, 2017, the President issued EO 13783 which, among other actions, withdrew the Technical Support Documents upon which the protocol was based and disbanded the earlier Interagency Working Group on Social Cost of Greenhouse Gases. The Order further directed agencies to ensure that estimates of the social cost of GHGs used in regulatory analyses “are based on the best available science and economics” and are consistent with the guidance contained in [Office of Management and Budget (OMB)] Circular A-4, “including with respect to the consideration of domestic versus international impacts and the consideration of appropriate discount rates” (E.O. 13783, Section 5(c)). In compliance with OMB Circular A-4, interim protocols have been developed for use in the rulemaking context. However, the Circular does not apply to project decisions, and there is no other requirement to apply the SCC protocol to project decisions.

Although NEPA does require consideration of “effects” that include “economic” and “social” effects (40 C.F.R. 1508.8(b)), without a complete monetary cost-benefit analysis, which would

include the social benefits of the proposed action to society as a whole and other potential costs and positive benefits, inclusion solely of an SCC cost analysis would be unbalanced, potentially inaccurate, and not useful in facilitating an authorized officer's decision. Any increased economic activity, in terms of revenue, employment, labor income, total value added, and output, that is expected to occur with the proposed action is simply an economic impact, rather than an economic benefit, inasmuch as such impacts might be viewed by another person as negative or undesirable impacts due to potential increase in local population, competition for jobs, and concerns that changes in population will change the quality of the local community. Economic impact is distinct from "economic benefit" as defined in economic theory and methodology, and the socioeconomic impact analysis required under NEPA is distinct from cost-benefit analysis, which is not required.

Finally, the SCC, protocol does not measure the actual incremental impacts at the project-level on the environment and does not include all costs or benefits from carbon emissions. The SCC protocol estimates economic damages associated with an increase in CO₂ emissions—typically expressed as a one metric ton increase in a single year—and includes, but is not limited to, potential changes in net agricultural productivity, human health, and property damages from increased flood risk over hundreds of years. The estimate is developed by aggregating results "across models, over time, across regions and impact categories, and across 150,000 scenarios" (Rose et al. 2014). The dollar cost figure arrived at based on the SCC calculation represents the value of damages avoided if, ultimately, there is no increase in carbon emissions. But the dollar cost figure is generated in a range and provides little benefit in assisting the authorized officer's decision for project level analyses. For example, in a recent EIS, OSMRE estimated that the selected alternative had a cumulative SCC ranging from approximately \$4.2 billion to \$22.1 billion depending on dollar value and the discount rate used. The cumulative SCC for the no action alternative ranged from \$2.0 billion to \$10.7 billion. Given the uncertainties associated with assigning a specific and accurate SCC resulting from 9 additional years of operation under the mining plan modification, and that the SCC protocol and similar models were developed to estimate impacts of regulations over long time frames, OSMRE's ability to evaluate these impacts on a project-level would be doubtful.⁹ This EA does, nonetheless, quantify direct and indirect GHG emissions and evaluate these emissions in the context of global emissions as discussed in **Section 4.3.I** of the EA.

⁹ This conclusion is supported in the February 2018 BLM *Regulatory Impact Analysis for the Proposed Rule to Rescind or Revise Certain Requirements of the 2016 Waste Prevention Rule* (BLM 2018), noting that "[t]he scientific and economics literature has further explored known sources of uncertainty related to estimates of the social cost of carbon and other greenhouse gases noting further that researchers have examined the sensitivity of Integrated Assessment Models (IAMs) and the resulting estimates to different assumptions embedded in the models (see, e.g., Pindyck 2013, Hope 2013, Anthoff and Tol 2013, Nordhaus 2014, and Waldhoff et al. 2011, 2014). BLM further spoke to the "additional sources of uncertainty that have not been fully characterized and explored due to remaining data limitations, concluding that" "[a]dditional research is needed to expand the quantification of various sources of uncertainty in estimates of the social cost of carbon and other greenhouse gases (e.g., developing explicit probability distributions for more inputs pertaining to climate impacts and their valuation). On damage functions, other experts have found that those used in most IAMs have no theoretical or empirical foundation, claiming that the overall model is able to "obtain almost any result one desires" (Pindyck 2013). Naturally, the indeterminate amount of uncertainty surrounding the IAMs used to approximate social costs for specific greenhouse gas emissions merits additional research and analysis and further peer-review in order to better ascertain the best available science and economics in accordance with E.O. 13783." BLM's discussion is in the context of a rulemaking for which the SCC was developed. The uncertainties regarding the applicability of social cost of carbon by OSMRE in the context of a specific project is even greater.

