



August 11, 2016

VIA ELECTRONIC MAIL

Kathleen Atkinson
Regional Forester
USDA Forest Service, Eastern Regional Office
626 E. Wisconsin Avenue, Suite 700,
Milwaukee, WI 53202
katkinson@fs.fed.us

Anthony Scardina
Forest Supervisor
Wayne National Forest Supervisor's Office
13700 US Highway 33
Nelsonville, OH 45764
ascardina@fs.fed.us

***Re: Forest Service's Consent to Oil and Gas Leasing on Wayne National Forest (DOI-
BLM-Eastern States-0030-2016-0002-EA)***

Dear Regional Forester Atkinson and Supervisor Scardina:

We write to urge the Forest Service to withhold consent to the Bureau of Land Management's ("BLM") proposal to offer approximately 40,000 acres within the Athens Ranger District, Marietta Unit of the Wayne National Forest for oil and gas leasing, and to withdraw consent for any parcels already approved. Before BLM can issue leases on those lands, BLM must obtain the Forest Service's authorization (or "consent") from the Forest Service. *See* 30 U.S.C. § 226(h).¹ The Forest Service may consent to leasing only after it verifies that "leasing of the specific lands [1] has been adequately addressed in a NEPA document, and [2] is consistent with the Forest land and resource management plan." 36 C.F.R. § 228.102(e)(1).

As detailed below, the leasing proposal has not been adequately addressed in a NEPA document and further environmental analysis is required. The Forest Service therefore cannot consent to the lease, and must undertake additional environmental analysis. *Id.* BLM's Draft Environmental Assessment ("Draft EA" or "EA") disregards a multitude of environmental consequences from

¹ "The Secretary of the Interior may not issue any lease on National Forest System Lands reserved from the public domain over the objection of the Secretary of Agriculture." 30 U.S.C. § 226(h).

shale gas development and hydraulic fracturing, which would impair the health and recreational value of Ohio's only national forest.

The EA disregards the practical realities and economics of hydraulic fracturing (or "fracking") in the Wayne National Forest, relying on unfounded assumptions and resulting in a deeply flawed environmental analysis. One glaring example is the EA's omission of impacts from opening up private minerals and overlying private lands to new shale gas development – despite that being an obvious and necessary consequence of federal leasing. As proponents of BLM's leasing proposal have insisted, private mineral deposits, which are scattered throughout the Wayne, are exploitable only if BLM and the Forest Service make available adjacent federal minerals. Likewise, many of the parcels offered for lease are too small to be exploited via costly horizontal drilling techniques unless they are "pooled" with adjacent private minerals. Further, the EA incorrectly assumes that all new operations would be conducted on federal surface, and that the impacts of all such operations would be mitigated by measures set forth in the Forest Service's Land and Resource Management Plan ("2006 Forest Plan"), which limits its regulatory reach to federal surface activities.² More likely than not, to avoid the Forest Service's costlier and stricter regulations and lengthier approval process, operators would choose to site horizontal drilling operations on private surface, which could have significant impacts on the national forest, even if conducted on private lands.

Another major oversight of the EA is its disregard of on the ground data showing that new well pads, pipelines, and compressors entail clearing several times more acres of forest than assumed in the EA. As a result, the EA greatly underestimates total surface disturbance. This error infects the EA's analysis of impacts to streams, soil, vegetation, and wildlife.

Fracking would also imperil the endangered Indiana bat by introducing wastewater pits, fragmenting habitat, and risking degradation of streams, but BLM's consultation with Fish and Wildlife Service ignores or minimizes these effects, along with the devastating effects of climate change and white nose syndrome. The Forest Service and BLM's failure to properly consult with Fish and Wildlife Service regarding these numerous threats to the Indiana bat also prohibits the Forest Service from consenting to new leasing.

The EA also fails to adequately analyze the greenhouse gas emissions and climate change potential of the proposed action. Despite having considerable data points and access to several widely used quantification tools, the agencies decline to quantify the amount of CO₂e emissions that are likely to result from the proposed action. The Council on Environmental Quality's ("CEQ") recently finalized climate change guidance recommends a much different approach than is exercised in the EA.

Finally, it is our understanding that the Forest Service has prematurely consented to new leasing of certain parcels before BLM has completed its response to public comments and approval of the EA. Consent to leasing before public comment has been fully considered undermines NEPA's bedrock principle that agency decisionmaking be informed by public review and input.

² See, e.g., 2006 Forest Plan FEIS at 3-115 ("Management of non-Federal lands are under the discretion of the landowner and conservation measures applied on NFS lands may not be used on these other ownerships.").

Consent for parcels already approved by the Service should therefore be withdrawn and not considered until BLM has finalized the EA.

I. The EA Does Not Adequately Address the Impacts of Fracking

NEPA requires, for proposed major Federal actions significantly affecting the quality of the human environment, agencies to prepare an environmental impact statement (“EIS”) in which they consider the environmental impact of the proposed action.³ To determine whether an action will have a significant environmental impact, BLM can first prepare an EA.⁴ If the EA reveals that the project would have a significant effect, then BLM must prepare a detailed, written EIS.⁵ In concluding that the proposed action would not have any significant effects on the environment, BLM’s Draft EA entirely ignores the potential for federal leasing to open up private surface and private minerals to development and significantly underestimates total surface disturbance from fracking, skewing the analysis of many other impacts. The Forest Service cannot consent to leasing based on this record.

