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## Western Environmental Law Center

March 26, 2010

Gene Terland, State Director  
U.S. Bureau of Land Management, Montana State Office  
5001 Southgate Drive  
Billings, Montana 59101-4669

### **RE: PROTEST OF APRIL 13, 2010 OIL & GAS LEASE SALE**

Dear State Director Terland:

The Montana Environmental Information Center, Earthworks' Oil & Gas Accountability Project, and WildEarth Guardians hereby protest the U.S. Bureau of Land Management's ("BLM") entire April 13, 2010 lease sale for the states of Montana, North Dakota, and South Dakota. This lease sale offers 91 separate lease parcels totaling 91,417.27 acres. *See* Exhibit 1 (map identifying protested parcels). This protest is premised on unresolved concerns regarding climate change and BLM's management of oil and gas leases in the region. As you are likely aware, we submitted similar protests regarding BLM oil and gas lease sales in 2008. These protests were, however, rejected, prompting us to initiate litigation in the U.S. District Court for the District of Montana. *See Mont. Env'tl. Info. Ctr. v. BLM*, 08-178-M-DWM. We recently filed a settlement agreement with you in that litigation. However, while that settlement agreement, just approved by the court on March 18, 2010, will spark an additional review for the leases subject to that challenge, the settlement agreement does not resolve climate change concerns with this lease sale or, for that matter, future BLM lease sales.

We would therefore advise BLM to address this issue comprehensively and, hopefully, conclusively before proceeding with this lease sale and future lease sales. This is the best way to ensure that oil and gas leasing and development in the region accounts for climate change and proceeds in a responsible, balanced fashion. Otherwise, this lease sale, if consummated, will violate BLM's obligations pursuant to Secretarial Order 3226, the National Environmental Policy Act ("NEPA"), the Federal Land Policy and Management Act ("FLPMA"), the Mineral Leasing Act ("MLA"), and BLM's regulations and policies implementing those obligations. As a consequence, this lease sale would be vulnerable to a legal challenge similar to the 2008 lease sales at the heart of *Mont. Env'tl. Info. Ctr. v. BLM*.

We note that a lease sale-by-lease sale approach is unacceptable. Rather, as both a legal and pragmatic matter, BLM needs to conduct a comprehensive analysis in accord with the above-noted legal obligations to address the climate change concerns which arise in each and every lease sale. Indeed, the primary concern with BLM's intent to hold a lease sale in April is a product of not only the specific leases to be offered for sale, but BLM's process of holding lease sales multiple times a year, year in and year out without proper climate change analysis, in particular a hard look at greenhouse gas ("GHG") emissions from past, present, and reasonably foreseeable federally-authorized oil and gas development and the consideration of alternatives to reduce those emissions and, in many instances, improve the overall efficiency of federally-authorized oil and gas operations (such as through deployment of technologies and practices detailed in EPA's Natural Gas STAR program). The comprehensive analysis we recommend could take different forms, and we are open to discussions with BLM on this point. But whatever the form, the comprehensive analysis should accomplish the following:

- (1) Quantify and evaluate the direct, indirect, and cumulative impacts of greenhouse gas emissions from oil and gas leasing & development at a regional scale;
- (2) Consider and require technologies and practices to reduce greenhouse gas emissions to combat global warming, reduce waste, and improve the efficiency of oil and gas production;
- (3) Evaluate the combined impacts of oil and gas development and climate change to the environment – e.g., rivers, wildlife corridors, etc. –and the land's ability to withstand climate change impacts (i.e., evaluate the adaptability and resiliency of the environment in the face of climate change); and:
- (4) Consider and require measures to protect the environment from the cumulative impacts of oil and gas development and climate change.

Fundamentally, we believe that BLM's failure to address climate change concerns in the context of the protested April oil and gas lease sale is a product of structural flaws in BLM's oil and gas leasing & management process. We feel that resolution of our specific climate change concerns would best be met through measures which address these structural flaws and hope that BLM would address such issues not only in the context of this lease sale, but in the context of the leasing reforms under consideration by BLM. That said, we emphasize that such leasing reforms are meaningless without on-the-ground implementation, and the learning process that occurs for all stakeholders through such implementation. Put simply, BLM should endeavor to address climate change through an iterative combination of BLM-wide leasing policy reforms and on-the-ground action. In so doing, BLM would provide significant co-benefits to other resources under BLM's purview and minimize future resource conflicts regarding BLM oil and gas leasing and development decisions in Montana, North Dakota, and South Dakota and, perhaps, set the stage for broader reform across BLM's National System of Public Lands.

## **1. ORGANIZATIONAL INTERESTS**

The Montana Environmental Information Center is a 501 (c)(3) nonprofit organization founded in 1973 with approx 3,000 members throughout the United States and the State of Montana. MEIC is dedicated, in part, to the preservation and enhancement of the natural resources and natural environment of Montana and to the gathering and disseminating of information concerning the protection and preservation of the human environment through education of its members and the general public concerning their rights and obligations under local, state and federal environmental protection laws and regulations. The MEIC is also dedicated, in part, to assuring that federal officials comply with and fully uphold the laws of the United States that are designed to protect and enhance the environment from pollution.

The Oil & Gas Accountability Project is a program of Earthworks, a 501(c)(3) nonprofit dedicated to working with communities to reduce and prevent the devastating impacts of drilling, digging, and mining. OGAP/Earthworks works with community groups, landowners, organizations, and individuals to protect our environment, public health, and communities. OGAP/Earthworks provides technical, policy, and organizing assistance, and serves as a clearinghouse of information for organizations and individuals concerned with oil and gas development in Montana and throughout the United States. As a nonprofit organization dedicated to supporting the public interest on a number of issues associated with oil and gas development, OGAP/Earthworks interests in this process are based on its interest in participating in, and informing the public at large about, energy policy in the United States.

WildEarth Guardians is a non-profit corporation with approximately 9,000 members and supporters throughout the United States. WildEarth Guardians protects and restores wildlife, wild rivers and wild places in the American West. WildEarth Guardians is based in Santa Fe, New Mexico and has an office in Bozeman, Montana. WildEarth Guardians is dedicated to protecting the American West from the dangers it faces from the climate crisis. WildEarth Guardians members and staff have recreational, aesthetic, scientific, professional, and spiritual interests in the areas at issue in this protest and in areas that would be impacted if the proposed actions go forward.

## **2. BLM'S LEGAL OBLIGATIONS**

### **a. SECRETARIAL ORDER 3226**

Secretarial Order 3226 (January 19, 2001) (“Order”) commits the Department of the Interior to address climate change through its planning and decision-making processes. The Order provides that “climate change is impacting natural resources that the Department of the Interior (Department) has the responsibility to manage and protect.” Sec. Or. 3226, § 1. The Order also “ensures that climate change impacts are taken into account in connection with Department planning and decision making.” *Id.*

The Order obligates BLM to “consider and analyze potential climate change impacts” in four situations: (1) “when undertaking long-range planning exercises”; (2) “when setting priorities for scientific research and investigations”; (3) “when developing multi-year

management plans, and/or” (4) “when making major decisions regarding the potential utilization of resources under the Department’s purview.” *Id.* § 3. The Order specifically provides that “Departmental activities covered by this Order” include “management plans and activities developed for public lands” and “*planning and management activities associated with oil, gas and mineral development on public lands.*” *Id.* (emphasis added).