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To summarize, this EA does not undertake an analysis of SCC because 1) it is not engaged in a rulemaking for which the protocol was originally developed; 2) the IWG, technical supporting documents, and associated guidance have been withdrawn; 3) NEPA does not require cost-benefit analysis; and 4) the full social benefits of coal-fired energy production have not been monetized, and quantifying only the costs of GHG emissions for the project but not other costs and benefits would yield information that is both potentially inaccurate and not useful.

R. NELSON, Circuit Judge, dissenting:

The agency’s finding that the incremental effects of 0.04% of annual global greenhouse gas (“GHG”) emissions were “minor” was not arbitrary or capricious under the Administrative Procedure Act (“APA”). This argument was barely raised, and the majority’s contrary holding is wrong given our deferential APA review. I therefore respectfully dissent.¹

The environmental effects of GHG emissions have been hotly contested publicly and in the courts, particularly in the last three decades. Because neither political branch has provided any specific direction on how to address the environmental effects of GHG emissions, the courts are forced to confront this global environmental issue with outdated laws and regulations. The National Environmental Policy Act (“NEPA”)—the relevant law here—was passed over 50 years ago. And NEPA’s implementing regulations were first adopted more than 40 years ago, long before the current scientific debate over GHG emissions materialized.

The courts are ill-equipped to step into highly politicized scientific debates like this, particularly with so little direction from either the legislative or executive branch. Indeed, we risk exceeding our own judicial authority in doing so. *See generally Juliana v. United States*, 947 F.3d 1159 (9th Cir. 2020) (plaintiffs’ relief sought was not within the power of an Article III court). Rather than properly deferring to the other two branches of government—which have evaded the

¹ I agree with the Majority’s Section III and the portions of Section V that hold that the agency’s analysis of the Social Cost of Carbon was not arbitrary or capricious.

specific issue before us—the majority now addresses this global issue better left in the first instance to the political branches, not the judicial branch.

As the majority notes, the Department of the Interior’s Office of Surface Mining Reclamation and Enforcement (“Interior”) has compiled a breathtaking record of the potential environmental impacts of GHG emissions. That follows NEPA’s direction to consider potential environmental impacts. But as Interior explains, these potential environmental impacts are based on global GHG emissions. No scientific evidence identified by Interior, the Plaintiffs, or the majority quantifies the incremental environmental effect caused by GHG emissions of a single project. The best potential evidence of incremental impact, the Social Cost of Carbon (“SCC”), was rejected by Interior, and both a skeptical district court and this panel unanimously have affirmed that conclusion.

There is good reason for the courts to wade cautiously in this area. As Interior noted, the science of climate change is complex. So complex that the last several Administrations have failed to provide a consistent way for agencies to analyze the incremental effects of a single project’s GHG emissions on climate change under NEPA. No other environmental concern is so intertwined with assumptions of the behavior of 200 other sovereign nations, the supply and demand projections of global energy models, or the personal energy usage decisions of 7 billion people worldwide. It strains credibility to assume that such targeted issues can be adequately analyzed under NEPA with any scientific consensus.

Can we really expect scientists to agree on how many forest fires or other environmental harms in the proposed action area can be allocated to a 0.04% increase in annual global GHG emissions? Especially when scientists can hardly project the global GHG emissions 10 years from now with any similar accuracy? Yet the majority today demands that Interior do just that—and evaluate or create a scientific record that by all accounts does not yet exist. Interior explained how this was a futile effort and the science does not support such an analysis. We have consistently accorded those agency findings deference. *See, e.g., California ex rel. Imperial Cnty. Air Pollution Control Dist. v. U.S. Dep’t of Interior*, 767 F.3d 781, 792 (9th Cir. 2014). And since there is no evidence in the record that the science has evolved in the last decade to adequately evaluate any significant environmental impact from, at most, a 0.04% increase in annual global GHG emissions, Interior was not arbitrary or capricious in analyzing NEPA’s statutory and regulatory requirements.

