



Institute for
Policy Integrity
NEW YORK UNIVERSITY SCHOOL OF LAW



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To: Bureau of Land Management, U.S. Department of the Interior
Subject: Willow Master Development Plan Draft Supplemental Environmental Impact Statement (DOI-BLM-AK-0000-2018-0004-EIS)

The undersigned organizations respectfully submit this comment letter¹ on the Bureau of Land Management's (BLM) draft supplemental environmental impact statement for the Willow Master Development Plan (the Project).²

BLM's supplemental analysis marks a considerable improvement in its assessment of greenhouse gas emissions. The agency now considers the Project's emissions from additional foreign consumption and applies the social cost of greenhouse gases to assess the severity of resulting climate damage. Its analysis now shows that the Project will directly result in more than 280 million metric tons in gross greenhouse gas emissions,³ which will cause \$19.8 billion or potentially more in climate-change damages.⁴ On a net basis, after the consideration of substitution impacts, BLM estimates that the Project will cause greenhouse gas emissions to increase by more than 130 million metric tons,⁵ which will cause \$9.26 billion or potentially more in climate-change damages.⁶ These large totals by themselves "have a significant impact on global climate change"⁷ and merit considerable attention as part of BLM's decision-making.

But even with the significant improvements in its analysis, BLM's estimates of net greenhouse gas emissions and monetized climate harms remain low-end estimates. As BLM continues to consider the Project, it should recognize that its analysis reflects a potentially severe underestimate of climate harms and an overestimate of economic benefits. In particular:

1. **BLM's substitution analysis disregards several important considerations that could substantially increase the agency's estimate of net greenhouse gas emissions** attributable to the Project. First, the analysis is predicated on a baseline of current policies (as of late 2020 or early 2021) and disregards the likelihood that the

¹ Our organizations may separately and independently submit other comments to this docket. This document does not purport to represent the views, if any, of New York University School of Law.

² Bureau of Land Management, Draft Supplemental Environmental Impact Statement for the Willow Master Development Plan (June 2022) (hereinafter SEIS).

³ *Id.* at 42 tbl.3.2.4.

⁴ *Id.* at 45 tbl.3.2.7 (total gross domestic emissions (direct + indirect) of Alternative B using social cost of greenhouse gases at 2.5% discount rate).

⁵ *Id.* at 42 tbl.3.2.6.

⁶ *Id.* at 45 tbl.3.2.7 (total net emissions—domestic net + foreign—of Alternative B using social cost of greenhouse gases at 2.5% discount rate).

⁷ *Contra id.* at 37 (opining, without support, that "while a single project of this size cannot significantly impact global [greenhouse gas] emissions, all projects may cumulatively have a significant impact on global climate change").

United States and foreign nations will implement new policies to align with their international commitments to reduce their carbon footprints. And second, the analysis disregards the potential for foreign reciprocity—that is, that other nations will reduce their fossil-fuel development if the United States does. **As Interior has acknowledged in another ongoing proceeding, these key omissions likely result in an underestimate of net greenhouse gas emissions.**

2. BLM appropriately applies the interim social cost of greenhouse gases values developed by the Interagency Working Group on the Social Cost of Greenhouse Gases. But **the Working Group has recognized that those values “likely underestimate societal damages” from greenhouse gas emissions due to omitted damages and the selection of discount rates,⁸ and has encouraged agencies to perform additional analysis applying higher climate-damage valuations.⁹** Accordingly, BLM should consider its climate-damage valuations to be conservative estimates and, consistent with the Working Group’s recommendation, should conduct additional analysis using higher valuations.
3. Despite recognizing that the Project will partially offset other production sources and adjusting its emission estimates accordingly, **BLM does not recognize this displacement effect when assessing the Project’s alleged economic benefits—which it reports as gross rather than net figures.¹⁰** BLM should reduce its projections of economic benefits to account for this offset, much like Interior did in another recent analysis. At a minimum, BLM should recognize that, according to its own logic, its projections of economic benefits are greatly overestimated when considered from a national perspective, since the Project is largely displacing other sources of production that would generate their own economic benefits.

Considered both individually and collectively, these points further emphasize the magnitude of the Project’s climate effects and urge close attention to those impacts as BLM considers whether to approve the Project.