BLM’s April 2010 lease sale is thus contemplated by and subject to section 3 of the Order. Nonetheless, it is entirely unclear how or whether BLM has complied with the Order here. We note that BLM has not provided or distributed any of its decision-making documents, such as the Documentation of NEPA Adequacy and Plan Conformance, to the public. This is troubling, especially since BLM, in its 2008 decisions rejecting our protests, contended that BLM did not need to comply with the Order, asserting that the Order did not apply to oil and gas lease sales, that the decision to open the lands to leasing predated the Order and that the Order therefore does not apply to lease sales, and that the Order does not require the cessation of actions authorized under existing planning documents. These excuses, if rehashed by BLM to justify the April 2010 lease sale, are entirely unpersuasive because: (1) the Order clearly applies to oil and gas leasing decisions; (2) oil and gas leasing decisions are major federal actions which convey contractually-enforceable lease rights; (3) the decisions at issue are *not* the planning-level decisions “to open” lands to leasing but, rather, the distinct decision to offer these particular leases for sale; and (4) we’re merely asking BLM to comply with the Order before selling and issuing leases. Put simply, the Order applies to this lease sale and must be complied with, both on its own terms and by informing BLM’s compliance with other laws, such as NEPA, FLPMA, and the MLA, all discussed below.

## **b. NEPA**

NEPA is “our basic national charter for protection of the environment.” *Blue Mts. Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1215-1216 (9<sup>th</sup> Cir. 1998) (quoting 40 C.F.R. § 1500.1(a)). NEPA “promotes its sweeping commitment to ‘prevent or eliminate damage to the environment’ ...by focusing Government and public attention on the environmental effects of proposed agency action.” *Marsh v. ONRC*, 490 U.S. 360, 371 (1989). An “action-forcing” statute, NEPA seeks to achieve two objectives: first, ensure that an agency “consider[s] every significant aspect of the environmental impact of a proposed action”; and, second, “ensure[] that the agency will inform the public that it has indeed considered environmental concerns in its decisionmaking process.” *Kern v. BLM*, 284 F.3d 1062, 1066-67 (9<sup>th</sup> Cir. 2002) (citation omitted).

NEPA thus requires that BLM take a “hard look” at the direct, indirect, and cumulative impacts of its actions in light of the action’s proper “context” and “intensity.” *Wetlands Action Network v. U.S. Army Corps of Engrs.*, 222 F.3d 1105, 1114 (9<sup>th</sup> Cir. 2000); 40 C.F.R. §§ 1508.7, 1508.8, 1508.27. Cumulative impacts are, here, particularly important. As the Ninth Circuit has explained, “[t]he impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct.” *Ctr. for Biological Diversity v. Natl. Highway Traffic Safety Admin.*, 538 F.3d 1172, 1217 (9<sup>th</sup> Cir. 2008). A cumulative impact is the “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.” *Ocean Advoc. v. U.S. Army Corps of Engrs.*, 402 F.3d 846, 868 (9<sup>th</sup> Cir. 2005); 40

C.F.R. § 1508.7. BLM's cumulative impacts analysis "must be more than perfunctory; it must provide a 'useful analysis of the cumulative impacts of past, present, and future projects.'" *Ocean Advoc.*, 402 F.3d at 868. BLM must therefore "give a realistic evaluation of the total impacts [of the action] and cannot isolate the proposed project, viewing it in a vacuum." *Grand Canyon Trust v. FAA*, 290 F.3d 339, 342 (D.C. Cir. 2002). Even "a slight increase in adverse conditions...may sometimes threaten harm that is significant. One more factory...may represent the straw that breaks the back of the environmental camel." *Id.* at 343. As the Ninth Circuit has cautioned, the failure to assess cumulative impacts "impermissibly subject[s] the decisionmaking process contemplated by NEPA to 'the tyranny of small decisions.'" *Kern*, 284 F.3d at 1078 (citation omitted).

Regardless, BLM's "hard look" must occur "*prior* to a decision, when the decisionmaker retains a maximum range of options." *Sierra Club v. Peterson*, 717 F.2d 1409, 1413-14 (D.C. Cir. 1983) (emphasis in original). BLM's "hard look" is thus intimately tied to BLM's obligation to evaluate "alternatives to the proposed action" and "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." 42 U.S.C. §§ 4332(2)(C)(iii), 4332(2)(E). BLM must "[r]igorously explore and objectively evaluate all reasonable alternatives" and must "[i]nclude the alternative of no action." 40 C.F.R. §§ 1502.14(a), (d). Alternatives are NEPA's "heart." *Id.* at § 1502.14(a). Operating in concert with NEPA's mandate to address environmental impacts, BLM's fidelity to alternatives analysis helps "sharply defin[e] the issues and provid[e] a clear basis for choice among options by the decision maker and the public." 40 C.F.R. § 1502.14. "The existence of reasonable but unexamined alternatives renders a [NEPA analysis] inadequate." *Friends of Southeast's Future v. Morrison*, 153 F.3d 1059, 1065 (9<sup>th</sup> Cir. 1998) (citation omitted).

BLM "shall not commit resources prejudicing selection of alternatives before making a final decision (Sec. 1506.1)" and must prepare NEPA analyses such that they "serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made." 40 C.F.R. §§ 1502.2(f), (g); see also 40 C.F.R. §§ 1501.2 (NEPA must be applied "early in the process"), 1506.1 (limiting actions pending completion of the NEPA process). Even where impacts are "insignificant," BLM must still consider alternatives. *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1229 (9<sup>th</sup> Cir. 1988) (agency's duty to consider alternatives "is both independent of, and broader than," its duty to complete an environmental analysis); *Greater Yellowstone Coalition v. Flowers*, 359 F.3d 1257, 1277 (10<sup>th</sup> Cir. 2004) (duty to consider alternatives "is 'operative even if the agency finds no significant environmental impact'").

### **c. FLPMA & MLA**

BLM is empowered and obligated pursuant to FLPMA and the MLA to ensure that oil and gas lease decisions conserve natural resources and do not degrade public lands.

Pursuant to FLPMA, BLM must "take any action necessary to prevent unnecessary or undue degradation of the [public] lands." 43 U.S.C. § 1732(b). Written in the disjunctive, BLM must prevent degradation that is "unnecessary" and degradation that is "undue." *Mineral Policy Ctr. v. Norton*, 292 F.Supp.2d 30, 41-43 (D. D.C. 2003). The protective mandate applies to BLM's planning and management decisions. See *Utah Shared Access Alliance v. Carpenter*, 463

F.3d 1125, 1136 (10<sup>th</sup> Cir. 2006) (finding that BLM’s authority to prevent degradation is not limited to the RMP planning process). GHG emissions may cause “undue” degradation, even if the activity causing the degradation is “necessary.” Where GHG emissions are avoidable, they constitute “unnecessary” degradation. 43 U.S.C. § 1732(b). BLM can also help prevent climate change degradation to public lands by promoting ecological resiliency and adaptability and reducing external anthropogenic environmental stresses.

