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♦ CALIFORNIANS FOR WESTERN WILDERNESS ♦ CLEAN AIR TASK FORCE ♦ COLORADO
ENVIRONMENTAL COALITION ♦ EARTHWORKS' OIL & GAS ACCOUNTABILITY
PROJECT ♦ NATURAL RESOURCES DEFENSE COUNCIL ♦ MONTANA ENVIRONMENTAL
INFORMATION CENTER ♦ NEW MEXICO SPORTSMAN ♦ POWDER RIVER BASIN
RESOURCE COUNCIL ♦ SAN JUAN CITIZENS ALLIANCE ♦ SAN JUAN QUALITY WATERS
COALITION ♦ THE SIERRA CLUB ♦ SOUTHWEST ENVIRONMENTAL CENTER ♦ THE
WILDERNESS SOCIETY ♦ UPPER GREEN RIVER ALLIANCE ♦ WESTERN
ENVIRONMENTAL LAW CENTER ♦ WESTERN RESOURCE ADVOCATES ♦ WILDEARTH
GUARDIANS ♦ WILDERNESS WORKSHOP ♦ WYOMING OUTDOOR COUNCIL**

June 9, 2011

To: The Honorable Ken Salazar
Secretary of the Interior
U.S. Department of the Interior

David Hayes
Deputy Secretary
U.S. Department of the Interior

Wilma Lewis
Assistant Secretary
Land and Minerals Management
U.S. Department of the Interior

Robert Abbey
Director
U.S. Bureau of Land Management

cc: The Honorable Steven Chu
Secretary of Energy
U.S. Department of Energy

The Honorable Lisa Jackson
Administrator
U.S. Environmental Protection Agency

Nancy Sutley
Chair
Council on Environmental Quality

Re: METHANE WASTE FROM OIL AND GAS DEVELOPMENT

Dear Messrs. Salazar, Hayes, Abbey and Ms. Lewis:

We are writing to provide input to the U.S. Bureau of Land Management (“BLM”) regarding its intent to revise guidance pertaining to the waste of mineral resources from onshore oil and gas development activities. As the Government Accountability Office noted in October 2010, existing waste policies (primarily NTL-4a) are over 30 years old and do not account for data, knowledge, technologies, or practices that have advanced since those policies were issued.¹ In addition, it is essential that the federal government ensure responsible development of oil and gas resources in a world constrained by climate change and economic challenges. Updating this guidance is therefore timely and necessary.

¹ GAO, *Federal Oil and Gas Leases: Opportunities Exist to Capture Vented and Flared Natural Gas, Which Would Increase Royalty Payments and Reduce Greenhouse Gases*, p. 27 GAO-11034 (October 2010) (“GAO Waste Report”) (www.gao.gov/products/GAO-11-34)

We now know that the oil and gas production subsector emits considerably more greenhouse gas (“GHG”) pollution than previously thought. The Environmental Protection Agency (“EPA”) recently revised its GHG-related emissions factors for several oil and gas emissions sources, resulting in the revision of EPA’s 2006 estimate of national carbon dioxide and methane emissions from oil and gas production, transmission and storage, processing, and distribution, dramatically upwards from 201.8 million metric tons of carbon dioxide equivalent (MMTCO₂e) to 317.4 MMTCO₂e.² The vast majority – 93%, or 107.8 MMTCO₂e – of this increase is attributed to the oil and gas production subsector, which is BLM’s primary purview.³ These revisions to the emissions factors are, as we understand it, reflected in EPA’s most recent 2011 U.S. Greenhouse Gas Inventory (for 1990-2009).⁴ In short, our understanding of emissions from the oil and gas sector has, at least until now, significantly underestimated the oil and gas sector’s greenhouse gas (“GHG”) emissions’ portfolio.