I. BLM Likely Underestimates Net Greenhouse Gas Emissions Resulting from the Project

BLM estimates the Project’s resulting increase in greenhouse gas emissions by performing a substitution analysis. That is, it forecasts what energy supply the Project will

⁸ Interagency Working Grp. on the Social Cost of Greenhouse Gases, Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide – Interim Estimates Under Executive Order 13,990 at 4 (2021) [hereinafter “IWG, 2021 TSD”].

⁹ *Id.* (“Consistent with the guidance in E.O. 13990 for the [Interagency Working Group] to ensure that the SC-GHG reflect the interests of future generations, the latest scientific and economic understanding of discount rates discussed in this [technical support document], and the recommendation from OMB’s Circular A-4 to include sensitivity analysis with lower discount rates when a rule has important intergenerational benefits or costs, agencies may consider conducting additional sensitivity analysis using discount rates below 2.5 percent.”).

¹⁰ *See, e.g.*, SEIS at 254 tbl.3.15.5 (summarizing state, federal, and borough revenues from the Project without assessing or acknowledging displacement effects).

displace and then offsets the Project’s gross emissions by the emissions that would have resulted from the displaced projects. In addition, BLM calculates the increased foreign demand for fossil-fuel energy that the Project will cause, and factors the resulting downstream emissions into its analysis. The result, as noted above, is that BLM estimates that the Project will increase greenhouse gas emissions on net by more than 130 million metric tons¹¹—a substantial sum that is equivalent to the annual production-based emissions of Bolivia (and higher than the annual emissions of dozens of other nations).¹² BLM should carefully weigh these emissions and acknowledge that the Project will “have a significant impact on global climate change.”¹³

But even that substantial total is very likely an underestimate, due to omissions and assumptions in BLM’s substitution analysis that bias the estimate downward. In fact, the Bureau of Ocean Energy Management—BLM’s sister agency at the Department of the Interior—has acknowledged that limitations in Interior’s substitution modeling cause it to very likely underestimate net greenhouse gas emissions. In particular, BLM’s analysis underestimates emissions by: 1) ignoring the possibility that countries will bolster their efforts to combat climate change, thereby shifting the energy grid (and thus likely energy substitutes should the Project not proceed) toward low-carbon energies and away from fossil fuels; and 2) failing to consider international reciprocity effects.

BLM should work to address these issues as it continues to assess the Project’s climate impacts. At a minimum, it should recognize these limitations and acknowledge that the agency’s emission projections are likely underestimates—perhaps severely so.

A. BLM’s Analysis Disregards the Possibility of Substantial Long-Term Changes in the Energy Sector

BLM rests its substitution analysis on the U.S. Energy Information Administration’s 2021 “reference case”¹⁴—a forecast of energy supply and demand that assumes current policies (as of late 2020 or early 2021)¹⁵ and does not consider the possibility that countries will enact new policies to further transition away from fossil fuels. In fact, the 2021 reference case assumes that oil and gas consumption will increase over the coming decades¹⁶—a projection that is

¹¹ *Id.* at 42 tbl.3.2.6.

¹² *Historical GHG Emissions*, CLIMATE WATCH, <https://perma.cc/Y4LL-8QQP> (last updated with 2019 data)

¹³ *Contra* SEIS at 37.

¹⁴ *Id.* at Appx. E.2B p.1.

¹⁵ U.S. Energy Info. Admin., Annual Energy Outlook 2021 at 1 (Feb. 2021), https://www.eia.gov/outlooks/aeo/pdf/AEO_Narrative_2021.pdf [hereinafter “AEO 2021”] (explaining that the “reference case generally assumes that current laws and regulations that affect the energy sector, including laws that have end dates, remain unchanged throughout the projection period” and does not include “proposed legislation, regulations, or standards” or potential future legislation, regulations, or standards). According to the Annual Energy Outlook 2022—the most recent AEO forecast—the baseline case was calibrated to laws on the book as of the prior November. U.S. Energy Info. Admin., Annual Energy Outlook 2022 at 2 (Feb. 2022), https://www.eia.gov/outlooks/aeo/pdf/AEO2022_Narrative.pdf [hereinafter “AEO 2022”]. It thus appears likely that the AEO 2021 reference case is calibrated to current policies as of approximately November 2020, although this is not specified in the forecast documentation. At the very latest, the reference case is calibrated to extant policies as of February 2021—the month that the forecast was published.