The MLA, as amended, also obligates BLM to prevent waste in oil and gas operations, functioning as a corollary to FLPMA’s unnecessary or undue degradation duties. The MLA requires that “[a]ll leases of lands containing oil or gas ... shall be subject to the condition that the lessee will, in conducting his explorations and mining operations, use all reasonable precautions to prevent waste of oil or gas developed in the land...” 30 U.S.C. § 225; *see also* 30 U.S.C. § 187 (“Each lease shall contain...a provision...for the prevention of undue waste...”). The MLA’s legislative history notably provides that “conservation through control was the dominant theme of the debates.” *Boesche v. Udall*, 373 U.S. 472, 481 (1963) (citing H.R.Rep. No. 398, 66th Cong., 1st Sess. 12-13; H.R.Rep. No. 1138, 65th Cong., 3d Sess. 19 (“The legislation provided for herein...will [help] prevent waste and other lax methods...”).

BLM regulations reiterate these requirements. The authorized officer must “*require* that all operations be conducted in a manner which protects other natural resources and the environmental quality, protects life and property and results in the maximum ultimate recovery of oil and gas *with minimum waste and with minimum adverse effect on the ultimate recovery of other mineral resources.*” 43 C.F.R. § 3161.2 (emphasis added). Waste is defined as any act or failure to act, not sanctioned by the authorized officer, which results in: “(1) A reduction in the quantity or quality of oil and gas ultimately producible from a reservoir under prudent and proper operations; or (2) avoidable surface loss of oil or gas.” 43 C.F.R. § 3160.0-5. Avoidable losses of oil or gas include venting or flaring without authorization, operator negligence, failure of the operator to take “all reasonable measures to prevent and/or control the loss,” and an operator’s failure to comply with lease terms and regulations, order, notices, and the like. *Id.*

### **3. BLM SHOULD CONSIDER ALTERNATIVES AND IMPOSE STIPULATIONS TO REDUCE GHG EMISSIONS FROM OIL AND GAS LEASING AND DEVELOPMENT AND ENSURE THAT IT HAS CONSIDERED NO-LEASING ALTERNATIVES**

BLM needs to consider alternatives and impose stipulations to control and reduce GHG emissions from oil and gas leasing and development. We specifically ask BLM to mandate, as a stipulation, that oil and gas lessees participate in EPA’s Natural Gas STAR program. We view this is a reasonable bare minimum of what BLM could do. EPA’s Natural Gas STAR program works with oil and gas companies to reduce emissions while accommodating an oil and gas company’s competing interests. We also ask BLM to consider requiring, through stipulation, specific GHG reduction technologies and practices for leases appropriate to the type of development likely on a particular lease, the geographic formation and surface conditions of the lease, the operator, and environmental conditions. This, of course, requires BLM to comply with Sec. Or. 3226 and NEPA by concurrently addressing climate change and GHG emissions via

BLM's hard look duties. Notably, by carrying out this hard look, and using it to inform BLM's consideration of alternatives, such as the application and use of reduction technologies and practices as a means of combating climate change and preventing waste, BLM would provide itself with a foundation for more refined conditions of approval at the drilling stage and, in the process, provide the lessee with notice that such conditions of approval may, in fact, be imposed.

As noted, EPA's "Natural Gas STAR" program encourages oil and natural gas companies to cut methane waste to reduce climate pollution and recover value.<sup>1</sup> If required by BLM, companies would be able to utilize federal EPA resources to develop and execute a GHG reduction implementation plan.<sup>2</sup> EPA has already identified 120 proven technologies and practices to reduce methane waste and make operations more efficient.<sup>3</sup> Though underutilized, EPA's Natural Gas STAR suggests the opportunity to dramatically reduce GHG emissions from oil and gas development, *if* its technologies and practices were implemented at the proper scale and supported by EPA's sister agencies, such as BLM. For calendar year 2008, EPA estimated that this program avoided 46.3 million tons of CO<sub>2</sub> equivalent, equal to the annual GHG emissions from approximately 6 million homes per year, and added revenue of nearly \$802 million in natural gas sales – revenue which translates into additional royalties to federal and state governments for the American public.<sup>4</sup>

As indicated by EPA's record of success, methane reductions involve methane recovery, yielding a high potential for payback to the lessee who deploys GHG reduction technologies and practices. Indeed, Montana's Climate Action Plan predicts that reducing methane emissions from the oil and gas sector in Montana would likely have net benefit, meaning producers are most likely to make money.<sup>5</sup> The Montana Climate Action Plan recommends that methane emissions from the oil and gas sector be reduced by 30% by 2020.<sup>6</sup> To achieve this goal, the Climate Action Plan recommends preventative maintenance of oil and gas facilities, reducing flash losses from storage tanks, wells, compressor stations, and gas plants, and changing and replacing parts and devices to reduce leaks and improve efficiency.<sup>7</sup>

Despite the economic and environmental gains available from GHG reduction efforts, BLM has not, to our knowledge, considered these proven technologies and practices in its planning and decision-making documents and does not yet require them as a condition of owning a federal oil and natural gas lease. Degradation and waste from oil and gas operations is,

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<sup>1</sup> [www.epa.gov/gasstar/](http://www.epa.gov/gasstar/).

<sup>2</sup> [www.epa.gov/gasstar/guidelines/keycomponents.html](http://www.epa.gov/gasstar/guidelines/keycomponents.html) (detailing how the program works).

<sup>3</sup> [www.epa.gov/gasstar/tools/recommended.html](http://www.epa.gov/gasstar/tools/recommended.html) (recommended technologies and practices).

<sup>4</sup> [www.epa.gov/gasstar/accomplishments/index.html#three](http://www.epa.gov/gasstar/accomplishments/index.html#three); *see also* Exhibit 2 (EPA Natural Gas STAR Program Accomplishments).

<sup>5</sup> *See* Exhibit 3 (Montana Climate Action Plan).

<sup>6</sup> *Id.* at 4-12.

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

however, a very real and thus critically relevant factor that must be addressed by BLM before selling and issuing lease decisions. To satisfy FLPMA and the MLA, degradation and waste must be addressed at the point BLM retains its maximum range of options – i.e., *before* BLM surrenders lease rights. We are unaware, to repeat, of any consideration of these GHG/waste reduction technologies and practices by BLM. This must be remedied to ensure compliance with FLPMA and the MLA, as well as, for that matter, Sec. Or. 3226 and NEPA.

Boilerplate lease provisions requiring operators to prevent waste of leased resources and minimize adverse impacts to the air do not constitute “*any* action necessary to prevent unnecessary or undue degradation” and waste. 43 U.S.C. § 1732(b) (emphasis added); *Sugar Cane Growers Coop. of Fla. v. Veneman*, 289 F.3d 89, 97 (D.C. Cir. 2002) (merely “[r]eferencing a requirement is not the same as complying with that requirement.”); *Getty v. Fed. Savings and Loan Ins. Corp.*, 805 F.2d 1050, 1055 (D.C. Cir.1986) (“Stating that a factor was considered, however, is not a substitute for considering it”). Despite clear mandates to ensure that waste is avoided, BLM has not evaluated this issue as a function of its NEPA hard look and alternatives obligations and has simply not included any specific measures in oil and gas leases to ensure that waste, which includes climate change-related GHGs, is prevented. BLM cannot satisfy its FLPMA and MLA duties if it does not address climate change-related degradation and waste by considering climate-change specific stipulations designed to guide APD-level plans and operations. 43 C.F.R. § 3101.1-3. This is because BLM cannot retroactively impose stipulations once lease rights are surrendered and, once a lessee applies for an APD, the lessee has already invested significant resources into its drilling plans and operations in reliance upon the terms of the lease. 43 C.F.R. §§ 3101.1-2, 3162.3-1(d)-(f); *see also* U.S. Dept. of Interior, BLM, Onshore Oil and Gas Order No. 1, 72 Fed. Reg. 10,329 (March 7, 2007).