The global warming potential (“GWP”) of methane has also been revised sharply upwards. This is a very important point because methane, according to EPA, accounts for 91% (288.74 MMTCO₂e) of total oil and gas sector GHG pollution. This total is premised on EPA’s use of GWPs for methane provided by the 1996 Intergovernmental Panel on Climate Change’s Second Assessment Report.⁵ That GWP is 21, which means that methane, over a 100-year time period, is 21 times as potent a warming agent as carbon dioxide. However, this estimate has been superseded by the IPCC’s more recent reports, which find that the GWP for methane, over a 100-year time period, is 25.⁶ The IPCC also reports that methane, over a near-term 20-year time period, warms the atmosphere 72 times more than carbon dioxide. Finally, we note that more recent, peer-reviewed science reports even higher GWPs for methane, largely due to interactions between methane and aerosols in the atmosphere.⁷ In accord with this science, these authors find that methane is 33 times as potent as carbon dioxide over a 100-year time period and 105 times as potent a warming agent as carbon dioxide over a 20-year time period.⁸

Preventing or abating methane pollution therefore benefits the climate, increases oil and gas royalties, and increases energy supply. Given the ‘spike’ of warming that methane

² EPA, *Greenhouse Gas Emissions Reporting from the Petroleum and Natural Gas Industries: Background Technical Support Document* at 10 (2010) (“EPA TSD”) (www.epa.gov/climatechange/emissions/subpart/w.html).

³ *Id.* at 10, table 2.

⁴ www.epa.gov/climatechange/emissions/usinventoryreport.html.

⁵ www.epa.gov/climatechange/emissions/downloads10/US-GHG-Inventory-Fast-Facts-2008.pdf.

⁶ Intergovernmental Panel on Climate Change, *Fourth Assessment Report*, Ch. 2, Table 2.14 (2007).

⁷ Shindell et al., *Improved Attribution of Climate Forcing to Emissions*, *Science* 2009 326 (5953), p. 716 (www.sciencemag.org/cgi/content/abstract/326/5953/716).

⁸ *Id.*

causes in the 20-year period beginning from the time of emission, preventing or abating methane pollution provides an important near-term climate mitigation measure that could provide some measure of insurance regarding potential climate ‘tipping points’ and, further, complement long-term GHG reduction efforts. Such action is also quite prudent and feasible; EPA’s Natural Gas STAR program has demonstrated, time and again, that there are myriad proven, cost-effective technologies and practices – over 150 in fact – that can keep this methane out of the atmosphere and ensure its use as energy by homes, schools, and business.⁹

The magnitude of these methane emissions is profound. The emission of 288.74 MMTCO₂e of methane, as per EPA’s estimates and use of 1996 GWPs (where methane’s GWP is 21, using a 100-year time period), is equivalent to the annual GHG pollution emitted by 68 coal-fired power plants.¹⁰ Using the IPCC’s more recent GWPs, the 100-year warming impact of this waste (where methane’s GWP is 25) is considerably greater, equivalent to 81 coal-fired power plants, with the 20-year warming impact (where methane’s GWP is 72) equivalent to 235 coal-fired power plants. And using the GWPs provided by the latest peer-reviewed science, the 100-year warming impact of this waste (where methane’s GWP is 33) is even greater, equivalent to 108 coal-fired power plants, with the 20-year warming impact (where methane’s GWP is 105) equivalent to the climate pollution emitted by 342 coal-fired power plants. These calculations are captured in the figure below.