A. The Draft EA Fails to Consider the Potential for New Federal Leasing to Open Up Private Minerals and Private Surface to Horizontal Drilling

A major blind spot in the EA’s analysis is the failure to recognize that leasing federal minerals would open up substantial private minerals and private surface for development. This is because large portions of the Marietta Unit are private surface or private mineral and surround tracts of federal minerals which are too small to develop on their own, but which operators wish to access to develop adjacent private minerals. Further, any horizontal drilling and related oil and gas operations would likely occur on private surface, as operators would likely prefer to develop on private surface out of the reach of the Forest Plan’s requirements. The EA’s failure to acknowledge and discuss mitigation for these entirely foreseeable consequences renders the EA fundamentally flawed.

In scoping, commenters noted that federal leasing is necessary to enable the development of private mineral resources on adjacent lands.⁶ Surface and mineral ownership is “highly fragmented and complicated” throughout the Wayne National Forest.⁷ Over three-quarters of the Marietta Unit is private surface, almost all of which overlays private minerals.⁸ Federal surface within the Marietta Unit is scattered throughout this area and is non-contiguous.⁹ Of this federal surface, nearly three-quarters is underlain by private oil and gas.¹⁰

³ See 42 U.S.C. § 4332(2)(C); *Northwoods Wilderness Recovery, Inc. v. U.S. Forest Service*, 323 F.3d 405, 407 (6th Cir. 2003).

⁴ 40 C.F.R. §§ 1501.4, 1508.9.

⁵ 42 U.S.C § 4332(2)(C).

⁶ EA at 17.

⁷ EA at 18.

⁸ EA at 50.

⁹ U.S. Forest Service, Athens Ranger District- Marietta Unit Map, available at http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5108534.pdf.

¹⁰ EA at 50.

In 2012, the Forest Service prepared a Supplemental Information Report (“2012 SIR”) addressing the potential impacts of horizontal well development, to assess whether the 2006 Forest Plan should be updated. The 2012 SIR projects that 10 horizontal well pads could be developed on federal surface in the Marietta Unit and that horizontal wells would likely target the Utica and Marcellus shales.¹¹ Horizontal drilling, however, is only economically feasible if sufficiently large expanses of minerals are available.¹² To drill up to 8 wells from a single horizontal well pad, the scenario considered in the 2012 SIR, each lateral wellbore would extend one to two miles,¹³ with a minimum spacing of 1,000 feet between each lateral.¹⁴ The total production area per well pad amounts to approximately one to two square miles, or 640 to 1,280 acres.

Many of the nominated parcels for lease, however, are substantially smaller than 640 or 1,280 acres and thus would not be exploitable via horizontal drilling unless they were “pooled” with adjacent private minerals. By the same token, private oil and gas extraction within the Marietta Unit may not be feasible unless the minerals are pooled with adjacent federal minerals.¹⁵ Thus, a reasonably foreseeable consequence of federal leasing is opening up private minerals for oil and gas development, including those minerals beneath private surface.

Neither the EA nor its underlying documents, however, take into account the potential for federal oil and gas leasing to open up private minerals and lands. The 2004 Reasonably Foreseeable Development Scenario (“2004 RFDS”) prepared for the Wayne National Forest only analyzed the total number of *vertical* well pads that could be developed on *federal* surface. *See* 2012 SIR, Appendix B, 1.¹⁶ The 2004 RFDS formed the basis for the 2006 Forest Plan EIS’s effects evaluation. In the 2012 SIR, the Forest Service considered whether the new potential for horizontal well development would exceed the development footprint projected in the 2004 RFDS and 2006 Forest Plan EIS, and concluded it would not. But the 2012 SIR’s horizontal well

¹¹ 2012 SIR at 4.

¹² “Horizontal drilling into a formation requires that the formation in question be thick enough that the drill bit can penetrate the formation, be turned horizontally and remain in the formation during drilling and production. The driller must also have the right to access a continuous and large enough portion of the formation to make the wells economically viable.” 2012 SIR, Appendix C at 2.

¹³ Geology.com, Utica Shale – Horizontal Wells Drilled in Ohio, available at <http://geology.com/utica.shtml> (noting horizontal wells can extend underground up to two miles beyond the drilling location); FracTracker, Ohio Shale Gas Viewer (showing horizontal wellbores of one to two miles), available at <http://maps.fractracker.org/3.13/?appid=2b7611b38d434714ba2033d76cc0ccc3>; *see also* Wickstrom, Larry et al., The Utica-Point Pleasant Shale Play of Ohio, Ohio Dept. of Natural Resources, Division of Geological Survey at 5, available at https://geosurvey.ohiodnr.gov/portals/geosurvey/energy/Utica-PointPleasant_presentation.pdf (“Wickstrom”) (“Optimally, operators would like to have lease blocks of about 2 square miles contiguous to allow drilling in two directions from one central drill pad.”).

¹⁴ For wells over 4,000 feet deep, the minimum spacing is 1,000 feet (vertically and horizontally). 2012 SIR at 3. Utica shale is around 6,000 to 7,000 feet deep. *See* Wickstrom at 30; *see also id.* at 6 (noting 1,000 foot spacing).

¹⁵ *See* Landowners for Energy Access and Safe Exploration (LEASE), Press Release, Landowners Encourage Public Comment In Support of Leasing Wayne (May 11, 2016) available at <http://www.ohio.com/blogs/drilling/ohio-utica-shale-1.291290/ohio-landowners-urge-blm-to-proceed-with-wayne-nf-drilling-1.682216> (spokesperson of private mineral owners complaining that delay in leasing has “block[ed] landowners from developing their private mineral rights” and that “should the agency take no further action, landowners’ private property rights would continue to be squandered”).