Moreover, BLM is not monitoring waste or providing any assurances that waste is in fact prevented. Instead, BLM apparently relies solely on the oil and gas operators to prevent waste. Operators, however, conduct on-the-ground development in light of a host of competing demands and limited resources and will often take conservation-oriented action only when required or guided by government agencies. BLM’s failure to address this issue is thus quite problematic.

The Government Accountability Office (“GAO”) has found that BLM is “not meeting its statutory obligations or agency targets for inspecting certain leases and metering equipment,” and has not consistently completed “required environmental inspections – the primary mechanism to ensure that companies are complying with various environmental laws and lease stipulations.”<sup>8</sup> EPA has estimated that 15 billion cubic feet of natural gas is lost during the

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<sup>8</sup> Testimony Before the Committee on Natural Resources, House of Representatives *Federal Oil And Gas Management Opportunities Exist to Improve Oversight*, 4 (2009) ([www.gao.gov/new.items/d091014t.pdf](http://www.gao.gov/new.items/d091014t.pdf)); *see also* General Accountability Office, *Mineral Revenues: Data Management Problems and Reliance on Self-Reported Data for Compliance Efforts Put MMS Royalty Collections at Risk*, GAO-08-893R (September 12, 2008) ([www.gao.gov/new.items/d08893r.pdf](http://www.gao.gov/new.items/d08893r.pdf)).

production process to meter and pipeline leaks, and venting and flaring.<sup>9</sup>

Moreover, in response to a Freedom of Information Act Request submitted by the Western Environmental Law Center on behalf of Earthwork's Oil & Gas Accountability Project, which asked for information about venting, flaring, and avoidably lost gas, BLM provided only a handful of reports of such incidents and MMS stated: "There is no record of any unavoidably lost, flared or vented gas or royalty bearing lost oil in . . . Montana reported on any Federal or Indian properties for the requested years. [MMS] spent over 110 hours looking for data responsive to your request and [was] not able to locate any." Email from Jayne Barton to Megan Anderson with letter signed by Michael Autobee (Feb. 11, 2010). We have a hard time believing that the lack of such documents is a result of the nonoccurrence of such events. Rather, given the GAO's reports outlining the failings, and abuse of self-reporting systems<sup>10</sup>, as well as the inadequacies of BLM's monitoring of lessee operations, it seems far more likely that such events are just not being reported and monitored at all. Although this lack of monitoring is due in part to a lack of resources, this fact only strengthens the point that definitive analysis of this issue, as illuminated by climate change, as well as a forthright acknowledgement by BLM of its own monitoring and enforcement capabilities, and the consequent need to impose specific stipulations in the leases – such as mandated participation in EPA's Natural Gas STAR program – would serve as a better yardstick for compliance than spotty attempts to individually monitor operations at the tens of thousands of onshore wells located on BLM lands.

Finally, it is important to note that, because BLM is apparently proceeding on the basis of Documentation of NEPA Adequacy and Plan Conformance, it is entirely unclear whether BLM has considered no-leasing alternatives. It is well-established that BLM must consider a no-leasing option before oil and gas leases are sold and issued, even where a lease is subject to an NSO stipulation. *Bob Marshall Alliance*, 852 F.2d at 1229 n.4 (emphasis added); 40 C.F.R. § 1502.14(d). We therefore ask BLM to revisit its DNAs to ensure that no-leasing alternatives were, considered for this particular lease sale and the particular lease parcels offered for sale.

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<sup>9</sup> See Graphs at EPA Natural Gas STAR website, [www.epa.gov/gasstar/basic-information/index.html#sources](http://www.epa.gov/gasstar/basic-information/index.html#sources) (Source: *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990 - 2007*, USEPA, April, 2009).

<sup>10</sup> The GAO report outlines egregious examples of such abuse, including instances where a bypass was built around a gas meter allowed gas to flow without being measured and another case where "a company maintained two sets of conflicting production data, one used by the company and another reported to MMS." General Accountability Office, *Mineral Revenues: Data Management Problems and Reliance on Self-Reported Data for Compliance Efforts Put MMS Royalty Collections at Risk*, GAO-08-893R, at 7 (September 12, 2008). Given these examples of abuse on reported production, we consider it highly unlikely that the companies are taking the more proactive step of reporting avoidably lost gas, and venting and flaring events.

**4. BLM SHOULD QUANTIFY ANTICIPATED DIRECT, INDIRECT, AND CUMULATIVE GHG EMISSIONS FROM OIL & GAS LEASING AND DEVELOPMENT AND OTHER RELEVANT GHG EMISSIONS SOURCES**

The production, processing, transmission, and combustion of oil and gas emits GHGs, thereby causing climate change impacts, including increased atmospheric concentrations of GHGs, consequent global warming, and localized impacts to a host of ecological factors, such as water, wildlife, and habitat. Importantly, these impacts occur not only from the direct and indirect emissions caused by oil and gas development activities on a particular leasehold, but from cumulative GHG emissions caused by such activities on other oil and gas leaseholds at the local, state, and regional scale, and other GHG emissions sources, such as coal mines and coal-fired power plants. This broader context is essential for determining the significance of the impacts of BLM's leasing decisions to the environment. *See* 40 C.F.R. § 1508.27(a).

Similarly essential is recognition of the fact that atmospheric GHG concentrations are already far too high and causing observed climate change. As Dr. James Hansen has explained:

Paleoclimate evidence and ongoing global changes imply that today's CO<sub>2</sub>, about 385 ppm, is already too high to maintain the climate to which humanity, wildlife, and the rest of the biosphere are adapted. Realization that we must reduce the current CO<sub>2</sub> amount has a bright side: effects that had begun to seem inevitable, including impacts of ocean acidification, loss of fresh water supplies, and shifting of climatic zones, may be averted by the necessity of finding an energy course beyond fossil fuels sooner than would otherwise have occurred.

We suggest an initial objective of reducing atmospheric CO<sub>2</sub> to 350 ppm, with the target to be adjusted as scientific understanding and empirical evidence of climate effects accumulate.