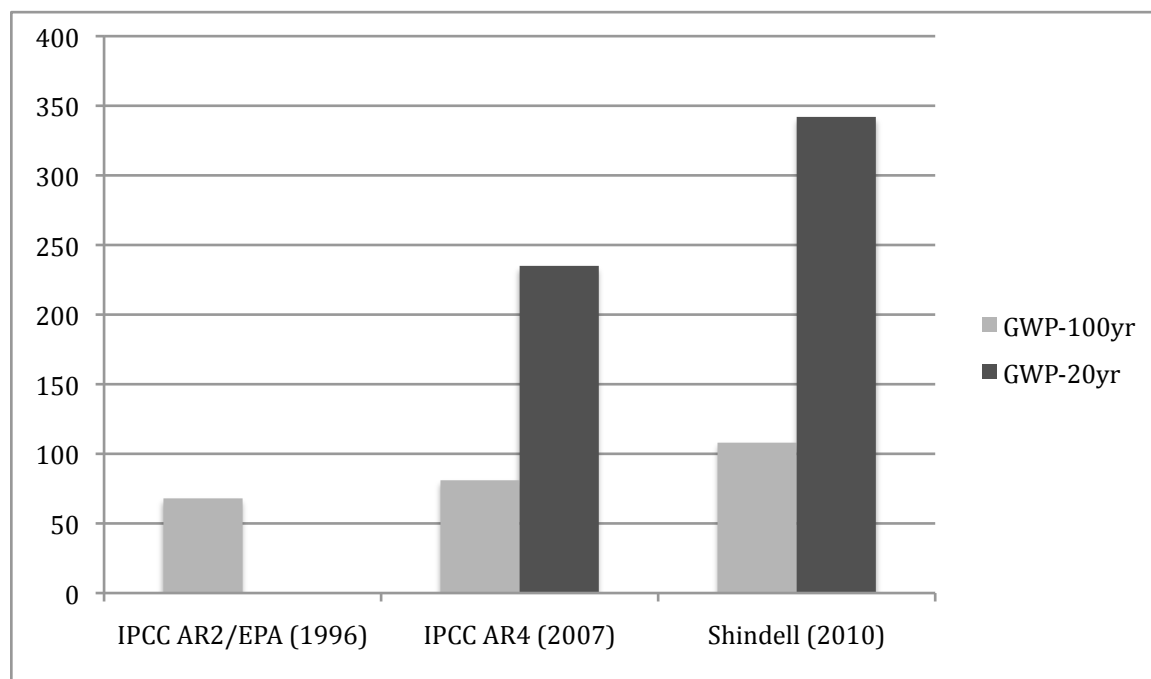


Figure 1: Comparison of methane emitted or waste from oil and gas production, transmission and storage, processing, and distribution, measured in terms of the equivalent number of coal-fired power plants (y-axis), across different GWPs.

⁹ www.epa.gov/gasstar/basic-information/index.html#sources.

¹⁰ www.epa.gov/cleanenergy/energy-resources/calculator.html.

Methane is also an important source of energy; a cubic foot of methane emitted to the atmosphere is a cubic foot of methane that cannot be sold to homes, schools, and businesses. Reducing methane emissions from oil and gas production would therefore increase oil and gas royalties and increase energy supply. It is the government's basic fiduciary responsibility to ensure that it is maximizing the return to the taxpayer from public oil and gas resources, not to mention the government's fiduciary responsibility to protect the environment. By improving the efficiency of oil and gas production operations, BLM would potentially lessen the pressure to lease and drill additional public lands and resources and, accordingly, lessen the impact of drilling and associated activities, such as hydrofracking, on the environment.

While BLM does not have control over all GHG emissions from the oil and gas industry, BLM is the nation's largest manager of mineral resources, stewarding 700 million acres of federal onshore mineral resources underlying federal, state, and private lands. BLM's policies pertaining to methane waste can therefore provide across-the-board industry standards pertaining to reasonable and prudent operations not just on BLM lands and minerals, but, by serving as a model for other entities, all lands and minerals, whether publicly or privately owned. The Government Accountability Office has, in fact, noted comments from EPA officials who "believed that federal efforts to reduce venting and flaring could also have a spillover effect – that is, it could lead operators to use these technologies on state and private leases as well."¹¹ This is particularly true in regions where state and private leases are checkerboarded with, and often communitized or unitized with, federal leases.

