



Institute for  
Policy Integrity  
NEW YORK UNIVERSITY SCHOOL OF LAW



Union of  
**Concerned  
Scientists**



March 9, 2022

**Attn:** Stephanie Rice, Project Manager, Alaska State Office, Bureau of Land Management  
**Re:** Supplemental Analysis of Willow Master Development Plan Final Environmental Impact Statement (DOI-BLM-AK-0000-2018-0004-EIS)

The undersigned organizations respectfully submit this letter for the consideration of the Bureau of Land Management (BLM), as it revisits the Final Environmental Impact Statement (FEIS) for the Willow Master Development Plan (the Plan).<sup>1</sup>

In the fall of 2020, BLM issued the FEIS for the Plan, which authorizes oil giant ConocoPhillips to drill in Alaska's North Slope for 30 years with the intention of producing approximately 586 million barrels of oil. Last year, a federal court blocked the Plan from going into effect, concluding that BLM's analysis was deficient and failed to account for several important considerations.<sup>2</sup> BLM has announced that it intends to release a supplemental environmental impact statement to "address deficiencies" identified by the Court and "ensure compliance with applicable law."<sup>3</sup> This letter offers BLM several recommendations for how to accomplish those goals, improve upon its analysis, and reach a more rational determination.

Specifically, BLM should:

- **Conduct a more accurate substitution analysis that accounts for emissions resulting from foreign oil consumption and for long-term changes in energy markets and reductions in fossil-fuel demand;**
- **Consider the informational value of delaying the approval of additional oil and gas extraction, known as option value, particularly given the vast stock of existing leases; and**
- **Assign proper weight to the Plan's climate damages, including, to the extent permitted by law, by monetizing its enormous greenhouse gas emissions using the best available estimates of the social cost of greenhouse gases.**

---

<sup>1</sup> Bureau of Land Mgmt., Willow Master Development Plan Environmental Impact Statement (DOI-BLM-AK-0000-2018-0004-EIS) (Aug. 2020) [hereinafter "FEIS"].

<sup>2</sup> *Sovereign Inupiat for a Living Arctic v. BLM*, No. 3:20-CV-00290-SLG, 2021 WL 3667986 (D. Alaska Aug. 18, 2021).

<sup>3</sup> Notice of Preparation of a Supplemental Environmental Impact Statement for the Willow Master Development Plan, 87 Fed. Reg. 6890 (Feb. 7, 2022).

This letter briefly explains each of these points in turn below, with the attached documents providing additional information.

## **BLM Should Improve Its Approach to Substitution Analysis and Address Flaws in MarketSim**

BLM’s substitution analysis in the FEIS is deeply flawed. In its opinion vacating the Plan, the U.S. District Court for the District of Alaska echoed the findings of the U.S. Court of Appeals for the Ninth Circuit regarding fundamental flaws in MarketSim, the substitution model first developed by the Bureau of Ocean Energy Management (BOEM) and since used by BLM.<sup>4</sup> In particular, the Ninth Circuit found that MarketSim improperly omitted impacts on foreign oil demand resulting from domestic oil production.<sup>5</sup> Because BLM relied on the model in approving the Plan, the Court found its analysis deficient.

As the Ninth Circuit had previously explained, MarketSim “fail[s] to include emissions estimates resulting from foreign oil consumption” and thereby irrationally “assumes that foreign oil consumption will remain static” when U.S. domestic production increases.<sup>6</sup> This ignores the global nature of the energy market and violates “basic economics principles” about supply and demand,” the Court explained.<sup>7</sup> In particular, the Court pointed to “credible scientific evidence” demonstrating that “domestic consumption impacts foreign oil consumption, and increases in foreign oil consumption can be translated into estimates of greenhouse gas emissions,” including one study concluding that offshore development “cause[s] an increase in global oil consumption ten times greater than the increase in domestic consumption forecasted by BOEM.”<sup>8</sup>

BOEM has since corrected for this modeling error that excluded impacts on foreign consumption, and concluded that fossil-fuel extraction on federal waters is far more harmful to the climate than it had previously estimated. For instance, BOEM now finds that a recently proposed offshore oil-and-gas lease sale in the Cook Inlet would result in more than 30 million metric tons of additional climate pollution—with most of that surplus coming from increased foreign consumption that had been omitted from prior analyses (including BLM’s analysis of the Plan).<sup>9</sup> Thus, if BLM made a similar correction for the Plan, it would find that the Plan would result in millions more tons of climate pollution than it had previously estimated.