Exhibit 4 at 13 (Hansen, James, *et al.*, *Target Atmospheric CO<sub>2</sub>: Where Should Humanity Aim?*). In fact, existing atmospheric GHG concentrations are approaching – if they have not crossed already – tipping points beyond which further global warming, and subsequent climate change, and climate change impacts to the environment, are inevitable and unstoppable. As Dr. Hansen has explained, “Realization that today's climate is far out of equilibrium with current climate forcings raises the specter of ‘tipping points’, the concept that climate can reach a point such that, without additional forcing, rapid changes proceed practically out of our control.” Exh. 4 at 10. Dr. James Hansen has warned, in an separate article in *State of the Wild 2008-2009* entitled *Tipping Point: Perspective of a Climatologist* (Exhibit 5), that:

Our home planet is dangerously near a tipping point at which human-made greenhouse gases reach a level where major climate changes can proceed mostly under their own momentum ... The implications are profound and the only resolution is for humans to move to a fundamentally different energy pathway within a decade. Otherwise, it will be too late for one-third of the world's animal

and plant species and millions of the most vulnerable members of our own species.

*See also Ctr. for Biological Diversity*, 538 F.3d at 1220-22 (climate change tipping points may implicate “substantial questions”).

Hence, BLM’s oil and gas lease decisions may constitute the proverbial “straw that breaks the back of the environmental camel.” *Grand Canyon Trust*, 290 F.3d at 343. Existing atmospheric GHG concentrations – and the presence of tipping points – thus suggest that BLM’s April 2010 lease sale is “highly controversial,” and implicates “highly uncertain” and “unknown risks” in a world, region, and state increasingly struggling with climate change impacts. 40 C.F.R. § 1508.27(b)(4), (5).

We do appreciate the fact that BLM is beginning to address climate change, at least at a broad, macro scale, in its RMP-stage documents. The recently approved Butte RMP’s Final Environmental Impact Statement, for example, contains a generalized discussion of climate change. However, these types of generalized discussions are insufficient for two principal reasons. First, they are simply far too generalized, providing little in the way of the necessary hard look at GHG emissions sources and climate change impacts relevant to the scope of the analysis, and do not contemplate alternatives designed to address GHG emissions sources and climate change impacts from activities within BLM’s purview. Second, these generalized discussions do not obviate BLM’s obligation to take the requisite NEPA hard look in the specific context and given the specific intensity of the decisions contemplated through the April lease sale in particular given BLM’s obligations pursuant to Sec. Or. 3226, FLPMA, and the MLA.

BLM needs to identify the type of oil and gas development that is anticipated in the leases offered for sale, the type of equipment that would be used in exploring and developing these sales, and the sources of GHG emissions that would be implicated in that exploration and development. BLM then needs to evaluate the direct, indirect, and cumulative GHG emissions from these activities, taking into account that BLM’s April lease sale involves lands spread across three states and a broader program which is implemented by each BLM State Office. The following information provides useful, important information pertaining to BLM’s oil and gas leasing and development, and other fossil fuel, activities across the broader region:

- **Montana/North Dakota/South Dakota:** BLM has carried out 5-6 lease sales each year, with online records dating back to 2002.<sup>11</sup> There is considerable oil and gas development in the Powder River Basin and Rocky Mountain Front, and emerging development in the Bakken Shale Formation. *See* Exhibit 6 (Map of oil and gas activities in Montana).
- **Wyoming:** BLM has an extensive lease sale program, with online records detailing the results of those sales dating back to 1998.<sup>12</sup> Extensive development is occurring in the Powder River Basin, Upper Green River Valley, Red Desert, and other areas of the state. *See* Exhibit 7 (Map of oil and gas activities in Wyoming).

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<sup>11</sup> [www.blm.gov/mt/st/en/prog/energy/oil\\_and\\_gas/leasing/historical\\_sales\\_lists.html](http://www.blm.gov/mt/st/en/prog/energy/oil_and_gas/leasing/historical_sales_lists.html).

<sup>12</sup> [www.blm.gov/wy/st/en/programs/energy/Oil\\_and\\_Gas/Leasing/historical\\_index.html](http://www.blm.gov/wy/st/en/programs/energy/Oil_and_Gas/Leasing/historical_index.html).

- **Colorado:** BLM has carried out numerous lease sales, with online records dating back to 2005.<sup>13</sup> Extensive development is occurring in several areas of the state. *See* Exhibit 8 (Map of oil and gas activities in Colorado).
- **New Mexico:** BLM has an extensive lease sale program, with online records detailing the results of those sales dating back to 2004. Extensive development is occurring in the San Juan and Permian Basins, as well as other areas of the state. *See* Exhibit 9 (Map of oil and gas activities in New Mexico).

To assist BLM in its effort to take a hard look at direct, indirect, and cumulative climate change impacts, we direct your attention to EPA’s 2010 Draft GHG Inventory Report.<sup>14</sup> As EPA has separately noted, “Oil and natural gas operations are a significant source of global methane emissions and account for approximately 18 percent of the total human-made sources.”<sup>15</sup> EPA has also noted that “oil and gas systems are the second largest human-made source of methane emissions and account for 23 percent of methane emissions in the United States or 2 percent of the total greenhouse gas emissions in the United States.”<sup>16</sup> We also direct your attention to the Energy Information Administration’s (“EIA’s”) inventory report.<sup>17</sup> Each of these inventories contains information regarding the oil and gas sector, including the upstream and midstream production, processing, and transmission subsectors. These national inventories are complemented by state-specific GHG inventories which have been prepared for Montana, Colorado, New Mexico, and Wyoming. These state specific inventories provide useful information for BLM’s requisite hard look at climate change impacts:

- **Montana.** According to a September 2007 GHG inventory for the State of Montana, oil and gas operations released 4.7 million metric tons of CO<sub>2</sub>e in 2005, more than 12% of the state’s total GHG emissions. Furthermore, GHGs from oil and gas operations are projected to increase by more than 10% by 2020. GHG emissions from oil and gas operations in Montana are reported to stem from CBM production and processing, conventional natural gas production and processing, and oil development and refining. *See* Final Montana Greenhouse Gas Emissions Inventory and Reference Case Projections 1990-2020 (attached as Exhibit 10).
- **Wyoming.** According to a Spring 2007 GHG inventory for the State of Wyoming, oil and gas operations released 11.5 tons of CO<sub>2</sub>e in 2005, more than 20% of the state’s total GHG emissions. Furthermore, by 2020, GHGs from oil and gas operations are projected

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<sup>13</sup> [www.blm.gov/co/st/en/BLM\\_Programs/oilandgas/leasing.html](http://www.blm.gov/co/st/en/BLM_Programs/oilandgas/leasing.html);  
[www.blm.gov/co/st/en/BLM\\_Programs/oilandgas/leasing/sale\\_archive.html](http://www.blm.gov/co/st/en/BLM_Programs/oilandgas/leasing/sale_archive.html).

<sup>14</sup> [www.epa.gov/climatechange/emissions/usinventoryreport.html](http://www.epa.gov/climatechange/emissions/usinventoryreport.html).

<sup>15</sup> [www.epa.gov/gasstar/basic-information/index.html#sources](http://www.epa.gov/gasstar/basic-information/index.html#sources) (Source: *Global Anthropogenic Non-CO<sub>2</sub> Greenhouse Gas Emissions: 1990 - 2020*).

<sup>16</sup> *Id.* (source: *Inventory of U.S Greenhouse Gases and Sinks: 1990-2007*).