We also emphasize that preventing methane waste greatly benefits air quality. For instance, when vented and flared, methane is normally released together with volatile organic compounds ("VOCs"), a group of harmful air pollutants. As GAO noted, "Volatile organic compounds, present in vented gas, are contributors to elevated ozone and haze...."¹² Estimates from the EPA referenced by the GAO indicate that total VOC emissions related to methane venting and flaring just from federal onshore oil and gas leases is around 26 Bcf. Roughly converted, this amounts to 519,800 tons of VOCs.¹³ This is more than seven times the total amount of VOCs estimated to be released from all oil and gas development in the Uinta Basin of northeastern Utah.¹⁴ Given that a number of air quality

¹¹ GAO, *Federal Oil and Gas Leases: Opportunities Exist to Capture Vented and Flared Natural Gas, Which Would Increase Royalty Payments and Reduce Greenhouse Gases*, GAO-11-34 at 25 (October 2010) ("GAO Waste Report").

¹² GAO Waste Report at 7.

¹³ Using EPA's Methane Converter to convert Bcf to pounds. See <http://www.epa.gov/cmop/resources/converter.html>.

¹⁴ According to a recent inventory of emissions in the Uinta Basin of Utah, 71,546 tons of VOCs are released annually in the region. See Friesen, *et al.*, *Final Report, Development of Baseline 2006 Emissions from Oil and Gas Activity in the Uinta Basin* (March 25, 2009), available at http://www.wrapair.org/forums/ogwg/documents/2009-03_06_Baseline_Emissions_Uinta_Basin_Technical_Memo_03-25.pdf.

challenges, including rising ground-level ozone concentrations, are increasingly linked to vented and flared emissions from oil and gas operations, this is co-benefit of reducing methane waste that cannot be overlooked and underscores our recommendation, detailed below, that BLM address methane emissions not just through policy, but through interdisciplinary resource management planning and environmental review processes tied to on-the-ground conditions.

Fundamentally, the BLM must establish a robust policy that ensures meaningful, on-the-ground action to prevent and abate as much methane as is possible, for all of the reasons stated above. As GAO has estimated, 40% of production-stage methane emissions “could be economically captured with currently available control technologies....”¹⁵ In our view, this is a conservative estimate; preventing methane waste is an efficiency measure, and the efficacy of such measures can advance with new technologies and practices, suggesting that the GAO’s estimate of 40% is but a foundation for efforts that should strive to prevent 100% of methane emissions. BLM should seize this common-sense opportunity and exercises critical leadership to address our intertwined climate, economic, and energy problems in a way that will help drive innovation. In service of these objectives, we provide the following initial recommendations.

1. BLM’S WASTE POLICY MUST ENSURE THAT OIL AND GAS WASTE IS CONSIDERED IN RESOURCE MANAGEMENT PLANNING AND NATIONAL ENVIRONMENTAL POLICY ACT REVIEWS

Agency policies, however well intentioned, are all too often not faithfully implemented at the field level, whether because of agency resource and staff limitations, pressure by stakeholders, or for other reasons. We therefore strongly encourage BLM to ensure that oil and gas waste, and whatever policy BLM ultimately adopts, is explicitly acknowledged and accounted for in agency Resource Management Plans (“RMPs”), in all stages of National Environmental Policy Act (“NEPA”) reviews for oil and gas resources – from RMPs, to lease decisions, to applications for permits to drill (“APDs”) – and through strong enforcement and penalty mechanisms. As the Supreme Court teaches, “the thrust of [NEPA] is ... that environmental concerns be integrated into the very process of agency decision-making.” *Andrus v. Sierra Club*, 442 U.S. 347, 350 (1979).

Explicitly considering and implementing BLM policy through BLM’s RMP and NEPA review framework best ensures that BLM actually prevents and abates waste. Through this process, BLM can require field staff to plan for, take a hard look at, and consider alternatives (such as lease stipulations and APD-stage conditions of approval) relevant to oil and gas waste in the context of existing and foreseeable site-specific, field-level operations and the intensity of those operations. See 40 C.F.R. §§ 1502.14 (requiring consideration of alternatives), 1508.27 (requiring consideration of “context” and “intensity” to determine the significance of direct, indirect, and cumulative impacts).

¹⁵ *Id.* at 19.