---

<sup>4</sup> *Sovereign Inupiat for a Living Arctic*, 2021 WL 3667986, at \*10–14.

<sup>5</sup> *Ctr. for Biological Diversity v. Bernhardt*, 982 F.3d 723, 736–40 (9th Cir. 2020).

<sup>6</sup> *Id.*

<sup>7</sup> *Id.*

<sup>8</sup> *Id.* (citing Peter Erickson, *U.S. Again Overlooks Top CO2 Impact of Expanding Oil Supply, but That Might Change*, Stockholm Env’t Inst. (Apr. 30, 2016), <http://www.sei.org/perspectives/us-co2-impact-oil-supply>; Peter Erickson & Michael Lazarus, *Impact of the Keystone XL Pipeline on Global Oil Markets and Greenhouse Gas Emissions*, 4 NATURE CLIMATE CHANGE 778, 778–80 (2014); Jason Bordoff & Trevor Houser, Columbia SIPA Center on Global Energy Policy, *Navigating the U.S. Oil Export Debate* 57 (2015)). See also *Friends of the Earth v. Haaland*, No. CV 21-2317 (RC), 2022 WL 254526, at \*12–15 (D.D.C. Jan. 27, 2022) (rejecting BOEM analysis of offshore leasing based on same deficiency in substitution analysis);

<sup>9</sup> BOEM, Revised Draft Environmental Impact Statement for Cook Inlet Lease Sale 258 at 47–51 (2021).

But even that correction alone would produce an underestimate of net greenhouse gas emissions resulting from the Plan, since MarketSim still does not account for structural changes in the energy sector that are likely to reduce long-term oil and gas demand and increase substitution to renewables. In fact, the model unreasonably assumes near constant demand for oil and gas for 70 years into the future,<sup>10</sup> which is incompatible with efforts to mitigate the impacts of climate change and would likely produce catastrophic amounts of warming.<sup>11</sup> As some scholars have noted, domestic and international policies are likely to increase renewable generation in future years, meaning that fossil-fuel production would substitute for cleaner energy use far more than implied by MarketSim’s business-as-usual assumptions.<sup>12</sup> Indeed, just in the past year, many nations have strengthened their emission-reduction pledges, while the United States has implemented key policies that will reduce long-term fossil-fuel demand such as the Environmental Protection Agency’s newly-finalized rule to reduce greenhouse gas emissions from automobiles.<sup>13</sup>

In short, BLM must correct for these major deficiencies in its substitution analysis as it reconsiders the Plan—not only to satisfy its obligations as identified by the District of Alaska, but also to bring to bear the true magnitude of the Plan’s climate impacts. For further discussion of the shortcomings of BLM’s original substitution analysis—and how BLM can correct those shortcomings—see Section II of the attached comments from the Environmental Defense Fund et al. on the BLM’s draft environmental impact statement for the Plan.<sup>14</sup>

### **Particularly Given the Extent of Existing Production Nationwide, BLM Should Consider the Option Value of Delaying Development Activities**

Given the extensive extraction already occurring on public lands, there is considerable value in BLM managing further development and preserving the option to approve, or not approve, that activity in the future. Planning and leasing determinations, like BLM’s initial approval of the Plan, have often been based on an approve-now approach, and have mostly ignored the possibility that the government could curtail some leasing and extraction and wait until further information is available before determining whether additional fossil-fuel activity is appropriate.

The value of delaying in anticipation of relevant information—known in economics as “option value”—can be extremely high, particularly given the fact that fossil-fuel developers

---

<sup>10</sup> Bureau of Ocean Energy Mgmt., OCS Oil and Natural Gas: Potential Lifecycle Greenhouse Gas Emissions and Social Cost of Carbon 20 (2016).