¹⁶ AEO 2021, *supra* note 15, at 7 fig.3.

largely incompatible with international goals and commitments to mitigate global warming.¹⁷ Because it disregards the potential for a substantial global transition away from fossil fuels, BLM’s analysis determines that the Project will largely displace other fossil-fuel energy sources—a finding that may no longer hold true under decarbonization scenarios and thus results in a potentially severe underestimate of the Project’s contribution to climate change.

At a minimum, BLM should update its model to include more recent laws that have shifted the long-term energy trajectory. This past February, the Energy Information Administration released its most recent version of the reference case calibrated to current policies as of November 2021.¹⁸ EIA expects to release an updated forecast by March 2023 that will include more recent policies—including the Inflation Reduction Act (which is expected to cause a substantial increase in renewable-energy demand) and motor-vehicle fuel-economy and emission regulations from the Environmental Protection Agency and Department of Transportation (which are expected to significantly reduce vehicle gasoline usage).¹⁹ At a minimum, BLM should await the updated EIA forecast to ensure that its analysis of the Project’s substitute energy sources and greenhouse gas emissions accounts for the latest energy policies.

But even that substantial step would disregard the likelihood that the United States and foreign countries take considerable action in the ensuing years to further transition toward renewables and away from oil and gas. This is because the EIA reference case assumes current policies, and as a result, projects (in its latest forecast) increasing demand for oil and gas for the next 70 years.²⁰ Yet there are strong reasons to doubt that current policies will remain unchanged and the global energy system will remain so heavily reliant on fossil fuels. For one, current policies would spell devastating levels of global warming.²¹ Second, there is a wide gap between existing policies and the international commitments that many countries have made to reduce their emissions.²² And third, climate policies have gotten much stronger over time.²³ While the

¹⁷ See *infra* note 21.

¹⁸ AEO 2022, *supra* note 15.

¹⁹ See *Annual Energy Outlook 2022*, U.S. Energy Info. Admin., <https://www.eia.gov/outlooks/aeo/> (reporting “next release date”).

²⁰ AEO 2022, *supra* note 15, at 6 fig.2 (showing increased consumption of natural gas through 2050 under reference case). See also Bureau of Ocean Energy Management, OCS Oil and Natural Gas: Potential Lifecycle Greenhouse Gas Emissions and Social Cost of Carbon 20 (2016), <https://www.boem.gov/ocs-oil-and-natural-gas/> (explaining that MarketSim model on which BLM’s EnergySub is based “uses a projection of near constant demand [for oil and gas] over the next 40–70 years” and does not include “policy shifts that affect demand for oil and gas” and “alter the composition of energy supply”). It is possible that this energy curve may shift in the AEO 2023 forecast as a result of more recent policies.

²¹ For instance, the Intergovernmental Panel on Climate Change projects that current policies would produce an average of 3.5 degrees Celsius of warming by 2100, with virtually no chance of remaining under 2 degrees of warming. Intergovernmental Panel on Climate Change, Working Group III Contribution to the IPCC Sixth Assessment Report (AR6): Technical Summary TS-42 tbl.TS.3 (Nov. 29, 2021) [hereinafter “IPCC Working Group III Technical Summary”] (presenting effects of current policies under pathway C7).

²² *Id.* at TS-28 (discussing “implementation gap . . . between [national] mitigation pledges[] and the expected outcome of existing policies”). According to analysis from Climate Action Tracker, nearly all countries are behind pace to meet their Paris Accord targets and pledges. Climate Action Tracker, *Climate Target Updates Slow as Science Ramps Up Need for Action* ii–iii (2021), https://climateactiontracker.org/documents/871/CAT_2021-09_Briefing_GlobalUpdate.pdf.