Memorializing BLM policy in RMPs and NEPA reviews, specifying how that policy will be implemented, and evaluating the impacts and management measures associated with that policy and its implementation, also ensures that BLM acknowledges and accounts for links between the management of fluid minerals and BLM's more expansive responsibility to protect public lands and resources pursuant to the Federal Land Policy and Management Act and other laws, in particular through emerging climate change mitigation and adaption strategies. Such action, notably, assists other federal agencies in their work pertaining to oil and gas systems, such as EPA's duty to protect air quality pursuant to the Clean Air Act.

Acknowledging and accounting for waste in RMP and NEPA reviews also reflects the high degree of uncertainty regarding methane emission sources and those emissions' magnitude. EPA, in revising its GHG emissions factors and, consequently, its GHG emissions estimates, determined that prior emissions factors – i.e., the amount of GHG emissions per piece of equipment or activity – were wildly off the mark. For example, EPA revised its emissions factor for well completions and workovers dramatically upwards from 3 thousand standard cubic feet (3 Mcf) of methane to 9,175 thousand standard cubic feet (9,175 Mcf) of methane – an emissions factor 3,058 times greater than used by EPA in previous U.S. GHG inventories.¹⁶ Such a dramatic revision sheds a sharp light on oil and gas development and should give BLM every incentive to take a hard look at planning area and field-specific emissions to better understand GHG emissions from oil and gas development and to inform action that reduces methane waste.

As a Supplemental Information Report prepared by URS Corporation for BLM leasing decisions in Montana and the Dakotas noted:

GHG emission inventories for the oil and gas industry (and other industries) often underestimated total GHG emissions because they did not adequately account for GHG emissions from fugitive (non-point) sources. More recent oil and gas inventories include much more detailed data for fugitive GHG emissions, including those from well venting, pneumatic devices, and equipment leaks.¹⁷

Underestimates of oil and gas GHG/methane emissions – and the specific failure to account for fugitive emissions – are a product of the disaggregated nature of oil and gas operations. Rather than a single, concentrated facility, oil and gas consists of extensive amounts of equipment scattered across landscapes including, even, our own communities. Yet, at every connection of one piece of equipment with another, and through the operation of equipment, such as compressors and storage tanks, there is a potential for GHG emissions. For example, “[a] typical well has 55 to 150 connections to equipment such as heaters, meters, dehydrators, compressors, and vapor-recovery apparatus. Many of these

¹⁶ EPA TSD at 84-87.

¹⁷ URS Corporation, *Climate Change Supplemental Information Report* at 7-1 (October 2010) (“Climate Change SIR”).

potentially leak, and many pressure relief valves are designed to purposefully vent gas.”¹⁸

As further illuminated by the Final New Mexico GHG Inventory and Reference Case Projections, 1990-2020:

The sheer number and wide diversity of oil and gas activities in New Mexico present a major challenge for greenhouse gas assessment. Emissions of carbon dioxide and methane occur at many stages of the production process (drilling, production, and processing/refining), and can be highly dependent upon local resource characteristics (pressure, depth, water content, etc.), technologies applied, and practices employed (such as well venting to unload liquids which may result in the release of billions of cubic feet of methane annually). With over 40,000 oil and gas wells in the State, three oil refineries, several gas processing plants, and tens of thousands of miles of gas pipelines in the State – and no regulatory requirements to track CO₂ or CH₄ emissions – there are significant uncertainties with respect to the State’s GHG emissions from this sector.¹⁹

RMP level decisions, complemented by tiered environmental reviews, are key tools that can assess these variables through field-level data collection and analysis. This, in turn, would assist efforts to prevent and abate methane waste and pollution. In short, the mere revision of BLM waste policies is unacceptable; BLM must complement its ‘top down’ waste policies with complementary ‘bottom up’ tools – i.e., full consideration of GHG pollution and methane waste, including consideration of alternative measures to prevent that pollution and waste, in RMPs and NEPA reviews.