The majority errs by concluding that Interior must compare the project’s GHG emissions to state and national emissions and create science to show the incremental environmental effect caused by 0.04% of annual global GHG emissions. Yet GHG emissions from coal combustion from foreign sources in Asia over an 11.5-year period are not relevant to a NEPA analysis of significant environmental effect. Moreover, local and domestic emissions are not appropriate metrics when analyzing the effects of global warming, which by all accounts (as the majority agrees) can only be evaluated—if at all—by global GHG emissions.

I

This case is not about the project’s effect on air quality or some other localized environmental harm, but Interior’s NEPA analysis of the project’s contribution to global GHG emissions. We review an agency’s decision under NEPA under the APA and may “set aside an agency action only if it is ‘arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.’” *Barnes v. U.S. Dep’t of Transp.*, 655 F.3d 1124, 1132 (9th Cir. 2011) (quoting 5 U.S.C. § 706(2)(A)). Review under this standard “is narrow, and we do not substitute our judgment for that of the agency.” *Id.* We uphold an agency’s decision of a finding of no significant impact (“FONSI”) if “the agency has taken a hard look at the consequences of its actions, based its decision on a consideration of the relevant factors, and provided a convincing statement of reasons to explain why [the] project’s impacts are insignificant.” *Id.* (cleaned up). To guide this analysis, I review the statutory and regulatory framework that controlled Interior’s decision.

A

Congress created an extensive regulatory structure for the leasing of federal lands for coal production to, among other things, “assure that the coal supply essential to the Nation’s energy requirements, and to its economic and social well-being is provided”; to “strike a balance between protection of the environment and agricultural productivity and the Nation’s need for coal as an essential source of energy”; and to “encourage the full utilization of coal resources through the development and application of underground extraction technologies.” 30 U.S.C. § 1202(f), (k).

Title 30 thus seeks to balance our nation’s environmental concerns with economic, energy, and national security interests. Congress has tasked Interior with this balancing act and authorizes the Secretary to lease federal lands for coal production. The Secretary can divide lands that “have been classified for coal leasing into leasing tracts of such size as he finds appropriate and in the public interest and which will permit the mining of all coal which can be economically extracted.” *Id.* § 201(a)(1).

Once land is classified and divided for coal leasing, contemplated leases must meet several requirements that protect the environment. For example, “[n]o lease sale shall be held unless the lands containing the coal deposits have been included in a comprehensive land-use plan and such sale is compatible with such plan,” subject to minor exceptions. *Id.* § 201(3)(A)(i). Any “coal lease shall contain provisions requiring compliance with the Federal Water Pollution Control Act . . . and the Clean Air Act.” *Id.* § 201(3)(E). And even after a lease is issued, any company conducting surface coal mining must receive a permit under the relevant state or federal surface coal mining program. *See id.* § 1256(a).

The Secretary must also consider the “impacts on the environment” of the lease and “determine which method or methods or sequence of methods [of mining] achieves the maximum economic recovery of the coal within the proposed leasing tract.” *Id.* § 201(3)(C). Consistent with congressional intent to maximize the economic benefits of coal, coal leases “shall be for a term of twenty years and for so long thereafter as coal is produced annually in commercial quantities from that lease. Any lease which is not producing in commercial quantities at the end of ten years shall be terminated.” *Id.*

§ 207(a). Title 30 thus imposes various requirements to ensure the Secretary makes informed coal leasing decisions, including balancing environmental impacts with maximum economic recovery of the coal.

B

As with all agency action, Interior must also conduct a NEPA analysis. NEPA is remarkably light on substance. Adopted in 1970, the statute requires agencies to “utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision-making which may have an impact on man’s environment” and “insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations.” 42 U.S.C. § 4332(A), (B). If a major agency action will “significantly affect[] the quality of the human environment,” the agency must prepare a detailed statement on:

- (i) the environmental impact of the proposed action,
- (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
- (iii) alternatives to the proposed action,
- (iv) the relationship between local short-term uses of man’s environment and the maintenance

and enhancement of long-term productivity, and

- (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Id. § 4332(C).

The implementing regulations in effect when the environmental assessment (“EA”) in this case was finalized were first adopted in 1978 and provide marginally more detail. NEPA “does not mandate particular results,” *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989), but “insure[s] that environmental information is available to public officials and citizens before decisions are made and before actions are taken,” 40 C.F.R. § 1500.1(b) (all references to the C.F.R. are to the regulations in effect as of August 2018). The agency must first decide the appropriate level of NEPA review. *See id.* § 1501.4. Projects that have no “significant effect on the human environment” are categorically excluded from NEPA review, *id.* § 1508.4, while other projects require an EA or environmental impact statement (“EIS”) when necessary under the relevant agency’s rules. *Id.* §§ 1501.3, 1501.4, 1507.3.