<sup>17</sup> [www.eia.doe.gov/oiaf/1605/ggrpt/index.html](http://www.eia.doe.gov/oiaf/1605/ggrpt/index.html).

to increase by nearly 10%. GHG emissions from oil and gas operations in Wyoming are reported to stem from CBM production and processing, conventional natural gas production and processing, and oil development and refining. *See* Final Wyoming Greenhouse Gas Emissions Inventory and Reference Case Projections 1990-2020 (attached as Exhibit 11).

- **Colorado.** According to an October 2007 GHG inventory for the State of Colorado, oil and gas operations directly released 5.16 million metric tons of CO<sub>2</sub> equivalent (“CO<sub>2</sub>e”) in 2005, more than 4% of the state’s total GHGs. *See* Final Colorado Greenhouse Gas Emissions Inventory and Reference Case Projections 1990-2020 (attached as Exhibit 12).<sup>18</sup> Furthermore, GHGs from oil and gas operations are projected to increase by more than 80% by 2020. Although GHG pollution is reported to stem from both oil and gas production processing, and refining, the inventory states that “[t]he natural gas industry accounts for the majority of both GHG emissions and emissions growth in the fossil fuel industry as a whole.”
- **New Mexico.** According to the November 2006 GHG inventory for the State of New Mexico, oil and gas operations released 19.3 million metric tons of CO<sub>2</sub>e in 2000, more than 23% of the state’s total GHG emissions. Based on this data, oil and gas operations represent the second largest source of GHGs in New Mexico. Although this report shows that oil and gas GHGs are projected to increase by only 3.62% by 2020, the report based this projection on the assumption that there would be no change (i.e., decrease or increase) in natural gas or oil production in the state, an assumption that appears invalid and which may, regardless, have only limited correlation to GHG increases or decreases. GHG emissions from oil and gas operations in New Mexico are reported to stem from CBM production and processing, conventional natural gas production and processing, and oil development and refining. *See* Final New Mexico Greenhouse Gas Emissions Inventory and Reference Case Projections 1990-2020 (attached as Exhibit 13).

Specific information regarding the particular sources of GHG emissions from oil and gas development is now quite prevalent. The most exhaustive information is provided by the American Petroleum Institute’s August 2009 Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Gas Industry.<sup>19</sup> API Compendium, Exhibit 14. API’s Compendium outlines a host of GHG emissions sources and methodologies for various oil and natural gas sector segments, including conventional oil and gas exploration and production, oil sands and heavy oil upgrading, coalbed methane production, gas processing, natural gas storage, oil and gas transportation and distribution, refining, petrochemical refining, minerals and mining operations, and energy generation. In reviewing API’s Compendium, especially in light of EPA and the EIA’s inventories, it is apparent that oil and natural gas leasing and development has significant lifecycle GHG emissions. In fact, the API Compendium illustrates how existing inventories may, in fact, low-ball GHG emissions. EPA and EIA’s inventories are premised largely on rough calculations of GHG emissions that do not necessarily account for the

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<sup>18</sup> [www.coloradoclimate.org/ewebeditpro/items/O14F13894.pdf](http://www.coloradoclimate.org/ewebeditpro/items/O14F13894.pdf).

<sup>19</sup> [www.api.org/ehs/climate/new/upload/2009\\_GHG\\_COMPENDIUM.pdf](http://www.api.org/ehs/climate/new/upload/2009_GHG_COMPENDIUM.pdf).

thousands of pieces of small but potentially cumulatively significant sources of GHG emissions involved in oil and natural gas production. As explained in the Final New Mexico GHG Inventory and Reference Case Projections, 1990-2020, and relevant to Montana:

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 CO<sub>2</sub> or CH<sub>4</sub> emissions – there are significant uncertainties with respect to the State’s GHG emissions from this sector.

Exhibit 13 at D-35.

Notably, lifecycle GHG emissions from oil and gas leasing and development illuminate inefficiencies and waste in the production of oil and gas resources. Over a 20-year time period, methane is a GHG 72 times more potent than carbon dioxide.<sup>20</sup> Yet methane – i.e., natural gas – is also the very product intended for production and eventual use by homes, schools, and businesses. Thus, the release of methane to the atmosphere during oil and gas production – which occurs from a variety of sources – is an inefficiency and source of waste. This impacts not only our climate, but also the oil and gas resource itself. Such inefficiencies and waste reduce the availability of oil and gas resources for use and may spur more oil and gas drilling on public lands to satisfy demand. Demand could, however, be satisfied – or at least reduced – by more efficient oil and gas production operations which utilize methane reduction technologies and practices, thus alleviating the need for further oil and gas development. As aptly stated by the Ninth Circuit, “[e]nergy conservation and environmental protection are not coextensive, but they often overlap. The Supreme Court has recently recognized as much.” *Ctr. for Biological Diversity*, 538 F.3d at 1219 (citing *Mass. v. EPA*, 127 S.Ct. 1438, 1462 (2007)).

Of note, it is commonly assumed that GHG emissions to the atmosphere present a global problem. While true, this is too often used to minimize the consequences of localized actions which are the very reason why atmospheric GHG concentrations are so problematic: the cumulative impact of, relative to the entire world, small, GHG emitting activities. Moreover, new data suggests that GHG emissions, while contributing to a global problem – climate change – may also contribute to localized problems and impacts. As a new report explains:

Data suggest that domes of high CO<sub>2</sub> levels form over cities. Despite our knowledge of these domes for over a decade, no study has contemplated their effects on air pollution or health. In fact, all air pollution regulations worldwide assume arbitrarily that such domes have no local health impact, and carbon policy

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<sup>20</sup> See IPCC Fourth Assessment Report, Working Group 1, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Ch. 2, p. 212, Table 2.14 [www.ipcc.ch/publications\\_and\\_data/ar4/wg1/en/ch2s2-10-2.html](http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html).

proposals, such as “cap and trade”, implicitly assume that CO<sub>2</sub> impacts are the same regardless of where emissions occur. Here, it is found through data-evaluated numerical modeling with telescoping domains from the globe to the U.S., California, and Los Angeles, that local CO<sub>2</sub> emissions in isolation may increase local ozone and particulate matter. Although health impacts of such changes are uncertain, they are of concern, and it is estimated that that local CO<sub>2</sub> emissions may increase premature mortality by 50–100 and 300–1000/yr in California and the U.S., respectively. As such, reducing locally emitted CO<sub>2</sub> may reduce local air pollution mortality even if CO<sub>2</sub> in adjacent regions is not controlled. If correct, this result contradicts the basis for air pollution regulations worldwide, none of which considers controlling local CO<sub>2</sub> based on its local health impacts. It also suggests that a “cap and trade” policy should consider the location of CO<sub>2</sub> emissions, as the underlying assumption of the policy is incorrect.

Exhibit 15 (Jacobson, Mark Z., *Enhancement of Local Air Pollution by Urban CO<sub>2</sub> Domes*).<sup>21</sup>

## **5. BLM MUST EVALUATE THE IMPACTS OF OIL & GAS LEASING & DEVELOPMENT AND CLIMATE CHANGE TO THE ENVIRONMENT**

Oil and gas leasing and development, in addition to causing direct, indirect, and cumulative GHG emissions to the atmosphere, also have direct, indirect, and cumulative impacts to wildlands, wildlife, rivers, and other landscape resources. Climate change, similarly, has direct, indirect, and cumulative impacts to these same resources. BLM must therefore address the combined impact of oil and gas development and climate change, as well as other impact vectors, to these resources. While BLM does, traditionally, evaluate oil and gas impacts, we have yet to see any meaningful hard look NEPA analysis of the combined impacts of oil and gas development and climate change. Such an analysis must be completed before the BLM sells and issues oil and gas leases.