²³ See Nadja Popovich & Brad Plumer, *Yes, There Has Been Progress on Climate. No, It’s Not Nearly Enough*, N.Y. TIMES (Oct. 25, 2021), <https://www.nytimes.com/interactive/2021/10/25/climate/world-climate-pledges->

global community might remain reliant on fossil fuels, it could very plausibly substantially reduce its long-term use of fossil fuels.²⁴ A recent elicitation by Resources for the Future found that experts place just a 5% probability that current global climate policies will not improve.²⁵

BLM should thus incorporate a range of future trajectories into its analysis and not bias the results by assuming that current policies will remain in place for the indefinite future. In fact, the Bureau of Ocean Energy Management (BOEM)—BLM’s sister agency whose MarketSim substitution model forms the basis for BLM’s analysis here²⁶—recently recognized as much in its proposed five-year offshore leasing program. In that proposal, BOEM explained that “substitutions could vary dramatically based on the future energy scenario and pathway,” and recognized that “a net-zero or similar pathway” could make “the impact of substitutions in the absence of [the proposed] production ... look very different.”²⁷ Although BOEM did not quantitatively integrate a decarbonization pathway into its substitution analysis, it performed a qualitative analysis in which it recognized that such a pathway would likely decrease substitution and thereby increase the agency’s estimate of the project’s net emissions.²⁸ BOEM also requested suggestions on modeling decarbonization pathways through its substitution analysis, and expressed an openness to improve upon its modeling to incorporate a range of potential climate mitigation pathways.²⁹ As this recognition demonstrates, BLM should not rely exclusively on the assumption of long-term fossil fuel reliance that reduces the Project’s forecasted climate impacts.

Instead, BLM should work with BOEM to update Interior’s substitution modeling to reflect long-term policy uncertainty. One potential approach would be for Interior to calibrate its model to alternative NEMS cases and not rely exclusively on the reference case. In particular, the Low Oil and Gas Supply Case and the Low Renewables Cost cases reflect some of the changes to the energy market that will shift under decarbonization pathways.³⁰ As NEMS is a domestically focused energy model, Interior would also need to modify and adjust EIA’s World

[cop26.html](#) (“In 2014, Climate Action Tracker estimated that the world was on track for nearly 4 degrees Celsius of warming by 2100, compared with preindustrial levels. . . . This year, however, Climate Action Tracker painted a more optimistic picture, because countries have started doing more to restrain their emissions. Current policies put the world on pace for roughly 2.9 degrees Celsius of warming by 2100.”).

²⁴ See IPCC Working Group III Technical Summary, *supra* note 22, at TS-31 tbl.TS2, TS-42 tbl.TS.3 (outlining wide range of emissions scenarios of different global mitigation pathways).

²⁵ Kevin Rennert et al., Resources for the Future, *The Social Cost of Carbon: Advances in Long-Term Probabilistic Projections of Population, GDP, Emissions, and Discount Rates 20–26* (2021), https://media.rff.org/documents/WP_21-28_V2.pdf.

²⁶ SEIS at Appx. E.2B p.1.

²⁷ Bureau of Ocean Energy Mgmt., 2023–2028 National Outer Continental Shelf Oil and Gas Leasing Proposed Program 5-28 (2022) [hereinafter “BOEM Proposed Five-Year Program”].

²⁸ *Id.* at 5-52 to 5-56 (offering a “net-zero hypothetical analysis” and concluding that “it is likely that the incremental net benefits associated with [offshore] leasing would decrease given these alternative substitution assumptions”).

²⁹ *Id.* at 5-29 (“BOEM seeks comment on the MarketSim, BOEM’s approach to modeling a net-zero emissions future, and any feedback to improve the net benefits analysis methodology. BOEM is specifically interested in any potential data sources sufficient for modeling that could help enhance the quantitative analysis and better reflect assumptions associated with a transitioning economy.”).

³⁰ A description of the NEMS cases is available at U.S. Energy Info. Admin., *Annual Energy Outlook 2022: Case Descriptions* (Mar. 2022), https://www.eia.gov/outlooks/aeo/assumptions/pdf/case_descriptions_2022.pdf.

Energy Projection System (WEPS) module—which is also incorporated into MarketSim—to capture the global scope of climate action necessary to reach emission targets (i.e., replicate potential global emission paths). Results from these different scenarios could then be used to calibrate the new baseline quantities and prices in BLM’s substitution model. As supply elasticities are conditional on the emissions target, some elasticities such as electricity supply elasticities would need to be recalibrated to the model run using the approach laid out previously by BOEM.³¹