After considering all the potential environmental effects, along with existing science, Interior decided here that an EA was adequate. An EA provides “sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact; . . . discuss[es] the . . . need for the proposal[;] alternatives[;] . . . [and] the environmental impacts of the proposed action and

alternatives.” *Id.* § 1508.9. An agency must prepare a FONSI if the agency determines, based on the EA, that the proposed action will not have significant effects. *Id.* §§ 1501.4(e), 1508.13.

When deciding whether the project substantially affects the environment, Interior is required only to consider effects from the project that are “reasonably foreseeable,” *id.* § 1508.8(b), and have “a reasonably close causal relationship” to the project, *Dep’t of Transp. v. Pub. Citizen*, 541 U.S. 752, 767 (2004). Our sister circuits recognize that “an impact is reasonably foreseeable if it is sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision” and “does not include highly speculative harms that distort the decisionmaking process by emphasizing consequences beyond those of greatest concern to the public and of greatest relevance to the agency’s decision.” *City of Shoreacres v. Waterworth*, 420 F.3d 440, 453 (5th Cir. 2005) (first quoting *Sierra Club v. March*, 976 F.2d 763, 767 (1st Cir. 1992); then *Robertson*, 490 U.S. at 354) (cleaned up).

In addition, “a but for causal relationship is insufficient to make an agency responsible for a particular effect under NEPA.” *Pub. Citizen*, 541 U.S. at 767 (internal quotation marks omitted). Instead, there must be “a reasonably close causal relationship between the environmental effect and the alleged cause,” much like the “familiar doctrine of proximate cause from tort law.” *Id.* (internal quotation marks omitted). “In particular, courts must look to the underlying policies or legislative intent in order to draw a manageable line between those causal changes that may make an actor responsible for an effect and those that do not.” *Id.* (internal quotation marks omitted). The analysis should not include effects that the

agency “has no ability to prevent . . . due to its limited statutory authority over the relevant actions.” *Id.* at 770.²

C

The Council on Environmental Quality (“CEQ”) has issued guidance to agencies in conducting NEPA analyses on the effects of GHG emissions. Although none of the relevant guidance was in effect when Interior issued the EA here, they provide helpful context. *See Young v. United Parcel Serv., Inc.*, 135 S. Ct. 1338, 1351 (2015) (“‘the rulings, interpretations and opinions’ of an agency charged with the mission of enforcing a particular statute, ‘while not controlling upon the courts by reason of their authority, do constitute a body of experience and informed judgment to which courts and litigants may properly resort for guidance’” (quoting *Skidmore v. Swift & Co.*, 323 U.S. 134, 140 (1944))).

CEQ issued a final guidance document in 2016. This document recognized that “[c]limate change is a fundamental

² In 2020, after the EA was finalized, NEPA regulations were overhauled for the first time since 1978. *See* Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act, 85 Fed. Reg. 43,304 (July 16, 2020), <https://www.govinfo.gov/content/pkg/FR-2020-07-16/pdf/2020-15179.pdf>. The current Administration has expressed an intent to review these regulations. *See* Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, 86 Fed. Reg. 7037 (Jan. 25, 2021), <https://www.federalregister.gov/documents/2021/01/25/2021-01765/protecting-public-health-and-the-environment-and-restoring-science-to-tackle-the-climate-crisis>. In the meantime, these regulations remain in force and control future NEPA analyses. *See Wild Virginia v. Council on Env’t Quality*, 544 F. Supp. 3d 620 (W.D. Va. 2021). Thus, Interior’s requirements under NEPA on remand may differ substantially from those analyzed by the majority here.

environmental issue, . . . [and] a particularly complex challenge given its global nature and the inherent interrelationships among its sources, causation, mechanisms of action, and impacts.” CEQ, *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews 2* (Aug. 1, 2016), <https://perma.cc/9DM4-4FGU> (“2016 Final Guidance”). Even though it is a “complex challenge,” “agencies need not undertake new research or analysis of potential climate change impacts in the proposed action area, but may instead summarize and incorporate by reference the relevant scientific literature.” *Id.* at 2, 22. In addition, “[a]gencies should not limit themselves to calculating a proposed action’s emissions as a percentage of sector, nationwide, or global emissions in deciding whether or to what extent to consider climate change under NEPA.” *Id.* at 11. “[F]or most Federal agency actions CEQ does not expect that an EIS would be required based *solely* on the global significance of cumulative impacts of GHG emissions, as it would not be consistent with the rule of reason to require the preparation of an EIS for every Federal action that may cause GHG emissions regardless of the magnitude of those emissions.” *Id.* at 17.