<sup>11</sup> *Id.* (recognizing that “[a]s countries, including the U.S., address climate change with individual policy targets, this assumption could no longer hold,” and that “as new energy sources become more economically feasible, they could displace existing sources and/or alter the composition of energy supply”).

<sup>12</sup> See, e.g., Brian C. Prest & James H. Stock, *Climate Royalty Surcharges* 11 (Nat’l Bureau of Econ. Res. Working Paper No. 28564, 2021) (“[A]s renewable generation increases the electricity demand for gas could become more elastic.”).

<sup>13</sup> Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards, 86 Fed. Reg. 74,434 (Dec. 30, 2021).

<sup>14</sup> Environmental Defense Fund et al., Comments on the Failure to Monetize Greenhouse Gas Emissions and Properly Account for Energy Substitution in the Willow Master Development Plan Draft Environmental Impact Statement 20–26 (Oct. 29, 2019) [hereinafter “Joint Comments on DEIS”].

already have vast stocks of currently producing leases, thereby limiting the current need for additional development on federal land. Option value has in fact long been considered by agencies, courts, and economists to be a relevant factor for leasing and mineral decisions.<sup>15</sup> As the U.S. Court of Appeals for the D.C. Circuit has explained, there is a “tangible present economic benefit to delaying the decision to drill for fossil fuels to preserve the opportunity to see what new technologies develop and what new information comes to light.”<sup>16</sup> And this option value “can be quite substantial”<sup>17</sup>—as it is now when both renewable energy is becoming more widespread and new policies are being developed that reduce fossil-fuel demand.

Indeed, fossil-fuel developers like ConocoPhillips already have vast reserves of both producing and currently non-producing leases. Onshore, producers now hold over 26 million acres of federal land, half of which is currently producing.<sup>18</sup> Offshore, producers are currently producing on nearly 3 million acres, with another 8 million acres in non-producing leases.<sup>19</sup> Extracting all of these fossil fuels would severely exacerbate global climate change while potentially restricting the growth of renewable energy sources—the very sources that must grow as part of the energy transition<sup>20</sup>—for decades to come.<sup>21</sup>

Against this backdrop, Interior should consider the option value of delay. In general, Interior should consider limiting further approvals that are not necessary to meet the nation’s short-term energy and economic needs, while preserving the option to manage additional, long-term extraction. If other energy sources (including renewables) and energy-conservation policies limit the need for further fossil-fuel extraction over the long term, then extensive, long-term approvals that occur now will substantially exacerbate the climate crisis for limited benefit.

Accordingly, option value counsels that BLM should more carefully evaluate the Plan and further evaluate whether approving such extensive development is necessary at this time. BLM’s failure to consider option value in its prior analysis not only violates the D.C. Circuit’s precedent,<sup>22</sup> but also risks a situation in which the agency may greatly exacerbate the climate crisis for fairly limited long-term benefit.

---

<sup>15</sup> BOEM itself has acknowledged the importance of option value in assessing leasing, yet has only considered oil price uncertainty without rigorously assessing uncertainties regarding environmental factors, technological development, and the growth of renewable energy. BOEM, 2017–2022 Outer Continental Shelf Oil and Gas Leasing Proposed Final Program 10-3 to 10-16 (2016).

<sup>16</sup> *Ctr. for Sustainable Econ. v. Jewell*, 779 F.3d 588, 610 (D.C. Cir. 2015).

<sup>17</sup> Michael Livermore, *Patience Is an Economic Virtue: Real Options, Natural Resources, and Offshore Oil*, 84 U. COLO. L. REV. 581, 638–39 (2013).

<sup>18</sup> *Compare Oil and Gas Statistics*, BUREAU OF LAND MGMT. tbl. 2, <https://www.blm.gov/programs-energy-and-minerals-oil-and-gas-oil-and-gas-statistics>, with *id.* tbl. 6.

<sup>19</sup> BOEM, Combined Leasing Report as of Dec. 1, 2021, <https://www.boem.gov/sites/default/files/documents/regions/pacific-ocs-region/oil-gas/Lease%20stats%202012-1-21.pdf>.

<sup>20</sup> See, e.g., Int’l Energy Agency, *Net Zero by 2050* at 14 (2021) (explaining that “[t]he path to net-zero emissions . . . requires immediate and massive deployment of all available clean and efficient energy technologies”).