To assist you, we direct your attention to several resources which provide some of the best available scientific information concerning reasonably foreseeable climate change impacts. We first direct your attention to the Synthesis and Assessment Products of the U.S. Global Change Research Program (“USGCRP”) and the USGCRP’s other peer-reviewed assessments.<sup>22</sup> In particular, we direct your attention to the USGCRP’s report on climate change impacts to water resources, ecosystems, agriculture and forestry, and other resources in the United States.<sup>23</sup> We also direct your attention a report entitled *Hotter and Drier: The West’s Changed Climate*, published by the Rocky Mountain Climate Organization and NRDC (“RMCO/NRDC Report”) (attached as Exhibit 17). Synthesizing much of the existing research regarding climate change, and refining that research in the specific context of the Western U.S., the RMCO/NRDC Report

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<sup>21</sup> <http://pubs.acs.org/doi/abs/10.1021/es903018m?cookieSet=1&journalCode=esthag>.

<sup>22</sup> [www.globalchange.gov/publications/reports/scientific-assessments/saps](http://www.globalchange.gov/publications/reports/scientific-assessments/saps).

<sup>23</sup> Exhibit 16, [www.globalchange.gov/publications/reports/scientific-assessments/us-impacts](http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts).

warns that “[t]he American West has heated up even more than the world as a whole” and “in the five latest years” experienced warming “70 percent[] more than the overall planet’s warming.” RMCO/NRDC Report at iv; 1-6. The RMCO/NRDC Report proceeds to convincingly detail how the West is getting drier, how global warming is disrupting ecosystems, and how warmer temperatures affect business, recreation, and tourism. RMCO/NRDC Report at 7-34. Finally, as you are aware, the U.S. Government Accountability Project prepared a 2007 report which outlines the vulnerability of federal public lands resources to climate change. Exhibit 18 (GAO, *Climate Change: Agencies Should Develop Guidance for Addressing the Effects on Federal Land and Water Resources*).

BLM has begun to address climate change impacts through very generalized analysis, identifying impacts like warmer overall temperatures; less snowfall; earlier snowmelt and thus earlier peak streamflows (before the peak needs of farmers, ranchers, rafters, and others); depleted reservoirs; more frequent, longer-lasting droughts; reductions in the range and health of forests and increased susceptibility of such forests to wildfire; and stressed ecosystems and wildlife. However, this analysis must be refined to account for the specific context and intensity of the leases BLM intends to offer for sale and issue. Each of these lease parcels contains a unique set of resources, resources which will likely be impacted by climate change. It is entirely unclear, however, from BLM’s publicly-available materials regarding this lease sale, what resources are actually affected and BLM has not, apparently, provided a hard look at the combined, cumulative impacts of oil and gas development and climate change to these resources. This undercuts BLM’s ability to reach an informed decision and BLM’s opportunity to address alternatives to mitigate cumulative impacts within acceptable legal thresholds. *See, e.g.*, 43 U.S.C. § 1732(b).

## **6. BLM MUST CONSIDER ALTERNATIVES TO REDUCE AND MITIGATE THE CUMULATIVE IMPACTS OF OIL & GAS LEASING AND DEVELOPMENT AND CLIMATE CHANGE TO THE ENVIRONMENT**

The future of Montana means little without its iconic landscapes, wildlife, rivers, and communities. For example, Scientists with the Department of the Interior’s United States Geological Survey predict that Montana’s own Glacier National Park, a UNESCO World Heritage Site, will lose its glaciers by 2030.<sup>24</sup> To prevent and minimize degradation to public lands and resources from climate change and oil and gas development, we therefore recommend that BLM consider alternatives which target anticipated climate change impacts and mitigate those impacts.

Specifically, to reduce the vulnerability of the environment to adverse climate change impacts, BLM should promote ecological resiliency and adaptability by protecting landscape permeability, intact wildlife habitat (in particular core areas and migration/adaptation corridors), healthy watersheds, and wildlife linkages to allow species to migrate towards more suitable environments. *Marble Mt. Audubon Socy. v. Rice*, 914 F.2d 179, 180 n.2 (9<sup>th</sup> Cir. 1990)

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<sup>24</sup> [www.nrmsc.usgs.gov/research/glaciers.htm](http://www.nrmsc.usgs.gov/research/glaciers.htm).

(recognizing “biological corridors”). BLM can do this by identifying anticipated climate change impacts and vulnerable resources and, because it may not be feasible to actually prevent those impacts, then taking action to reduce or eliminate impacts from existing stressors to those resources. Thus, where a river’s water quality would be impacted by anticipated warming, BLM could restore water quality in that river through riparian restoration projects and by prohibiting oil and gas development within a specified distance of that river and its riparian areas.

In *Ecosystems and Global Climate Change: A Review of Potential Impacts on U.S. Terrestrial Ecosystems and Biodiversity*, a 2000 report published by the Pew Center on Global Climate Change, authors Malcolm & Pitelka, “provid[e] an overview of some of the potential effects of global warming on terrestrial ecosystems and their component species in the United States,” focusing on “key findings, concepts, and information gaps.”<sup>25</sup> Relative to effects on species and communities, Malcolm & Pitelka explain that:

As a result of climate change, existing climatic conditions in many areas will become unsuitable for the species that currently live there, requiring them to migrate to survive . . . The fact that species will have to move in itself is not alarming – most have done so in the past and, even in the absence of human interference in the global climate system, will undoubtedly do so again. However, several aspects of anthropogenic global warming are of particular concern, including the potential rapidity of the change and the possibility that certain alpine or polar ecosystems, which are typical of very cold conditions, could be greatly reduced in size or lost entirely.<sup>26</sup>

Malcolm & Pitelka proceed to explain that “global warming has the potential to create a ‘winnowing’ or ‘filtering’ effect similar to the reduction in biodiversity sometimes observed during human development.”<sup>27</sup> Additionally, there “is the possibility that different parts of the ecosystem will respond to the warming at different rates, hence altering the combination of conditions that a species might require.”<sup>28</sup> Malcolm & Pitelka offer conservation strategies to address these impacts relevant to BLM’s efforts to comply with federal law:

[A]n important strategy for allowing organisms to respond to their full potential is to maintain the habitats that they currently live in – that is, to maintain overall ecosystem structure and species composition. This can be accomplished by reducing fragmentation, loss and degradation of habitat, increasing connectivity among habitat blocks and fragments, and reducing external anthropogenic environmental stresses (Markham and Malcolm, 1996). Thus, adaptation to

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<sup>25</sup> Malcolm, J.R. and Pitelka, L.F. *Ecosystems and Global Climate Change: A Review of Potential Impacts on U.S. Terrestrial Ecosystems and Biodiversity* at 1, Pew Center on Global Climate Change (2000) (attached as Exhibit 19).