This recommendation is informed by our experience with field-level BLM actions. We have previously raised serious concerns regarding methane waste from BLM oil and gas-related planning and decision-making processes – in particular leasing processes – in Colorado, the Dakotas, Montana, New Mexico, and Wyoming. BLM, in each and every one of these processes, has effectively ignored the issue, failing to account for methane waste in its environmental reviews with the conceit that methane waste issues are addressed through application of existing waste policies, most notably NTL-4A, and through APD-stage reviews.²⁰ In certain instances, Freedom of Information Act requests were submitted

¹⁸ Howarth, Robert W., Santoro, Renee, and Ingraffea, Anthony, *Methane and the Greenhouse-Gas Footprint of Natural Gas from Shale Formations*, Climate Change Letters at 5 (2011).

¹⁹ New Mexico Inventory at D-35 (www.nmenv.state.nm.us/cc/documents/CCAGFinalReport-AppendixD-EmissionsInventory.pdf).

²⁰ See, e.g., BLM Montana State Office, *Decision Denying Protest of December 9, 2010 Oil and Gas Lease Sale* at 16-18, 21-22 (December 27, 2010); BLM New Mexico State Office, *Decision Denying Protest of May 30, 2008 Oil and Gas Lease Sale* at 2-3 (October 31, 2008). Of note, both of these decisions are subject to ongoing litigation, including claims that BLM failed to

to BLM to obtain the necessary documentation that BLM would presumably have in its possession to support this conceit.²¹ However, in response to these requests, BLM was unable to provide any documentation, let alone sufficient documentation, supporting its position.²² To say the least, BLM's responses to our concerns have therefore proven unpersuasive. This is confirmed by GAO's determination that BLM's waste policies – specifically NTL-4A – are completely outdated and plagued by inconsistent interpretations and application, and that BLM oversight of oil and gas waste suffers from severe limitations that, collectively, have contributed to underestimates of waste, the loss of royalties to cash-strapped governments and taxpayers, and reduced energy supply for the American people.²³

2. BLM'S WASTE POLICY SHOULD SURMOUNT BARRIERS IMPEDING THE DEPLOYMENT OF METHANE REDUCTION TECHNOLOGIES AND PRACTICES

GAO identified several barriers to the implementation of methane waste reduction technologies and practices. These barriers include: (1) a lack of awareness by operators of the economic advantages of methane reduction technologies and practices; (2) a lack of time or expertise to undertake engineering analyses to identify appropriate methane reduction technologies and practices; (3) a lack of front-end capital to invest in methane reduction technologies and practices; (4) a reluctance by operators to participate in EPA's Natural Gas STAR program; (5) institutional inertia amongst operators; and (6) investment of capital in other endeavors, such as the drilling of a new well.²⁴

We would add four additional items to this list. First, the lack of a carbon pricing mechanism that would further incentivize GHG reductions from oil and gas activities. Second, BLM's lack of modernized waste reduction policies. Third, BLM's failure to address methane waste in planning and implementation decisions (which we discussed above). And, fourth, BLM's failure to properly oversee oil and gas operations.²⁵ BLM, as it revises its

account for methane waste. *See Mont. Env'tl. Info Ctr. v. BLM*, 11-CV-00026-DWM (Dist. Mont.); *Amigos Bravos v. BLM*, 09-cv-00037 (Dist. N.M.).

²¹ Rocky Mountain Clean Air Action, FOIA NM 2008-052 (Aug. 14, 2008).

²² BLM, *Index of Released/Withheld Records for FOIA NM 2008-052* (Oct. 10, 2008).

²³ GAO Waste Report at 10-12, 26-27.

²⁴ *Id.* at 24.