<sup>21</sup> See, e.g., Brian C. Prest & James H. Stock, *supra* note 12, at 11 (“[A]s renewable generation increases the electricity demand for gas could become more elastic.”).

<sup>22</sup> *Ctr. for Sustainable Econ.*, 779 F.3d at 610.

## **BLM Should Assign Proper Weight to the Plan’s Climate Impacts, and Carefully Balance Those Effects Against the Plan’s Benefits**

BLM’s prior analysis paid limited attention to the Plan’s considerable climate impacts, as the agency’s FEIS did not meaningfully analyze the significance of the Plan’s climate impacts<sup>23</sup> and the Record of Decision disregarded those impacts altogether.<sup>24</sup> As BLM reevaluates the Plan, it must pay ample attention to the Plan’s substantial climate impacts. Doing so would not only help fulfill its obligations under NEPA, but would also provide the agency with critical information that it should incorporate into its permitting decision.

As discussed at length in the attached comments on the draft environmental impact statement,<sup>25</sup> a particularly informative method for assessing and weighing the Plan’s climate benefits is the social cost of greenhouse gases. To the extent permitted by law, BLM should strongly consider applying the social cost of greenhouse gases in its supplemental analysis.<sup>26</sup>

Instead of assessing the severity of the Plan’s climate impacts using this well-established methodology, however, BLM recycled a myriad of flawed arguments to justify its decision not to use the social cost metrics in the FEIS. As detailed further in the attached comments previously submitted to this docket, the following factors should compel BLM to monetize climate damages as it reconsiders its analysis:

- NEPA requires a “reasonably thorough discussion” and “necessary contextual information” on real-world climate impacts and their significance, which the social cost of greenhouse gases provides;<sup>27</sup>
- NEPA requires agencies to assess the impacts of emissions, including an assessment of their significance, yet BLM fails to assess the magnitude of climate impacts from the DEIS. The social cost of greenhouse gases metric is designed to measure marginal

---

<sup>23</sup> FEIS at 32 (“It is not currently possible to determine the impact of a single project on global climate change and the EPA has not set specific thresholds for GHG emissions. Current scientific knowledge cannot associate particular actions with specific climate effects, and a single project of this size cannot significantly impact global GHG emissions.”).

<sup>24</sup> See BLM, Record of Decision, Willow Master Development Plan (Oct. 2020).

<sup>25</sup> Joint Comments on DEIS, *supra* note 14, at 1–19.

<sup>26</sup> Last month, the U.S. District Court for the Western District of Louisiana issued a preliminary injunction enjoining certain federal agencies, including the Department of the Interior, from using the social cost of greenhouse gases estimates developed by the Interagency Working Group on the Social Cost of Greenhouse Gases. *Louisiana v. Biden*, No. 21-cv-1074-JDC-KK (W.D. La. Feb. 11, 2022). That injunction is currently on appeal, with an emergency motion to lift the stay pending before the Fifth Circuit.

However, this injunction does not limit BLM’s obligations to meaningfully consider the climate impacts of its actions. Should the injunction remain in effect when BLM issues its supplemental analysis, BLM should meaningfully consider the Plan’s climate impacts through other means. This could include a robust qualitative consideration, or potentially other quantified methods such as considering the Plan’s contribution to domestic climate targets or to physical impacts of climate change such as temperatures or sea-level rise. However BLM considers climate impacts, it should ensure that climate impacts receive commensurate treatment with economic impacts.

<sup>27</sup> *Id.* at 2–5.

damages and is therefore an appropriate and available tool to assess the significance of the Plan’s emissions;<sup>28</sup> and

- BLM monetized a number of other effects of the Plan, including tax revenue and royalties, and should give climate effects the same consideration. When an agency monetizes a proposed action’s potential benefits—as BLM did here—the potential climate costs must be treated with similar rigor.<sup>29</sup>