However, the NEMS cases are somewhat limited in their variability, and if Interior intends to model more ambitious decarbonization scenarios, it must modify NEMS to achieve wider geographic and greenhouse gas coverage. For instance, Interior could incorporate the quantity estimates for oil, gas, coal, nuclear, and renewables from the Intergovernmental Panel on Climate Change reflecting different potential mitigation pathway scenarios.³² Interior could also use expert elicitation to update the model’s elasticities to reflect a range of future trajectories. Currently, the model is based on backward-looking and often dated elasticities.³³ In the future, under decarbonization trajectories, many of these elasticities can be expected to shift, potentially dramatically. For instance, the cross-price demand elasticity between natural gas and renewables is likely to be much higher if and when electric-powered cars become more prevalent, as consumers can more easily switch between these alternative sources in response to price changes. Interior should adjust its elasticities to reflect these types of long-term possibilities, once again recognizing that these values are uncertain over the long-term and should not be presented as single point estimates. As noted above, this could potentially be done through NEMS itself,³⁴ but expert elicitation provides an alternative possibility to help forecast future elasticities that are uncertain.

While BLM would ideally make these modeling adjustments before completing its analysis of the Project’s environmental impacts, it should at a minimum recognize the limitations in its substitution modeling and observe that these limitations very likely result in an underestimate of the Project’s resulting greenhouse gas emissions. As noted above, BOEM has recently done this in its proposed five-year offshore leasing program.³⁵

B. BLM Disregards the Potential for Reciprocal Foreign Emission Reductions

BLM’s substitution analysis proceeds on the assumption that if the Project is not completed, then market forces will drive other U.S. and foreign fossil-fuel sources to fill the

³¹ See Bureau of Ocean Energy Mgmt., Consumer Surplus and Energy Substitutes for OCS Oil and Gas Production: The 2021 Revised Market Simulation Model (MarketSim): Model Description 22 (2021) (“Where appropriate economic research does not exist or could not be obtained for a specific supply elasticity value, projections from the AEO 2020 low-world price, high-world price, and reference cases were used to infer these values. Elasticity estimates may be inferred from the AEO projection for a given year by comparing the differences in energy prices between two scenarios with the differences in energy quantities.”).

³² See IPCC Working Group III Technical Summary, *supra* note 22, at TS-31 tbl.TS-2 (providing four different mitigation pathways reflecting different warming targets); *see also id.* at TS-42 tbl.TS.3.

³³ SEIS at Appx. E.2B p. 12–18 (explaining that supply and demand elasticities are based on various studies dating back to 1998 and relying on historical data going as far back as 1960).

³⁴ See *supra* note 31 and accompanying text.

³⁵ See *supra* note 27 and accompanying text.

void. Though this is likely true to some extent, it also may not be the full picture, since the global oil supply is determined not only by market forces but also by government policies. And a growing literature suggests that as the U.S. takes strong action to mitigate climate change, other nations become more likely to follow suit through reciprocal actions. BLM overlooks the possibility that forgoing the Project (and the planet-warming emissions it will cause) will indirectly cause other nations to take similar actions that reduce their own emissions.

Because the world's climate is a single interconnected system, all nations stand to benefit greatly when foreign countries reduce their greenhouse gas emissions. Reducing greenhouse gas emissions therefore promotes U.S. strategic interests, as it encourages and incentivizes other nations to reduce their own emissions in a reciprocal fashion.³⁶ Evidence indicates that the U.S. strategy of combining its domestic efforts with its diplomatic engagement is indeed spurring foreign reciprocity. For instance, following the announcement in April 2021 of a new U.S. commitment to reduce emissions to 50–52% below 2005 levels by 2030, numerous other countries reciprocally increased the ambition of their own climate targets.³⁷ And this flurry of activity is just the latest evidence of reciprocity in international climate actions.³⁸ By taking global climate damages into account, in other words, BLM may incentivize other countries to do the same, which in turn would reduce greenhouse gas pollution originating in other countries.

In January 2021, Trevor Houser and Kate Larsen published a conservative estimate of the number of tons of greenhouse gases that the rest of the world had committed to reduce for each ton that the United States has pledged to reduce: a figure they call the “Climate Reciprocity Ratio.”³⁹ Using only the quantifiable, unconditional pledges that 51 countries had made since 2014 to cut emissions through 2030, Houser and Larsen conservatively estimate that for every ton the United States pledged to reduce, these other countries had collectively pledged to reduce 6.1–6.8 tons in return.⁴⁰ While implementation of all these foreign policies is not guaranteed, and

³⁶ See Peter Howard & Jason A. Schwartz, *Think Global: International Reciprocity as Justification for a Global Social Cost of Carbon*, 42 COLUM. J. ENV'T L. 203, 221–22 (2017) (discussing “tragedy of the global climate commons” that encourages nations to work together to reduce their greenhouse gas emissions).