¹⁶ 2012 SIR, Appendix B at 1 (forecasting “total number of new wells and associated surface disturbance that will likely occur on federal surface over the next 10 years, regardless of mineral classification”).

projection only includes “well sites that may take place on federal minerals or private minerals *underlying WNF surface lands*,” disregarding the potential for private surface land development within the Wayne’s administrative boundary.¹⁷ The EA adopts the 2012 SIR’s curtailed analysis.

The EA’s failure to address private mineral development and overlying private surface disturbance resulting from federal leasing, and its tiering to these outdated studies, violates NEPA’s requirement to study reasonably foreseeable consequences of the proposed action, and infects the entire effects analysis in the EA.¹⁸ By opening up federal and *private* minerals to drilling, and consequently overlying private surface, the proposed leasing could dramatically increase the total number of new well pads and wells, total surface disturbance, watershed impacts, cumulative air pollution emissions, public health risks, habitat loss, and disturbance to wildlife.

Further, if horizontal wells could be drilled from different locations, operators would undoubtedly choose to drill from private surface where they would be subject to the least stringent regulations, and less federal oversight.¹⁹ While an operator that drills on private surface to extract federal minerals horizontally as part of a pool or unit would be subject to BLM’s requirement for an Application for Permit to Drill (“APD”), it would not be subject to any of the Forest Plan’s requirements on surface use, and therefore would only be constrained by the APD, state regulations, and whatever agreement, if any, it has in place with the surface owner. Whether BLM would incorporate, in an APD, Forest Plan surface protections on private surface is not addressed in the EA.²⁰ In addition, it is unclear to what extent notifications and stipulations attached to a lease would apply to private surface activities overlying private minerals that have been pooled with federal minerals. Such lease conditions are presumably only intended to apply to the areas overlying the federal minerals—the only area the agencies would have analyzed at the time of lease issuance.

The EA’s assumption, then, that all impacts of oil and gas leasing within the Marietta Unit would be mitigated by Forest Plan regulations—which themselves are insufficient—or by entirely voluntary surface use agreements with the Forest Service, is baseless. Much of the leased acreage could and likely would be accessed from wells on private surface, which comprises three-quarters of the Marietta Unit, but the EA completely ignores this potential and its consequences.

Along the same lines, a number of other fracking-related activities could occur on private surface, but the EA arbitrarily assumes that they would occur only on federal surface and that their impacts would be mitigated by Forest Plan standards and guidelines. For example:

¹⁷ 2012 SIR at 3.

¹⁸ See *Northwoods Wilderness Recovery, Inc. v. U.S. Forest Service*, 323 F.3d 405 (6th Cir. 2003) (invalidating approval of logging project that exceeded acreage analyzed in applicable forest plan and EIS).

¹⁹ “With only 7 wells on federal surface over the last 8 years, the extensive drilling in Washington and Monroe Counties has not significantly impacted the WNF. This lack of drilling activity in the Marietta Unit is most likely attributed to operator’s disdain for the additional paperwork and operating requirements associated with being on Forest Service surface and their unwillingness to wait for the necessary authorization to begin their projects (The average time to receive a drilling permit from the Ohio Division of Oil and Gas was 12.6 days in 2002 compared to Forest Service processing times requiring from 60 days to one year.)” 2012 SIR, Appendix B at 12.

²⁰ See 2012 SIR, Appendix E at 9 (“The BLM has sole decision authority for split estate lands (Federal minerals/private or State surface) within boundaries of Forest Service administrative units.”).

- The Forest Plan requires “closed systems” for storing wastewater instead of wastewater ponds and prohibits netting, to protect the ESA-listed Indiana bat.²¹ But because wastewater ponds and netting are allowed under Ohio law, *see* OAC § 1501:9-3-08, ORC 1509.22(C)(4), federal leasing could lead to these hazards for bats on private lands.²²
- The Forest Plan’s restriction on water depletions to only “when water is plentiful” would supposedly mitigate the tremendous water depletion impacts of fracking—over 56 million gallons for a single horizontal well pad (over 7 million gallons per well x up to 8 wells per well pad).²³ But this restriction would not apply to depletions on private surface or outside the Wayne. Because “[t]here is no agency (federal or state) that regulates water withdrawals from streams and rivers in the State of Ohio,” the only limits on an operator’s ability to withdraw water from private surface would be the private landowner’s consent.²⁴
- The 2012 SIR assumes that the Forest Plan’s prohibition on wastewater injection disposal would avoid the impacts of wastewater contamination. Again, this rule would not prohibit wastewater injection on private surface or outside the Wayne. Indeed, wastewater injection is already occurring on private surface within the Marietta Unit,²⁵ which could impact adjacent federal lands. Gaps in Ohio’s regulation of wastewater injection could put surface and groundwater resources at risk.²⁶ For example, Ohio does not require monitoring of groundwater quality near injection wells or testing or disclosure of chemicals in waste before injecting it underground.²⁷

BLM and the Forest Service’s failure to analyze the consequences of leasing beyond development of federal surface, or consider mitigation for private surface activities, violates NEPA, which requires discussion of all indirect effects²⁸ that are reasonably foreseeable, including connected actions and cumulative impacts.²⁹ An agency “must give a realistic

²¹ 2012 SIR at 47.