This guidance was withdrawn in 2017. *See* *Withdrawal of Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews*, 82 Fed. Reg. 16,576 (Apr. 5, 2017), <https://www.govinfo.gov/content/pkg/FR-2017-04-05/pdf/2017-06770.pdf>. New draft guidance was released in 2019. *See* *Draft National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions*, 84 Fed. Reg. 30,097 (June 26, 2019), <https://perma.cc/H7Q6->

GQUK (“2019 Draft Guidance”). The 2019 Draft Guidance also recognized that “the potential effects of GHG emissions are inherently a global cumulative effect. Therefore, a separate cumulative effects analysis is not required.” *Id.* at 30,098. And it confirmed that agencies “shall conduct NEPA analyses based on current scientific information and methods to the extent reasonably available and practicable,” and thus are not required to create new science. *Id.*

The 2019 Draft Guidance was withdrawn in early 2021. *See* National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions, 86 Fed. Reg. 10,252 (Feb. 19, 2021), <https://www.govinfo.gov/content/pkg/FR-2021-02-19/pdf/2021-03355.pdf>. CEQ stated its intention to “address in a separate notice its review of and any appropriate revisions and updates to the 2016 GHG Guidance. In the interim, agencies should consider all available tools and resources in assessing GHG emissions and climate change effects of their proposed actions, including, as appropriate and relevant, the 2016 GHG Guidance.” *Id.*

D

In recognition of the various guidance and regulations dealing with GHG emissions in NEPA analyses, Interior’s EA for this project extensively details the effects of GHG emissions on global warming and climate change. The EA acknowledges that “[t]hrough complex interactions on a global scale, the emissions of GHGs, along with other climate-influencing environmental factors, cause a net warming of the atmosphere.” This global warming then “contribute[s] to climate change . . . [which then] contributes to environmental effects around the globe.”

The EA also provides the GHG emissions for the entire life of the proposed project (240.1 Mt-CO₂e), while noting that “[n]early all (99 percent) of GHGs [from the project] are emitted outside of the US and 97 percent are a result of coal combustion.” It also states that per year, “[g]lobal anthropogenic GHG emissions totaled approximately 54,000 Mt-CO₂e,” United States emissions “approximately 7,261 Mt-CO₂e,” and Montana emissions “approximately 40.7 Mt-CO₂e.” The EA notes that both countries that will be using the coal, South Korea and Japan, “have both submitted . . . GHG emissions reduction plans . . . [that] may reduce GHG emissions relative to these estimates during the life of the Proposed Action.”

The EA thoroughly summarizes that GHG emissions, as a whole, could cause climate change globally, nationally, and in Montana. Possible global effects include “heat waves [that] will occur more often and last longer[;] . . . extreme precipitation events [that] will become more intense and frequent in many regions[;] . . . warm[ing] and acidif[ication]” of oceans; sea level rise; and “mostly negative impacts [on] biodiversity, ecosystem services and economic development and amplify[ed] risks for livelihoods and for food and human security.” National projections include “changes in temperature and precipitation, increased frequency of droughts, floods, wildfires, and extreme storms[;] changes in land cover and terrestrial biogeochemistry[;] changes in arctic conditions[;] sea level rise[;] and ocean acidification (and other ocean changes)”;

and “potential subsequent effects to health and society and ecosystems such as heat-related deaths and illness, disease spread, [and] changes in growing seasons.” Finally, the “state of Montana is projected to continue to warm in all geographic locations”; experience increased precipitation “in winter,

spring, and fall,” and decreased precipitation “in summer[;] . . . reduced snowpack; changes in runoff timing, streamflows and resultant water availability; . . . increased drought severity and duration[;] . . . increased forest mortality and net loss of forested areas; altered forest disturbance regimes; increase in fire risk; increase in bark beetle survival; . . . reduction in the amount of carbon stored in forests[;] . . . [and] both favorable and disruptive effects on” agriculture.