³⁷ Japan accelerated its reduction goal from 26% to 46–50%; Canada strengthened its target from 30% to 40–45%; South Korea strengthened its target to achieve net zero emissions by 2050; China promised to peak coal use by 2025 and phase down coal consumption after that, and to join the Kigali Amendment to reduce hydrofluorocarbon emissions; Argentina pledged to strengthen its goal by 2.7% and make previously “conditional” targets “unconditional” instead; Brazil committed to a net zero target by 2050 (ten years earlier than its previous 2060 goal); South Africa shifted its emission peak ten years earlier; and New Zealand, Bhutan, and Bangladesh all committed to submit more ambitious plans in the near future. U.S. Dept. of State, Leaders’ Summit on Climate: Day 1, Apr. 22, 2021, <https://perma.cc/3X8A-KF4G>; Climate Action Tracker, *Warming Projections Global Update: May 2021* at 3 (2021), <https://perma.cc/7JYN-N2DU>.

³⁸ Some past reciprocity has been explicit. The Kigali Amendment, for example, is the latest internationally negotiated climate treaty, with more than 120 parties so far committing to common but differentiated responsibilities to phase down hydrofluorocarbons. See U.N., Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer (2016), <https://perma.cc/SEX3-HAQA>.

³⁹ Trevor Houser & Kate Larsen, Rhodium Grp., *Calculating the Climate Reciprocity Ratio for the U.S.* (2021), <https://perma.cc/7MJ8-DN23> (calling their estimate “deliberately conservative”).

⁴⁰ The estimate is conservative because it omits any conditional pledges, any pledges that are not readily quantified into specific reductions, any actions from countries that have not formally submitted Nationally Determined Contributions to the United Nations, any reductions occurring after 2030, and any foreign actions already achieved before 2014 that may have motivated U.S. pledges in the first place. *Id.*

these estimates reflect pledges that may now be outdated, Houser and Larsen cite evidence that several large emitters are on track to meet their goals, and that the ratio should grow over time as the U.S. share of global emissions falls.⁴¹

In short, both economic theory and empirical evidence suggest that U.S. emission reductions spur other countries to take reciprocal action. Yet this reciprocity effect is absent in BLM’s modeling and analysis, which concludes that if the Project is not approved, then market forces will supply most of the fossil-fuel energy that the Project would have provided. BLM should perform sensitivity analysis that assesses how the Project would affect global greenhouse gas emissions under reasonable assumptions about global reciprocity, potentially starting with empirical estimates in the literature such as those discussed above. And once again, even if BLM does not model this effect quantitatively, it should recognize that reciprocity offers another explanation that its emission figures are underestimates and consider reciprocity effects when it assesses whether to approve the Project.

II. As the Interagency Working Group Has Recognized, BLM’s Climate-Damage Estimates Likely Understate the Harm Resulting from the Project’s Emissions

Assessing the climate effects of the Project entails not just quantifying emissions, but also assessing the incremental climate-change damages that those emissions will cause. For this second step, BLM appropriately estimates the Project’s incremental climate damages using valuations developed by the Interagency Working Group on the Social Cost of Greenhouse Gases.⁴² The Working Group developed its climate-damage estimates through a rigorous and transparent process incorporating the best available science.⁴³ Those values have been applied in dozens of previous agency actions⁴⁴ and upheld in federal court.⁴⁵

While the Working Group’s valuations are appropriate to use as conservative estimates, they are widely agreed to underestimate the full social costs of greenhouse gas emissions. The Working Group has explained as much, recognizing that “the range of four interim SC-GHG estimates” that BLM applies here “likely underestimate societal damages from [greenhouse gas] emissions.”⁴⁶ There are two main reasons for this. First, as Working Group has explained, “the latest scientific and economic understanding of discount rates” strongly indicates that the Working Group’s social cost of greenhouse gases estimates undervalue the climate damages that will be borne by future generations.⁴⁷ Second, the integrated assessment models that are used to produce the Working Group’s estimates “do not include all of the important physical, ecological,

⁴¹ *Id.*

⁴² SEIS at 45 tbl.3.2.7.