²² Ramirez, Pedro, U.S. Fish and Wildlife Service, Reserve Pit Management: Risks to Migratory Birds at 9 (Sept. 2009), available at <https://www.fws.gov/migratorybirds/pdf/management/reservepitmanagementriskstomigbirds.pdf> (noting bats can be attracted to wastewater pits) (“Ramirez 2009”); *see also* Ohio Department of Natural Resources, Wastewater (Flowback) from Hydraulic Fracturing, available at <https://oilandgas.ohiodnr.gov/portals/oilgas/pdf/Wastewater-flowback.pdf> (noting wastewater can be stored in pits).

²³ 2012 SIR at 41-42; *see also id.* at 29-30 (similar reasoning with respect to groundwater).

²⁴ *See id.* at 29.

²⁵ FracTracker Injection Well Map, available at <http://maps.fractracker.org/3.13/?appid=2a68b20a338f464da12d6e8f1cb66c08&webmap=0f6bdbb82b1246f6a2d2d7a6c4c3bb74>.

²⁶ Steinzor, Nadia & Bruce Baizel, Earthworks. Wasting away: Four states’ failure to manage gas and oil field waste from the Marcellus and Utica Shale at 46-51 (April 2015), available at <https://www.earthworksaction.org/files/publications/WastingAway-FINAL-lowres.pdf> (providing overview of Ohio waste disposal problems).

²⁷ *Id.* at 35-36.

²⁸ 40 C.F.R. § 1508.8.

²⁹ *Id.* at § 1508.7 (cumulative impacts are impacts of “other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.”); *id.* at § 1508.25(a)

evaluation of the total impacts and cannot isolate a proposed project, viewing it in a vacuum.” *Grand Canyon Trust v. FAA*, 290 F.3d 339, 342 (D.C. Cir. 2002). NEPA therefore requires analysis of the impacts of oil and gas development not only on the proposed parcels but also on the surrounding environment, including private surface.

As demonstrated above, development on the proposed parcels and on adjacent private surfaces are connected and inextricably linked, such that private surface development is reasonably foreseeable. *See Sierra Club v. United States DOE*, 255 F. Supp. 2d 1177, 1185 (D. Colo. 2002) (DOE’s approval of road easement without analyzing impacts of mining operations on private land that road would access violated NEPA). Because the Draft EA omits any analysis of private surface development impacts or their mitigation, NEPA has not been adequately addressed and further environmental analysis is required. The Forest Service therefore cannot consent to new leasing.

B. The Draft EA Bases its Finding of No Significant Impacts on Inaccurate Estimates of Surface Disturbance for Well Pads, Compressor Stations, and Gathering Lines

The EA’s surface impact footprint estimates for well pad sites, compressor station sites, and gathering lines are significantly lower than empirical field data suggests, thereby precluding a complete disclosure and analysis of soil, water quality, vegetation, and wildlife impacts.

Gathering lines, which transport natural gas from the well to a central collection point, are the single largest source of surface disturbance associated with oil and gas development, yet neither the EA nor the underlying NEPA documentation account for their surface disturbance. The 2004 RFDS and 2012 SIR dismiss this class of impact out of hand, stating: “Given the long history of gas production in the WNF, there is already a well developed pipeline infrastructure in place which should minimize the need for lengthy gathering lines to service new wells.”³⁰

The EA offers a mere two passing statements on the subject of pipeline construction, stating only: “If the well produces natural gas, and the flowline is in the road, another 0.5 acres may be affected by flowline construction. ... If the well is productive, additional land may be affected by pipeline construction.”³¹ The EA fails to elaborate on these statements, or quantify how much pipeline construction could result from a productive well.

This cursory treatment of gathering lines is wholly improper, particularly in light of ample evidence that gathering lines for horizontal well operations result in significant land clearing. According to one source, over two-thirds of the surface disturbance caused by horizontal well development in the Marcellus shale region is created by the construction of gathering pipelines, or about 19 acres per well pad site.³² Similarly, an analysis of 122 horizontal well pads in

(actions are connected if they “[c]annot or will not proceed unless other actions are taken previously or simultaneously”).

³⁰ 2012 SIR, Appendix B at 7.

³¹ EA at 21-22.

³² The Nature Conservancy, Land Use and Ecological Impacts from Shale Development in the Appalachians, Summary Statement for DOE Quadrennial Energy Review Public Stakeholder Meeting Pittsburgh, PA July 21,

Eastern Ohio found an average of over 17 acres of direct pipeline disturbance per well pad.³³ And separate, ongoing research in Eastern Ohio has found approximately 8.5 acres of gathering line clearing for *every acre* of well pad; in areas with relatively low well pad density, ratios have averaged up to 14:1.³⁴

Moreover, contrary to the Forest Service's suggestion, it is unlikely that existing gathering line infrastructure on the Wayne could support future horizontal operations. Field studies conducted by The Nature Conservancy show that "the supporting [horizontal well] infrastructure is much larger in scale (24" diameter pipelines to gather gas from wells versus 2" or 4" pipelines in shallow fields)."³⁵ In the Marcellus region, gathering lines may range from 6 to 24 inches in diameter and may clear rights-of-way of 30 to 150 feet wide.³⁶ These are much larger than gathering lines used in shallow gas fields, which generally range from 2 to 6 inches in diameter.³⁷

Another oversight of the 2012 SIR's horizontal well site disturbance estimates is the apparent failure to account for "Limits of Disturbance" (LOD) for each well pad, i.e., the clearing and earth-moving impacts that occur immediately adjacent to the pad itself, not including access roads, gathering lines, and transmission lines. The 2012 SIR estimates that horizontal well pad sites average a total of 3-5.5 acres of disturbance during construction and prior to reclamation, and 0.68-1.38 acres during the production phase, after reclamation.³⁸ A review of 122 horizontal wells in East-Central Ohio, however, revealed that surface disturbance for LOD *alone* averaged 6.9 acres.³⁹ Ongoing research of 285 well pads in Eastern Ohio has found LODs of 10-14 acres per pad.⁴⁰

2014, available at http://energy.gov/sites/prod/files/2014/07/f17/pittsburg_qermeeting_minney_statement.pdf; see also Slonecker, E.T. et al., Landscape Consequences of Natural Gas Extraction in Bradford and Washington Counties, Pennsylvania, 2004–2010: USGS Open-File Report 2012–1154 at 26 (2012), available at <https://pubs.usgs.gov/of/2012/1154/of2012-1154.pdf> ("Pipeline construction was the source of most of the increase in forest patch number.") ("Slonecker 2012").