After detailing the possible effects on climate change from continued and increasing GHG emissions, the EA analyzed the suitability of quantifying project-specific effects using SCC. Interior found SCC “not appropriate for project-level NEPA analyses for a number of reasons. First, NEPA does not require a cost-benefit analysis. (40 C.F.R. § 1502.23).” Additionally, SCC “does not measure the actual incremental impacts at the project-level on the environment and does not include all costs or benefits from carbon emissions.” “The dollar cost figure arrived at based on the SCC calculation represents the value of damages avoided if, ultimately, there is no increase in carbon emissions.” This “dollar cost figure is generated in a range,” however, and this range can vary wildly “depending on the dollar value and the discount range used.”

E

Reviewing Interior’s EA, the district court recognized that it “previously held that the [prior] EA failed to adequately assess the impacts of [GHG emissions] from the combustion of coal mined,” because it failed “to quantify the costs of [GHG] emissions . . . [when SCC] protocol was an available tool to measure the costs.” *350 Montana v. Bernhardt*, 443 F. Supp. 3d 1185, 1195–96 (D. Mont. 2020). The new EA

“concludes that the [SCC] protocol is too uncertain and indeterminate to be useful to the analysis” and discusses and cites “five academic publications and a Bureau of Land Management report on the indeterminacy of the [SCC] protocol.” *Id.* at 1196. Thus, its conclusion “that the protocol is too uncertain and indeterminate to aid its decision” is “supported [by] the record” and the district court held it satisfied NEPA. *Id.* The district court also acknowledged that the EA “quantifie[d] increases in global, national, and local emissions. . . . Indeed, Plaintiffs [did] not challenge [Interior’s] qualitative discussion of the impacts of greenhouse gases, which, as this Court previously noted, was thorough.” *Id.* at 1198.

II

A

The majority concludes Interior’s actions were arbitrary or capricious because, in its view, Interior did not adequately explain its evaluation that the project’s contribution to climate change would be “minor.” Majority at 21–23. But the EA quantifies the project’s GHG emissions from coal combustion and details the possible harm caused by climate change. The EA also details that there are no scientific standards by which to measure the project’s incremental contributions to climate change. The majority ignores the fact that federal laws and regulations direct Interior not to consider effects that it “has no ability to prevent . . . due to its limited statutory authority over the relevant actions.” *Pub. Citizen*, 541 U.S. at 770.

The majority’s rationale is based on faulty calculations and legally irrelevant assumptions. First, although the

analysis in the EA uses the total emissions from the life of the project (projected to be 11.5 years) for its comparisons, the majority then punishes Interior for its conservative projections by using this information to compare the total emissions from the entire life of the project to a single year of emissions either globally, from the United States, or from Montana. *See* Majority at 28–29. Even if project emissions were compared to overall emissions, the units used to make the comparison must be the same. By comparing the emissions of the 11.5-year project to a single year from other sources, the majority overstates the actual impact of the project more than ten-fold, concluding that the project would emit 0.44% of annual GHG emissions rather than accurately noting it would be just 0.04%.

Second, the EA notes “[n]early all (99 percent) of GHGs [from the project] are emitted outside of the US and 97 percent are a result of coal combustion” that will occur in Japan or Korea. But the majority would require Interior to explicitly compare emissions from this foreign combustion to annual emissions in Montana and the United States, noting that the 2018 EA did not include these calculations while the 2015 EA did. Not only did the 2018 EA provide all the data to make this comparison, neither NEPA nor its implementing regulations impose any such requirement in the first place. There is no requirement that an agency cannot remove irrelevant and unhelpful calculations from later EA iterations, especially when any concerned citizen with a basic calculator or pencil and paper can instantly make the same comparison with the provided data.