<sup>26</sup> *Id.* at 21.

<sup>27</sup> *Id.* at 22.

<sup>28</sup> *Id.* at 23.

climate change should benefit from existing strategies to conserve biodiversity and protect natural ecosystems. Various general strategies to conserve biodiversity include establishment and maintenance of viable protected area networks, management of wild populations outside of protected areas, and the maintenance of captive populations. Some characteristics of protected area networks that are thought to improve their viability in the face of a changing climate include:

- redundancy of populations;
- maximization of reserve connectivity, size, and number;
- protection of areas that offer significant heterogeneity in topography, habitat, and microclimate; and
- development of biodiversity-friendly management schemes in the landscapes surrounding reserves (Markham and Malcolm, 1996; Malcolm and Markham, 1997).<sup>29</sup>

Parmesan & Galbraith, in the 2004 Report *Observed Impacts of Global Climate Change in the U.S.* published by the Pew Center on Global Climate Change, reinforce Malcolm & Pitelka, concluding that, “human-induced global warming has the potential to severely exacerbate the outcomes of already high levels of stress on ecosystems.”<sup>30</sup> Parmesan & Galbraith discuss several anticipated effects to wild plants, animals, and ecological processes including: (1) evolutionary changes; (2) physical and physiological changes; (3) phenological changes; (4) range shifts; (5) community changes; and (6) ecosystem process changes.<sup>31</sup> Perhaps most troubling, however, is the fact that these potential changes may complicate species survival because “a variety of other anthropogenic forces are simultaneously stressing natural systems.”<sup>32</sup> “The net result of these pressures is that biological systems may already be in the early stages of a major extinction event that could result in the global loss of one-third of all species by 2100.”<sup>33</sup>

Parmesan & Galbraith emphasize that adaptation of species to climate change could be compromised by the influence of “[m]odern, human-dominated landscapes”:

Natural ecosystems increasingly are confined to smaller and more isolated fragments, and population sizes of wild native species have generally declined (Groombridge, 2002). These constrictions have limited the options available to natural systems to contend with the predicted rapid changes in climatic extremes or in the frequency and intensity of disturbances. Reduced population sizes often result in diminished genetic variation, which could limit potential for local

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<sup>29</sup> *Id.* at 33.

<sup>30</sup> Parmesan, C. & Galbraith, H., *Observed Impacts of Global Climate Change in the U.S.* at 1. Pew Center on Global Climate Change at 3 (2004) (attached as Exhibit 20).

<sup>31</sup> *Id.* at 7.

<sup>32</sup> *Id.* at 10.

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

adaptation. The increased separation between natural habitat fragments decreases successful dispersal, thereby hindering simple shifts in species' distributions. Increased fragmentation also lowers the probability of successful recolonization of devastated areas after catastrophic disturbances because colonists not only have farther to travel, but they are coming from smaller source populations within impoverished communities. Consequently, modern ecological systems have lowered resiliency to the types of nonlinear climate dynamics predicted by scenarios of global climate change (Schneider and Root, 1996); Easterling et al., 2000a, b; Meehl et al., 2000 a, b; Parmesan e al., 2000; Alley et al., 2003).<sup>34</sup>

Parmesan & Galbraith recommend, as a general matter, the need for a “better understanding of which systems or species are most or least susceptible to projected climate change.” Parmesan & Galbraith recommend several specific actions:

- “Reassess species and habitat classifications to evaluate their relative vulnerabilities to climate change.”<sup>35</sup>
- “Design new reserves that allow for shifts in the distributions of target species,” in particular by “protecting corridors or placing more value on areas with high topographic and elevational diversity.”<sup>36</sup>
- “Promote native habitat corridors between reserves” to “aid the redistribution of wild species between preserved areas.”<sup>37</sup>
- “Practice dynamic rather than static habitat conservation planning,” in particular through “empirical adaptive management.”<sup>38</sup>
- “Alleviate the effects of other stressors” given that “it may be easiest to reduce the overall stress on a species by mitigating some of the non-climate stressors.”<sup>39</sup>

On this point, we emphasize that Secretary of the Interior Salazar has signed a Memorandum of Understanding with Western U.S. Governors, including Montana Governor Schweitzer, which acknowledges the importance of wildlife corridors and crucial wildlife habitat and the need for tools to preserve such corridors and habitat.<sup>40</sup> As the MOU notes on page 2,

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<sup>34</sup> *Id.* at 39.

<sup>35</sup> *Id.* at 42.

<sup>36</sup> *Id.*

<sup>37</sup> *Id.*

<sup>38</sup> *Id.*

<sup>39</sup> *Id.*

<sup>40</sup> [www.westgov.org/index.php?option=com\\_content&view=article&id=123&Itemid=68](http://www.westgov.org/index.php?option=com_content&view=article&id=123&Itemid=68).

“there are multiple factors which may impact wildlife, habitat, and corridors including but not limited to drought, fire, energy and transmission development, transportation planning, subdivision of lands, farming and grazing, invasive species, climate change, and recreation.”

Notably, several parcels intersect with priority wildlife linkage areas identified by American Wildlands and are thus relevant to BLM’s analysis.<sup>41</sup> Exhibit 21. We note that the map was prepared prior to the BLM’s amended lease sale offerings and that it is our understanding that lease parcels MT-04-10-09 thru 12, MT-04-10-15, and MT-04-10-70 thru 73 have been deferred. However, lease parcels MT-04-10-02, MT-04-10-03, MT-04-10-13, MT-04-10-69, MT-04-10-74, and MT-04-10-75 are still being offered for sale and remain problematic.

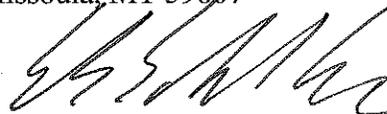
## 7. CONCLUSION

Climate change is an intensifying problem – and opportunity – for BLM. We appreciate BLM’s recent efforts to address climate change, but are concerned that BLM has resisted efforts to weave climate change into its decision-making processes beyond cutting-and-pasting boilerplate text which acknowledges, but does nothing about, climate change. BLM must move beyond such boilerplate text and take concrete, meaningful, on-the-ground action to mitigate climate change by reducing GHG emissions from federally-authorized oil and gas activities and protecting and restoring ecological resiliency to ensure that Montana’s iconic landscapes, wildlife, rivers, and communities can withstand the cumulative impact of oil and gas development and climate change.

Sincerely,

A handwritten signature in black ink, appearing to read 'Sarah McMillan', followed by the word 'For' written in a similar cursive style.

Sarah McMillan  
Western Environmental Law Center  
P.O. Box 7435  
Missoula, MT 59807

A handwritten signature in black ink, appearing to read 'Erik Schlenker-Goodrich', written in a cursive style.

Erik Schlenker-Goodrich  
Megan Anderson  
Western Environmental Law Center  
P.O. Box 1507  
Taos, New Mexico 87571

**Counsel for Montana Environmental Information  
Center, Earthworks’ Oil & Gas Accountability  
Project, and WildEarth Guardians**

<sup>41</sup> <http://wildlands.org/programs/corridors/pla> (describing American Wildlands Priority Linkage Assessments).