³³ See McClaugherty, Charles et al., Landscape Impacts of Infrastructure Associated with Utica Shale Oil and Gas Extraction in Eastern Ohio, 100th ESA Annual Meeting (Aug. 9-14, 2015), abstract available at http://esa.org/meetings_archive/2015/webprogram/Paper52636.html (873 ha of pipeline divided by 122 well pad sites) ("McClaugherty 2015").

³⁴ Information obtained from January 28, 2016 conversation with Ted Auch, PhD, The FracTracker Alliance, relating to his ongoing landscape impact research in East-Central Ohio in collaboration with Chuck McClaugherty's lab at the University of Mt. Union (examining 285 well pads and associated infrastructure); see also Auch, Ted, FracTracker Alliance, Letter re Land-Use Footprint of High Volume Hydraulic Fracturing in Eastern Ohio (May 2016).

³⁵ Johnson, Nels, Pennsylvania Energy Impacts Assessment, Report 1: Marcellus Shale Natural Gas and Wind, The Nature Conservancy – Pennsylvania Chapter and Pennsylvania Audubon at 9 (2010), available at http://www.nature.org/media/pa/tnc_energy_analysis.pdf ("Johnson 2010").

³⁶ Johnson, Nels, et al., Pennsylvania Energy Impacts Assessment, Report 2: Natural Gas Pipelines. The Nature Conservancy – Pennsylvania Chapter at 1 (2011), available at <http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/pennsylvania/ng-pipelines.pdf> ("Johnson 2011").

³⁷ *Id.*

³⁸ 2012 SIR at 4.

³⁹ McClaugherty 2015.

⁴⁰ Auch Comm., *supra* n.34; see also Auch Letter, *supra* n.34.

Furthermore, the 2012 SIR grossly underestimates surface disturbance for compressor stations at 1 to 5 acres.⁴¹ Ongoing research in East-Central Ohio suggests that compressor station sites tend to range between 15 to 30 acres in size.⁴² It is also not clear whether the 2012 SIR and 2006 EIS consider the surface footprints of freshwater or wastewater retention ponds. The enormous water use and wastewater generation associated with hydraulic fracturing and horizontal drilling could foreseeably result in the development of such ponds.

The EA's inaccurate surface disturbance analysis results in a failure to fully disclose and analyze the leasing proposal's significant effects on numerous resources, including water quality, scenic resources, vegetation, and wildlife. In particular, increased surface disturbance would exacerbate existing habitat fragmentation and edge effects on wildlife. In a recent review of 242 Marcellus well pads, researchers found "[w]ell pads occupy 3.1 acres on average while the associated infrastructure (roads, water impoundments, pipelines) takes up an additional 5.7 acres, or a total of nearly 9 acres per well pad."⁴³ This study found an average of 21 additional acres of edge effect disturbance, for an average of 30 acres total of both direct and indirect interior forest habitat loss per well pad.⁴⁴ Another study found that each mile of a 100-foot right-of-way directly disturbs 528,000 square feet or approximately 12 acres and creates an additional 72 acres of new forest edges.⁴⁵

A more highly fragmented forest landscape could have far-reaching effects not discussed in the EA. New open corridors inhibit the movement of some species, such as forest interior nesting birds, which are reluctant to cross openings where they are more exposed to predators.⁴⁶ Fragmentation effects from conventional oil and gas development on the Allegheny National Forest greatly reduced core forest habitat type and negatively impacted neotropical migrant songbird species, while benefitting less desirable species.⁴⁷

The 2006 Forest Plan and EIS, 2012 SIR, and EA severely underestimate the potential surface impacts of well pad site development and associated infrastructure—both the immediate effects of land clearing and earthmoving, and the resulting surface runoff, industrialization, habitat fragmentation, edge effects, and species impacts. Leasing of the specific lands has not been adequately addressed in the EA and further environmental analysis is required. The Forest Service therefore cannot authorize new leasing.

C. The EA Declines to Meaningfully Analyze Climate Change Effects

The EA fails to adequately analyze the impacts of increased oil and gas development on greenhouse gas emissions and climate change. Specifically, the EA declines to quantify potential

⁴¹ 2012 SIR at 2, Table 1.

⁴² Auch Comm., *supra* n.34; *see also* Auch Letter, *supra* n.34.

⁴³ Johnson 2010 at 9-11.

⁴⁴ *Id.*

⁴⁵ Johnson 2011 at 5.

⁴⁶ *Id.* at 6; *see also* Slonecker 2012 at 2, available at <https://pubs.usgs.gov/of/2012/1154/of2012-1154.pdf> (noting fragmentation resulting in loss of migration corridors).