Since the Plan was first approved, the Interagency Working Group on the Social Cost of Greenhouse Gases (Working Group) has reconvened and re-endorsed its prior estimates of the social-cost values.<sup>30</sup> But the Working Group also acknowledged that those values “likely underestimate societal damages from [greenhouse gas] emissions”<sup>31</sup> due, in large part, to extensive evidence that intergenerational consumption discount rates are well below the rates that the Working Group had previously recommended.<sup>32</sup> Accordingly, the Working Group recommended that agencies “consider conducting additional sensitivity analysis using discount rates below 2.5%” when applying the social cost of greenhouse gases.<sup>33</sup> The Working Group has also been in the process of updating its climate-damage valuations to account for the most recent science and economics, and was expected to release its updated estimates in the coming months.<sup>34</sup> BLM should incorporate any updated valuations from the Working Group into its analysis, and strongly consider awaiting those updated estimates before completing that analysis.

Beyond merely applying the social cost of greenhouse gases, BLM should adequately factor in the Plan’s climate impacts into its final determination. In several recent environmental analyses for first quarter 2022 oil and gas lease sales, BLM took the important first step of projecting the proposals’ climate effects in dollar terms. However, BLM failed to rationally justify its decision to proceed with actions that would produce billions of dollars in climate harm.

The undersigned Institute for Policy Integrity’s comments on those proposed lease sales, one of which is now attached, suggest possible methods for factoring climate impacts into BLM’s assessment. First, BLM could compare the estimated climate costs against other monetized (or monetizable) impacts from the Plan. For example, the Plan is expected to cause tens of billions of dollars in gross lifetime climate damages,<sup>35</sup> greatly exceeding its \$11 billion in

---

<sup>28</sup> *Id.* at 10–14.

<sup>29</sup> *Id.* at 8–10.

<sup>30</sup> Interagency Working Grp. on the Soc. Cost of Greenhouse Gases, *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide—Interim Estimates Under Executive Order 13,990* (2021).

<sup>31</sup> *Id.* at 4.

<sup>32</sup> *Id.* at 16–21 (surveying literature).

<sup>33</sup> *Id.* at 21.

<sup>34</sup> Since the Western District of Louisiana issued its preliminary injunction last month, the Working Group has been “effectively shuttered” pending further judicial guidance. Declaration of Dominic J. Mancini ¶ 35, *Louisiana v. Biden*, No. 21-cv-1074-JDC-KK (W.D. La. Feb. 19, 2022).

<sup>35</sup> BLM estimates there will be 258,766,000 metric tons of carbon dioxide equivalent for the proposed action. *Id.* at 36 tbl 3.2.2. Using a 3% discount rate, the climate damages from a single ton of carbon dioxide emitted in the year 2030—the approximate midpoint of expected production volume—is \$62. Interagency Working Grp. on the Social Cost of Greenhouse Gases, *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous*

gross public revenues<sup>36</sup> and comparable to the approximately \$31 billion in projected gross economic output.<sup>37</sup> In such a cost-benefit analysis, other monetizable Project costs—including the nearly \$13 billion in projected capital and operational costs<sup>38</sup>—should also be factored in.

Second, BLM could use the social cost of greenhouse gases as a point of comparison between alternatives and then consider whether it is justified to choose one alternative over others in light of their comparative climate impacts. In this instance, when BLM is comparing only between alternatives that would all result in similarly enormous climate damages,<sup>39</sup> such comparison may not be especially useful; however if BLM also applied the social cost metric to the No Action alternative, BLM would be faced with the stark contrast between an alternative that results in \$0 in climate damages and three alternatives that would result in billions of dollars in climate damages.

In short, BLM must meaningfully consider climate impacts when it evaluates the Plan. The social cost of greenhouse gases provides a highly useful methodological tool for quantifying and weighing those impacts, but BLM must meaningfully consider climate impacts even if it does not adopt that methodology.

## Conclusion

Not only is the FEIS deficient in the ways identified by the District of Alaska, including due to BLM’s flawed substitution analysis, but BLM’s original analysis also failed to sufficiently account for the option value of delay and the enormous climate consequences of going forward

---

*Oxide – Interim Estimates Under Executive Order 13,990*, at 5 (2021) [hereinafter *2021 TSD*]. 258,766,000 multiplied by \$62 equals \$16.04 billion.