²⁵ GAO has completed numerous investigations of BLM oil and gas management that have raised serious concerns about BLM's ability to ensure responsible oil and gas management. *See, e.g.*, Statement of Frank Rusco, Director, Natural Resources & Environment, to the U.S. House of Representatives Committee on Oversight and Government Reform, *Oil & Gas Management, Past Work Offers Insights to Consider in Restructuring Interior's Oversight*, GAO 10-888T at 4 (July 22, 2010) (summarizing investigations and their conclusions). Most recently, GAO has listed BLM's management of oil and gas resources a "high risk" area due to BLM's failure to provide "reasonable assurance that it is collecting its share of billions of

waste policies, should look at ways to surmount these barriers to ensure that all avoidable methane emissions are prevented. In so doing, BLM can ensure responsible oil and gas development, help remedy chronic internal management and oversight problems, and build public trust.

3. **BLM'S WASTE POLICY SHOULD SHIFT THE BURDEN TO OIL AND GAS LESSEES AND OPERATORS TO DEMONSTRATE THAT ALL REASONABLE AND PRUDENT METHANE PREVENTION TECHNOLOGIES AND PRACTICES ARE USED**

We recommend a two-pronged approach to methane waste prevention.

First, to best ensure that oil and gas lessees and operators in fact prevent waste, BLM should identify and require, through RMP-stage decisions and stipulation, specific GHG reduction technologies and practices for leases appropriate to the type of development anticipated on a particular lease, the geologic formation and surface conditions of the lease, the operator, and environmental conditions. These required technologies and practices would act as a 'floor,' or minimum level of action deemed necessary to prevent waste. Lessees and operators could seek a waiver from these technologies and practices only if the company, in its application for permit to drill and the certification process described below, demonstrate that these technologies and practices are technically infeasible or risk public health or safety.

Second, BLM should explicitly obligate oil and gas lessees and operators to take all further reasonable, cost-effective action to prevent methane waste, above and beyond the 'floor' described above. To ensure that this obligation is adhered to, BLM would obligate oil and gas lessees and operators to certify that they have taken all reasonable, cost-effective action to prevent methane waste before a drilling permit is granted. Oil and gas lessees and operators, as part of this certification process, would publicly document, in an application for permit to drill, what technologies and practices have been considered to prevent methane waste, what technologies and practices will be used to prevent methane waste, what technologies and practices were rejected that could have prevented methane waste and why those technologies and practices were rejected, and to estimate the amount of methane that would not only be recovered by these efforts, but the methane that is considered unavoidable despite the lessees' and operators' efforts. BLM would retain the authority to review this certification during reviews of drilling permits and, moreover, the authority to: (1) deny the permit; (2) grant the permit, as proposed; or (3) grant the permit subject to conditions, including the use of specific GHG reduction technologies and practices.

dollars of revenue from oil and gas produced on federal lands and [because] it continues to experience problems in hiring, training, and retaining sufficient staff to provide oversight and management of oil and gas operations on federal lands and waters." GAO, *High-Risk Series: An Update*, GAO 11-278 at 1 (February 2011).

In accord with BLM's obligations to prevent waste and, further, to prevent unnecessary or undue degradation, this two-pronged framework should explicitly provide that the agency can deny a drilling permit where there is undue waste or where that waste would constitute undue degradation to the climate and environment. *See* 30 U.S.C. §§ 187, 225 (duty to prevent waste); 43 U.S.C. § 1732(b) (duty to prevent unnecessary or undue degradation). Denial of a permit would not necessarily suggest that the particular geologic formation underlying the leasehold could never be developed. Rather, drilling of that formation would simply have to wait until technologies and practices evolve to constrain waste and GHG pollution within acceptable limits. Barring an immediate transition to efficiency and clean energy, this ensures the most responsible development of limited fossil fuel resources in a warming world.

In conclusion, we appreciate BLM's intent to revise and update its waste policies and offer these comments to constructively inform the agency's decision-making process. This process holds great potential to safeguard our climate and environment, and to help produce more energy for consumers. If you have questions regarding this letter, please do not hesitate to contact Erik Schlenker-Goodrich at eriksg@westernlaw.org or 575.613.4197. In the near future, we hope to set up a meeting to discuss our recommendations and BLM's progress on this important endeavor.

Sincerely,



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Western Environmental Law Center

On behalf of:

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Michael J. Painter
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