Third, it is not obvious that the coal from the project will be used within the life of the project, and such emissions from foreign sovereign’s decision to use coal almost certainly

qualify as effects that Interior “has no ability to prevent . . . due to its limited statutory authority over the relevant actions.” *Pub. Citizen*, 541 U.S. at 770. The coal could be combusted over a longer period or stockpiled for emergencies and not used at all. Moreover, as the EA notes, South Korea and Japan “have both submitted” plans that may reduce GHG emissions “during the life of the Proposed Action.” And even if the project is not approved, we can hardly say that South Korea and Japan would cease coal-burning activity. It is almost certain that these countries would replace the coal from the proposed project with coal mined elsewhere. This is because the project’s “share of the East Asian steam coal export market,” which includes South Korea and Japan, “is very small, 6 tenths of one percent . . . [and] if the mine extension were not allowed, other sellers to the East Asian steam coal export market would replace the coal that would have been produced by [the project] and [GHG] emissions would remain unchanged. . . . Hence, the Bull Mountains mine extension likely would have no impact on [GHG] emissions.”

Even more inexplicable is what is omitted from the majority’s comparison to the United States’ and Montana’s annual emissions. Although the majority insists that the project’s emissions must include the GHG emissions created by the combustion of coal in Japan or Korea, the emission values from the United States and Montana do not include emissions from fuel mined from those locations and combusted elsewhere. *See* Ctr. for Climate Strategies, *Montana Greenhouse Gas Inventory and Reference Case Projects 1990–2020*, Table ES-1 (2007), <https://perma.cc/X9CY-8FC9>. Again, the majority compares apples to oranges.

But even if we compared apples to apples, the project's emissions should not, as the majority requires, be compared to Montana's total emissions. Under the majority's rationale, if the project was in California or New York, where statewide GHG emissions far exceed those of Montana, it would have less local environmental effect on climate change.³ If this case dealt with air or water pollution, or some other concrete, local environmental harm, this may have been an appropriate comparison. But as all agree, GHG emissions and climate change are global issues. Thus, a local project comparison does not make sense for these effects.

B

Even if these statewide and nationwide comparisons were helpful, they are not legally relevant to the sole question before us: whether there are significant environmental impacts that prohibit a FONSI under NEPA. To the contrary, opinions from our court and Executive Branch guidance make clear that global warming is not a localized problem, but a global problem that requires a global analysis. *See, e.g., Wash. Env't Council v. Bellon*, 732 F.3d 1131, 1143 (9th Cir. 2013) ("there is limited scientific capability in assessing,

³ *See* Ctr. for Climate Strategies, *Greenhouse Gas Emissions Inventories and Forecasts for Nine Western States* 9 tbl.1, <https://perma.cc/XYJ5-GPB5> (gross GHG emissions for California in 2020 were 659 Mt-CO₂e compared to Montana's 46); NYSERDA, New York State of Opportunity, *New York Greenhouse Gas Inventory 1990–2019* 4 fig.S-1 (2019), <https://perma.cc/84ES-VBPN> (New York's GHG emissions for 2016 were 227 Mt-CO₂e). These sources all provided GHG emissions in MMt-CO₂e, or million metric tons of CO₂ equivalent, while Interior provides GHG emissions in Mt-CO₂e, or million tons of CO₂ equivalent. To convert the MMt-CO₂e values to Mt-CO₂e, these values were multiplied by 1.102.

detecting, or measuring the relationship between a certain GHG emission source and localized climate impacts in a given region”); *Barnes*, 655 F.3d at 1139 (“the effect of greenhouse gases on climate is a *global* problem”); *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1217 (9th Cir. 2008) (“climate change is largely a global phenomenon”); 2019 Draft Guidance; 2016 Final Guidance at 11.

The real question is whether the project’s share of global GHG emissions can be shown to significantly affect the environment and whether the EA provided “a reasonably thorough discussion of the significant aspects of the probable environmental consequences” of these emissions. *Ctr. for Biological Diversity*, 538 F.3d at 1194 (internal quotation marks omitted). To satisfy these requirements, Interior must “provide sufficient evidence and analysis for” a FONSI and briefly discuss “the environmental impacts of the proposed action and alternatives.” 40 C.F.R. § 1508.9. But they need not create new science to support their findings and we generally defer to the agency’s expertise in identifying the relevant metrics to use in an EA. *Imperial Cnty.*, 767 F.3d at 792.