This value “likely underestimate[s] societal damages from [the Plan’s] emissions” for several reasons. *Id.* at 4. Perhaps most notably, as the Interagency Working Group recently recognized, evidence consistently points to the use of lower discount rates for intergenerational climate impacts, and agencies should “consider conducting additional sensitivity analysis using discount rates below 2.5 percent.” *Id.* Using a discount rate of 2%—which produces a social cost of carbon valuation of \$137 for emissions in the year 2030, according to analysis from the New York Department of Environmental Conservation—yields a social cost estimate of approximately \$35.5 billion (258,766,000 metric tons\*\$137/ton). *See* N.Y. Dep’t of Env’t Conserv., U.S Social Cost of Carbon Dioxide by Discount Rate, Adjusted for New York State, [https://www.dec.ny.gov/docs/administration\\_pdf/vocapprev.pdf](https://www.dec.ny.gov/docs/administration_pdf/vocapprev.pdf). Additionally, the Interagency Working Group has recognized that its current valuations omit numerous important categories of damages. *2021 TSD* at 4.

<sup>36</sup> Bureau of Land Mgmt., Willow Master Development Plan Record of Decision 9 (DOI-BLM-AK-0000-2018-0004-EIS) (Oct. 2020) (projecting “federal royalties and state and local taxes totaling approximately \$6 billion as well as increased federal revenues totaling approximately \$5 billion”). Unlike its analysis of greenhouse gas emissions, BLM did not apply substitution analysis to the Plan’s economic impacts. In any comparison of costs and benefits, BLM must apply substitution analysis consistently to both sides of the ledger. Because BLM did not apply substitution analysis to the Plan’s economic benefits—and because, as detailed above, its substitution analysis for climate impacts was severely flawed—this Section uses gross estimates of both costs and benefits, rather than net estimates.

<sup>37</sup> Appendix E.15 of the FEIS projects approximately \$5.28 billion in royalty revenue, based on a royalty rate of 16.67 percent. This implies approximately \$31.7 in total economic output. As BLM reconsiders its analysis, it may wish to conduct a range of economic output projections based on different long-term oil prices.

<sup>38</sup> *See* FEIS App’x E.15 (projecting \$8.23 billion in capital expenditures and \$4.6 billion in operating expenditures).

<sup>39</sup> *See id.* at 36 tbl 3.2.2.

with the Plan. As detailed in this letter, BLM should address these shortcomings and reconsider its determination based on a careful consideration of the proposal's true costs and benefits.

Sincerely,

Rachel Cleetus, Ph.D., Policy Director, Union of Concerned Scientists  
Michelle Endo, Associate Attorney, Sierra Club  
Anne Hedges, Deputy Director, Montana Environmental Information Center  
Jeremy Lieb, Senior Associate Attorney, Earthjustice  
Iliana Paul, Senior Policy Analyst, Institute for Policy Integrity at NYU School of Law\*  
Max Sarinsky, Senior Attorney, Institute for Policy Integrity at NYU School of Law\*  
Ben Tettlebaum, Senior Staff Attorney, The Wilderness Society  
Rosalie Winn, Senior Attorney, U.S. Clean Air, Environmental Defense Fund

\*No part of this document purports to represent the views, if any, of New York University School of Law.

## Enclosures

1. Environmental Defense Fund et al., Comments on the Failure to Monetize Greenhouse Gas Emissions and Properly Account for Energy Substitution in the Willow Master Development Plan Draft Environmental Impact Statement (Oct. 29, 2019)
2. Inst. for Pol'y Integrity, Comments to Wyoming State Office, Bureau of Land Management on 2022 First Quarter Competitive Lease Sale Environmental Assessment (DOI-BLM-WY-0000-2021-0003-EA) (Dec. 10, 2021)
3. Jayni Hein et al., Inst. for Pol'y Integrity, *Look Before You Lease: Reducing Fossil Fuel Dominance on Public Lands by Accounting for Option Value* (2020)
4. Rachel Rothschild & Max Sarinsky, Inst. for Pol'y Integrity, *Toward Rationality in Oil & Gas Leasing* (2021)
5. Jayni Hein, Inst. for Pol'y Integrity, *A New Way Forward on Climate Change and Energy Development for Public Lands and Waters* (2020)