⁴³ *Id.*

⁴⁴ Howard & Schwartz, *supra* note 36, at 270–84 (listing all uses through mid-2016).

⁴⁵ *Zero Zone v. Dept. of Energy*, 832 F.3d 654, 679 (7th Cir. 2016).

⁴⁶ IWG, 2021 TSD, *supra* note 8, at 4.

⁴⁷ *Id.*; *accord id.* at 16–22 (reviewing literature on intergenerational discounting and finding substantial support for discount rates of 2 percent or lower). *See also* Jason Schwartz & Peter Howard, *Valuing the Future: Legal and Economic Considerations for Updating Discount Rates*, 39 YALE J. REG. 595, 616–34 (2022) (surveying literature supporting use of lower discount rates, particularly over long time horizons).

and economic impacts of climate change recognized in the climate change literature.”⁴⁸ The Working Group is currently in the process of updating its climate-damage valuations to reflect the latest and best available science.⁴⁹

BLM should take two steps to better ensure that it does not undervalue the Project’s true climate costs. First, if the Working Group releases its updated values before BLM finalizes this environmental impact statement, then BLM should use those updated values. Second, if BLM finalizes this analysis before the Working Group updates its social cost valuations, it should conduct additional sensitivity analysis using lower discount rates than those that it has already applied—perhaps 2% and 1%⁵⁰—to reflect state-of-the-art literature on the topic and to anticipate likely updates by the Working Group. To do so, the BLM could look to the “value of carbon” estimates from the New York State Department of Environmental Conservation, which applied a 2% discount rate as its central value (and a 1% rate as an alternative value) but otherwise used the Working Group’s approach.⁵¹ Indeed, the Working Group has suggested that agencies conduct additional analysis using lower discount rates and explained that such analysis is consistent with longstanding White House guidance on intergenerational discounting.⁵²

Even if BLM does not conduct additional analysis using higher climate-damage valuations, it should recognize that the valuations it applies are considered underestimates and treat them accordingly when it assesses whether to approve the Project.

III. Because They Overlook Substitution Effects, BLM’s Estimates of Economic Benefits Are Very Likely Inflated

While BLM’s analysis of greenhouse gas emissions and climate costs present low-end estimates, its analysis of economic benefits errs in the opposite direction and should be considered high-end estimates. This is because the substitution impacts that are so central to BLM’s analysis of climate costs are noticeably absent when the agency analyzes economic benefits, creating an inconsistency that biases the analysis and should be remediated.

⁴⁸ IWG, 2021 TSD, *supra* note 8, at 4; *accord id.* at 30–32 (discussing omitted impacts in further detail, including “the incomplete treatment of catastrophic and non-catastrophic impacts in the IAMs, their incomplete treatment of adaptation and technological change, the incomplete way in which inter-regional and intersectoral linkages are modeled, uncertainty in the extrapolation of damages to high temperatures, and inadequate representation of the relationship between the discount rate and uncertainty in economic growth over long time horizons”).

⁴⁹ *See id.* at 36.

⁵⁰ *Id.* at 16–21 (surveying literature offering support for discount rates in this range).

⁵¹ N.Y. Dep’t of Env’t Conservation, *Establishing a Value of Carbon: Guidelines for Use by State Agencies* 16–18 (2020), https://www.dec.ny.gov/docs/administration_pdf/vocfguid.pdf. Pursuant to DEC’s estimates, at a discount rate of 2%, social cost valuations for year 2020 emissions equal \$125 per ton of carbon dioxide, \$2,782 per ton of methane, and \$44,727 per ton of nitrous oxide. *Id.* at 3. *See also* N.Y. Dep’t of Env’t Conservation & Res. for the Future, *Estimating the Value of Carbon: Two Approaches* (2020) (explaining considerations and methodology).