The asserted flaws with Interior’s EA are not grounded in any NEPA requirement. Plaintiffs provided no scientific evidence that an incremental increase of 0.04% of global GHG emissions (if that were the worst-case result) would cause a significant impact. They argued almost exclusively that Interior should have used a SCC analysis in this case. The majority correctly disposed of this argument as not required for a NEPA analysis, as it is not the court’s role to “prescrib[e] a specific metric for the agency to use.” *See* Majority at 34. And Interior went to great lengths to fulfill its

NEPA obligations: it identified how the project would affect the environment (including air quality, water quality, and other metrics) and described the effects of GHG emissions and climate change on a global, national, and state level. *See also Ctr. for Biological Diversity*, 538 F.3d at 1217 (agency “must provide the necessary contextual information about the cumulative and incremental environmental impacts” of the project); *WildEarth Guardians v. Jewell*, 738 F.3d 298, 308–11 (D.C. Cir. 2013) (upholding an agency action where the agency “discussed at length the prevailing scientific consensus on global climate change and coal mining’s contribution to it”).

It is incongruent for the majority to disregard SCC but insist that an even less reliable scientific theory, which has no scientific support in the record, can serve as the basis for finding an agency action arbitrary or capricious. In doing so, the majority essentially requires Interior to use and analyze “a specific metric,” i.e., compare the project’s GHG emissions from foreign coal combustion to local and domestic emissions. But no one, not even Plaintiffs, has proposed any sort of method outside of SCC (which the majority rejected) to calculate incremental environmental harms from GHG emissions. Rather than provide any argument about how to calculate these harms, Plaintiffs and their experts just conclude that “GHG levels . . . already exceed scientifically recognized safety thresholds” and projects such as this are “incompatible with the restoration of our planet’s energy balance.” That statement is so generic it lacks any real meaning and is certainly not the type of scientific evidence or argument relevant to an agency’s NEPA analysis. Neither the majority nor Plaintiffs point to any evidence in the record to suggest that science delineates any specific environmental

harm in the action area from (at most) a 0.04% incremental increase in annual global GHG emissions.

III

So what happens next? I agree with the majority not to vacate Interior’s approval of the Mine Expansion or direct Interior to prepare an EIS. As the majority recognizes, “the record is unclear about the extent to which the agency is capable of resolving uncertainty regarding the magnitude of the project’s contribution to the environmental harms identified in the EA.” Majority at 37. Given this, however, the proper remedy would be to remand to Interior without vacatur. *See, e.g., Nat’l Family Farm Coal. v. EPA*, 966 F.3d 893, 929 (9th Cir. 2020). Instead, the majority remands to the district court to determine whether an EIS is appropriate and the consequences that could follow a possible vacatur.

Remand to the district court, rather than directly to the agency, is questionable at best. It would be improper for the district court to engage in factfinding to determine the core issue the majority is concerned about: whether Interior can resolve the pending scientific uncertainty about the incremental effects of a 0.04% increase in annual GHG gas emissions. Indeed, district court factfinding on this issue would conflict with the APA, which contemplates federal court review of the administrative record prepared by the agency. *See Ramos v. Wolf*, 975 F.3d 872, 900 (9th Cir. 2020) (R. Nelson, J., concurring) (The APA’s “record-review requirement is not just a meaningless procedural hurdle to overcome, but a fundamental constitutional protection to government agency action.”). That is why we normally remand the matter directly to the agency. Any other course risks violating the separation of powers principle underlying

the APA, which limits courts to reviewing the administrative record.

Another factor favors remand directly to Interior, whether by this court or the district court on remand. Because of the 2020 overhaul of NEPA regulations, Interior's NEPA obligations on remand may differ greatly from those that controlled the current EA. For instance, those new regulations clarify that environmental effects are generally not relevant to a NEPA analysis "if they are remote in time, geographically remote, or the product of a lengthy causal chain." 40 C.F.R. § 1508.1(g)(2) (2020). It is hard to envision a course where Interior should not be allowed simply to compile a new administrative record and conduct a new EA consistent with the existing NEPA regulations on remand.

It is difficult to see why an EIS would be necessary absent some new scientific evidence detailing the possible incremental environmental effects of a single project's GHG emissions. Indeed, an EIS would probably not provide any more information than was already included in the EA, especially with the questionable foreseeability of foreign coal combustion and no scientific way to measure the incremental impact of GHG emissions. At any rate, that analysis is properly addressed by Interior on remand, not through an ambiguous endeavor by the district court. Given these considerations, it is hard to see how a vacatur or an EIS should be ordered pending further action by Interior on remand.

IV

For these reasons, Interior's FONSI was neither arbitrary nor capricious under NEPA. And even if it were, the action should be remanded to the agency to compile a new administrative record and final decision, not to the district court. I respectfully dissent.