⁴⁷ Thomas, Emily H. et al. Conventional oil and gas development alters forest songbird communities, *The Journal of Wildlife Management*, 78 (2), 293-306, abstract available at DOI: [10.1002/jwmg.662](https://doi.org/10.1002/jwmg.662).

emissions related to the proposed action and fails to provide meaningful qualitative analysis. The EA incorrectly suggests that because a *precise* assessment of greenhouse gas emissions is not possible, it need not make any effort to quantify these emissions: “Uncertainties regarding the number of wells and other factors make it impractical to project amounts of GHG that the Proposed Action would emit.”⁴⁸ Furthermore, the EA states that “[t]he lack of scientific tools designed to predict climate change at regional or local scales limits the ability to quantify potential future impacts.”⁴⁹

The EA’s scant treatment of the climate change effects of the proposed action runs directly counter to the CEQ’s recently finalized climate change guidance. CEQ’s guidance “[r]ecommends that agencies quantify a proposed agency action’s projected direct and indirect GHG emissions, taking into account available data and GHG quantification tools that are suitable for the proposed agency action.”⁵⁰ The CEQ climate guidance notes that “[q]uantification tools are widely available, and are already in broad use in the Federal and private sectors, by state and local governments, and globally.”⁵¹

The EA attempts to rationalize its lack of climate change analysis by maintaining that “while BLM actions may contribute to the climate change phenomenon, the specific effects of those actions on global climate are speculative given the current state of the science.”⁵² Along similar lines, the EA states that “an assessment of impacts on climate change from the release of GHGs is outside the scope of this document because it is a global phenomenon.”⁵³ However, the CEQ guidance dispenses with this faulty logic:

[A] statement that emissions from a proposed Federal action represent only a small fraction of global emissions is essentially a statement about the nature of the climate change challenge, and is not an appropriate basis for deciding whether or to what extent to consider climate change impacts under NEPA.⁵⁴

NEPA requires “reasonable forecasting,” which includes the consideration of “reasonably foreseeable future actions...even if they are not specific proposals.” *N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1079 (9th Cir. 2011) (citation omitted). It is reasonably foreseeable that opening this acreage to oil and gas leasing would result in the commercial production of oil and gas. BLM has ample information to inform a greenhouse gas emissions analysis, including figures for total wells and well pads, average length of gathering lines, and total compressor stations. The agency also purports to know the general location of horizontal well pads, which would inform an analysis of transportation emissions.⁵⁵ Further, Ohio keeps

⁴⁸ EA at 87.

⁴⁹ EA at 35.

⁵⁰ CEQ, Final Guidance on the Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews at 4 (2016), available at https://www.whitehouse.gov/sites/whitehouse.gov/files/documents/nepa_final_ghg_guidance.pdf.

⁵¹ CEQ Guidance at 12 (citing CEQ’s inventory of Greenhouse Gas Accounting Tools, available at https://ceq.doe.gov/current_developments/GHG-accounting-tools.html).

⁵² EA at 86.

⁵³ EA at 86.

⁵⁴ CEQ Guidance at 11.

⁵⁵ 2012 SIR, Appendix C at 1-2 (noting geographic and geologic limiting factors for horizontal well development).

track of natural gas and oil production numbers in the Utica and Marcellus shales, which could inform a study of pipeline and combustion emissions.⁵⁶ That BLM cannot precisely calculate the total emissions anticipated is not a rational basis for cutting off its analysis: “Reasonable forecasting and speculation is . . . implicit in NEPA, and we must reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as ‘crystal ball inquiry.’” *Save Our Ecosystems v. Clark*, 747 F.2d 1240, 1246 n.9 (9th Cir. 1984 (quoting *Scientists’ Inst. for Pub. Info., Inc. v. Atomic Energy Comm.*, 481 F.2d 1079, 1092 (D.C. Cir. 1973)); see also, *High Country Conservation Advocates v. United States Forest Serv.*, 52 F. Supp. 3d 1174, 1196 (D. Colo. 2014) (decision to forgo calculating mine’s reasonably foreseeable GHG emissions was arbitrary “in light of the agencies’ apparent ability to perform such calculations”); *Ctr. for Biological Diversity v. NHTSA*, 538 F.3d 1172, 1217 (9th Cir. 2008) (“The impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct.”).

The agencies should quantify the potential lifetime CO₂e emissions from all phases of oil and gas development applicable in the Marietta Unit. This quantification should include emissions from the associated drilling, completion, production, transportation, and ultimate consumption phases.⁵⁷ The CEQ Guidance notes that “[f]or actions such as a Federal lease sale of coal for energy production, the impacts associated with the end-use of the fossil fuel being extracted would be the reasonably foreseeable combustion of that coal.”⁵⁸ This logic should hold with equal force for oil and gas leasing, and thus these combustion emissions should be quantified. Emissions from “connected actions,” e.g., from development of private subsurface, and from the construction and operation of gathering and transmission infrastructure should also be quantified as part of this process.⁵⁹

The NEPA analysis should also put the proposed action’s emissions into context using an evaluation of the proposed action’s social cost of carbon (“SCC”). The Federal social cost of carbon, which multiple Federal agencies have developed and used to assess the costs and benefits of alternatives in rulemakings, offers a harmonized, interagency metric that can provide decisionmakers and the public with some context for meaningful NEPA review.⁶⁰ The SCC evaluation is a simple tool that contextualizes emissions by translating tons of carbon into

⁵⁶ ODNR, Division of Oil and Gas Resources, Oil & Gas Production, available at <http://oilandgas.ohiodnr.gov/production>.

⁵⁷ CEQ Guidance at 14:

“NEPA reviews for proposed resource extraction and development projects typically include the reasonably foreseeable effects of various phases in the process, such as clearing land for the project, building access roads, extraction, transport, refining, processing, using the resource, disassembly, disposal, and reclamation.”