⁵² IWG, 2021 TSD, *supra* note 8, at 4 (“Consistent with the guidance in E.O. 13990 for the IWG to ensure that the SC-GHG reflect the interests of future generations, the latest scientific and economic understanding of discount rates discussed in this TSD, and the recommendation from OMB’s Circular A-4 to include sensitivity analysis with lower discount rates when a rule has important intergenerational benefits or costs, agencies may consider conducting additional sensitivity analysis using discount rates below 2.5 percent.”); *see also* Off. of Mgmt. & Budget, Circular A-4, at 35–36 (2003) (recommending lower discount rates, potentially “rang[ing] from 1 to 3 percent per annum” to evaluate policies with “important intergenerational benefits or costs”).

In Chapter 3.15 of the supplemental environmental impact statement, BLM touts various economic benefits that would allegedly accrue from the Project including federal and state royalties; state, federal, and regional taxes;⁵³ and regional employment.⁵⁴ However, this analysis looks only at the gross effects of the Project, without any recognition of the substitution and displacement effects considered in the agency’s analysis of climate impacts that would also offset many of the Project’s economic benefits. Since the Project would largely replace substitute production sources that would generate energy if the Project were not completed—according to BLM’s own analysis⁵⁵—then many of the Project’s economic benefits including revenues and royalties would also be largely replaced by those same substitutes. Under the agency’s logic, the Project is responsible for all of its positive economic impacts but few of its climate harms. BLM should instead apply substitution analysis consistently to all impacts, and not place its thumb on the scale by offsetting only climate costs while ignoring those same substitution effects when assessing economic benefits.⁵⁶

Once again, BOEM’s recent analysis of its proposed five-year leasing program offers guidance to BLM on how to ensure consistency in the treatment of economic benefits and climate costs. In that proposal, BOEM conducted an analysis identifying likely energy market substitutes.⁵⁷ While BOEM integrated its substitution analysis to inform its assessment of climate costs attributable to the proposal, like BLM does here, it also used its substitution analysis to inform its assessment of economic benefits attributable to the proposal, which BLM now neglects to do.⁵⁸ BOEM’s analysis provides a model for BLM to follow and clearly illustrates that BLM currently overstates the Project’s economic benefits relative to climate costs.

Conclusion

BLM takes several critical steps forward by quantifying greenhouse gas emissions from increased foreign consumption and applying the social cost of greenhouse gases. With these modeling improvements, the supplemental analysis now reveals that the Project would cause billions upon billions of dollars in climate harm—which itself should be weighed carefully as BLM decides how to proceed.

But even with these improvements, BLM should still consider the climate-damage projections to be underestimates for various reasons. For one, BLM’s substitution analysis

⁵³ SEIS at 254 tbl.3.15.5.

⁵⁴ *Id.* at 252–54 tbls.3.15.2–4.

⁵⁵ *Id.* at 40 (discussing climate impact of “energy sources displaced by the Project”). It does not appear that BLM presents a complete analysis of substitute energy sources, other than its estimate of the greenhouse gas emissions attributable to those sources at *id.* at 40–42 tbls.3.2.2–4.

⁵⁶ See generally *Bus. Roundtable v. Secs. & Exch. Comm’n*, 647 F.3d 1144, 1148–49 (D.C. Cir. 2011) (criticizing an agency for “inconsistently and opportunistically fram[ing] the costs and benefits”); *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1198 (9th Cir. 2008) (agency cannot “put a thumb on the scale” through inconstant treatment of costs and benefits).

⁵⁷ BOEM Proposed Five-Year Program, *supra* note 27, at 5-41 fig.5-13 (reporting results of substitution analysis).

⁵⁸ *Id.* at 5-42 (“All domestic substitutes would provide [net economic value] under the No Sale Option and only the Draft Proposal [net economic value] over and above this amount is an incremental benefit to the Nation.”). See also *id.* at 5-42 tbl.5-11 (reporting economic benefits from energy substitutes under no-sale option); *id.* at 5-46 (reporting “incremental net benefits” as the difference between the net benefits of the proposal and the net benefits of energy substitutes).

disregards the potential for future climate mitigation and overlooks the potential for reciprocal foreign emission reductions. For another, the social cost of greenhouse gases estimates that BLM applies are widely regarded as underestimates. Moreover, BLM's projections of economic benefits provide overestimates because they do not account for substitution effects.

BLM should aim to correct these modeling limitations and revise its analysis to improve upon its projections of climate costs and economic benefits. Even without doing so, it should recognize that its climate-damage valuations are low-end estimates and that its economic-benefit valuations are high-end estimates, and weigh them accordingly.

Sincerely,

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