See also *id.* at 16 n.43 (citing DOE’s life-cycle GHG emissions study for exports of liquefied natural gas, and thus implicitly endorsing the view that a life cycle analysis is the appropriate method).

⁵⁸ *Id.* at 16 n.42.

⁵⁹ See *id.* at 13.

⁶⁰ See Interagency Working Group on Social Cost of Carbon, United States Government, “Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis” (May 2013), available at https://www.whitehouse.gov/sites/default/files/omb/inforeg/social_cost_of_carbon_for_ria_2013_update.pdf.

estimates of the costs to society of emitting that carbon. The Seventh Circuit Court of Appeals recently upheld agency reliance on the SCC to evaluate federal rulemakings.⁶¹

In short, the NEPA analysis of greenhouse gas emissions and climate change impacts is virtually non-existent for the proposed action. Nor do the 2006 Forest Plan and its accompanying EIS or the 2012 SIR offer help in this area, as none appear to even mention “climate change,” much less meaningfully analyze the same. Applicable law requires the Forest Service to withhold consent to leasing given these NEPA deficiencies.

II. BLM and the Forest Service Must Reinitiate Section 7 Consultation Regarding the Leasing Proposal’s Effects on the Indiana Bat

The Forest Service cannot consent to new leasing because neither the Service nor BLM have properly complied with section 7 of the ESA regarding the leasing proposal’s effects on the endangered Indiana bat. Consultation on the Forest Plan’s oil and gas development effects last occurred over a decade ago, and the 2005 Biological Opinion is stale. Reinitiation is required “if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered.” 50 C.F.R. § 402.16(b). Here, new information concerning the potential for horizontal well development, white-nose syndrome, and climate change trigger reinitiation of consultation.

The Forest Plan’s 2005 Biological Opinion does not address any impacts of hydraulic fracturing or horizontal drilling on the Indiana bat. As noted above, wastewater pits from fracking operations could pose a serious threat to the bat: insects that become trapped on the surface of these pits attract bats, which may then become exposed to toxic chemicals, or entangled in netting covering the pit’s surface.⁶² As discussed above, the 2006 Forest Plan does not fully mitigate these effects on private surface. In addition, fracking threatens the bat’s habitat by reducing and fragmenting areas for foraging and roosting, and risking degradation of streams. The rise in fracking and horizontal drilling, including the increased potential for horizontal well pad surface disturbance detailed above, constitutes “new information reveal[ing] effects of the action that may affect [the Indiana bat]...in a manner or to an extent not previously considered,” and triggers BLM and the Forest Service’s duty to reinitiate consultation on the 2005 Biological Opinion.⁶³

White-nose syndrome (or “WNS”) is a fatal disease affecting hibernating bats that is named for a white fungus that appears on the muzzle and other parts of bats. The disease has spread rapidly across the eastern and midwestern U.S., and is estimated to have killed more than 6 million bats in the Northeast and Canada.⁶⁴ White-nose syndrome has spread to 16 counties in Ohio,⁶⁵

⁶¹ *Zero Zone, Inc. v. U.S. Dept. of Energy*, 2016 U.S. App. LEXIS 14541 (7th Cir. 2016).

⁶² See Ramirez 2009 at 9.

⁶³ See 50 C.F.R. § 402.16(b).

⁶⁴ USFWS, White-nose syndrome: The devastating disease of hibernating bats in North America (May 2016), available at https://www.whitenosesyndrome.org/sites/default/files/resource/white-nose_fact_sheet_5-2016_2.pdf.

⁶⁵ Ohio Dept. of Natural Resources, White-nosesSyndrome.org, available at <https://www.whitenosesyndrome.org/partner/ohio-department-natural-resources>; White-nose Syndrome.org, Updated white-nose syndrome map (May 10, 2016), available at <https://www.whitenosesyndrome.org/resource/updated-white-nose-syndrome-map-may-10-2016>.

including in the Wayne National Forest in Lawrence County.⁶⁶ The potential for white-nose syndrome to wipe out the species in large parts of its range makes the bat's population much more sensitive to oil and gas development. It is therefore crucial to reduce these threats. While the Forest Service prepared a Review of New Information regarding WNS in 2008 (2008 RONI) and a review of the 2008 RONI in 2011, these reviews considered this threat in isolation, and not in connection with fracking and climate change. This new information concerning the devastating disease reveals effects of leasing that may affect the Indiana bat in a manner or to an extent not previously considered, and compels reinitiation.

Climate change is also projected to shift the Indiana bat's range, because the species' migration, reproductive cycles, and hibernation patterns are closely linked to temperature. One landmark study projects that warming summer temperatures will cause "maternity colonies in the western portion of the range [including Ohio]...to begin to decline and possibly disappear in the next 10–20 years," causing the range to shift northeast-ward.⁶⁷ The researchers note that "the effects of climate change should be considered in future threats analyses and conservation strategies for the Indiana bat," and that "management actions which foster high reproductive success and survival... will be critical for the conservation and recovery of the species."⁶⁸ The 2005 Biological Opinion does not account for climate change effects. BLM and the Forest Service must consult with the Fish and Wildlife Service regarding all of these potential threats to the Indiana bat, and their effects in concert on the Indiana bat's survival and recovery.

III. Meaningful Public Participation and Comment Would Be Circumvented by the Forester's Review of the Parcels Before the EA Has Been Finalized

BLM has not yet finalized the EA, and yet the Regional Forester apparently has already consented to leasing on a number of parcels. This is a violation of NEPA and its core principle that public review must inform the agency decision-making process.

"[P]ublic scrutiny [is] essential to implementing NEPA." *Bob House v. United States Forest Serv.*, 974 F. Supp. 1022, 1035 (E.D. Ky. 1997) (quoting 40 C.F.R. § 1500.1(b)). Accordingly, "agencies shall to the fullest extent possible...encourage and facilitate public involvement in decisions." 40 C.F.R. § 1500.2(d) (emphasis added). Agencies "shall...make diligent efforts to involve the public in preparing and implementing their NEPA procedures," including "solicit[ing] appropriate information from the public." *Id.* § 1506.6(a), (b), (d). In preparing an EA, agencies "shall involve environmental agencies, applicants, and the public, to the extent practicable." *Id.* § 1501.4(b).

⁶⁶ USFS, White-nose Syndrome Detected in Ohio (Mar. 30, 2011), available at http://www.fs.usda.gov/wps/portal/fsinternet!/ut/p/c4/04_SB8K8xLLM9MSSzPy8xBz9CP0os3gjAwhwtDDw9_AI8zPyhQoY6BdkOyoCAGixyPg!/?ss=110914&navtype=BROWSEBYSUBJECT&cid=STELPRDB5288711&navid=1800000000000000&pnavid=null&position=News&ttype=detail&pname=Wayne%20National%20Forest-%20News%20&%20Events.

⁶⁷ Loeb, Susan C. & Eric A. Winters, Indiana bat summer maternity distribution: effects of current and future climates, *Ecology and Evolution* 2013; 3(1): 103–114, available at <http://onlinelibrary.wiley.com/doi/10.1002/ece3.440/full>.

⁶⁸ *Id.*

The purpose of these requirements is to ensure that the agency action which potentially affects the environment is taken only after thorough consideration of the relevant factors in which meaningful public participation has been allowed. *Envtl. Prot. Info. Ctr. v. Blackwell*, 389 F. Supp. 2d 1174, 1221 (N.D. Cal. 2004); *see also Bering Strait Citizens for Responsible Res. Dev. v. U.S. Army Corps of Eng'rs*, 524 F.3d 938, 953 (9th Cir. 2008) (EA requires “sufficient environmental information...to permit members of the public to weigh in with their views and thus inform the agency decision-making process”). Accordingly, the failure to obtain any public input on an EA violates NEPA. *Citizens for Better Forestry v. U.S. Dept. of Agriculture*, 341 F.3d 961, 970 (9th Cir. 2003); *W. Watersheds Project v. Bennett*, 392 F. Supp. 2d 1217, 1222 (D. Idaho 2005). Along the same lines, the failure to consider public comments violates NEPA’s requirement that agencies take a “hard look” at environmental consequences. *See W. Watersheds Project v. Kraayenbrink*, 620 F.3d 1187, 1206 (9th Cir. 2010); *Idaho Conservation League v. Guzman*, 766 F. Supp. 2d 1056, 1076-77 (D. Idaho 2011).

The Forest Service’s approval of new leasing *before* BLM has considered all public input and finalized the EA is similarly unlawful. Rendering a “predetermined” decision “ignore[s] the purposes and procedures of NEPA.” *See Int’l Snowmobile Mfrs. Ass’n v. Norton*, 340 F. Supp. 2d 1249, 1265 (D. Wyo. 2004) (mere *pro forma* compliance with NEPA procedures without actually considering comments violates NEPA). By consenting to new leasing before BLM has thoroughly considered public input and completed the requisite “hard look” at environmental consequences—including the serious issues raised in this letter—NEPA’s public review requirements are subverted, rendering the EA an exercise in “form over substance.” *W. Watersheds Project v. Kraayenbrink*, 620 F.3d 1187, 1206 (9th Cir. 2010).

The Forest Service cannot verify the adequacy of the EA or provide consent before the EA has been finalized. The Forest Service should withdraw any consent that it has already provided to BLM.

In sum, the Forest Service should deny consent to leasing within the Marietta Unit and withdraw consent for any parcels it has already approved. We also request a meeting with both of your offices to discuss the issues raised in this letter. Specific questions we have include:

- Does the 2012 SIR take into account the development of private minerals underlying private lands as part of a pooled unit with federal minerals?
- Can the Forest Service count on BLM incorporating in an APD Forest Plan surface protections on private surface?
- Would stipulations and notifications attached to a lease apply to private surface activities overlying private minerals that have been pooled with federal minerals?

Thank you for your consideration of our concerns. If you have any questions about the issues raised in this letter, please do not hesitate to contact us.

Sincerely,

Wendy Park, Staff Attorney
My-Linh Le, Legal Fellow
Center for Biological Diversity
1212 Broadway #800
Oakland, CA 94612
(510) 844-7138
wpark@biologicaldiversity.org
mle@biologicaldiversity.org

Nathan Johnson, Natural Resources Attorney
Ohio Environmental Council
1145 Chesapeake Avenue, Suite I
Columbus, 43212
(614) 487-5841
NJohnson@theOEC.org

Jen Miller, Director
Sierra Club Ohio Chapter
(614) 461-0734 x 300
jen.miller@sierraclub.org

Elly Benson, Staff Attorney
Sierra Club
2101 Webster Street, Suite 1300
Oakland, CA 94612
(415) 977-5723
elly.benson@sierraclub.org

cc: Jason Reed, Athens District Ranger, Wayne National Forest, U.S. Forest Service
Kurt Wadzinski, Planning & Environmental Coordinator, Northeastern States District,
BLM