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May 22, 2015

Colorado Roadless Rule
U.S. Forest Service, Rocky Mountain Region
740 Simms Street
Golden, CO 80401
Via Email: kkту@fs.fed.us

Re: Comments of High Country Conservation Advocates et al. on Proposal to Reinstate North Fork Coal Mining Area Exception to the Colorado Roadless Rule (Project #46470)

Dear Secretary Vilsack:

Thank you for this opportunity to comment on the U.S. Department of Agriculture's initiation of a supplemental environmental impact statement (SEIS) to propose reinstatement of the North Fork Coal Mining Area exception of the Colorado Roadless Rule. This letter is sent on behalf of the following conservation groups and conservationists, all of whom have a longstanding interest in the protection and wise stewardship of roadless national forest lands.

High Country Conservation Advocates (HCCA) was founded in 1977 as High Country Citizens' Alliance, to keep Mount Emmons molybdenum mine-free. Shortly after HCCA's founding, HCCA expanded its work to address other issues that stand to affect Gunnison County's clean air, clean water, and healthy wildlife. HCCA has over 800 members who live, recreate, and enjoy the rural and wild character of Gunnison County and its public lands.

The Sierra Club is America's largest grassroots environmental organization, with more than 2.4 million members and supporters nationwide. In addition to creating opportunities for people of all ages, levels and locations to have meaningful outdoor experiences, the Sierra Club works to safeguard the health of our communities, protect wildlife, and preserve our remaining wild places through grassroots activism, public education, lobbying, and litigation. Sierra Club is dedicated to exploring, enjoying, and protecting the wild places of the Earth; to practicing and promoting the responsible use of the Earth's resources and ecosystems; to educating and enlisting humanity to protect and restore the quality of the natural and human environment; and to using all lawful means to carry out these objectives.

WildEarth Guardians is a Santa Fe, New Mexico-based nonprofit organization with offices throughout the western U.S., including in Colorado. WildEarth Guardians is dedicated to protecting and restoring wild places, wildlife, wild rivers, and the health of the American West and has over 44,000 members. As part of its Climate and Energy Program, Guardians works to combat climate change by advancing clean energy and aiding a transition away from fossil fuels, the key source of the greenhouse gases fueling global warming, particularly on our public lands. In doing so, Guardians defends the public interest by safeguarding clean air, pure water, vibrant wildlife populations, and protected open spaces.

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The Center for Biological Diversity is a non-profit environmental organization with 50,400 member activists, including members who live near and recreate in the areas in the Grand Mesa, Uncompahgre and Gunnison National Forests. The Center uses science, policy and law to advocate for the conservation and recovery of species on the brink of extinction and the habitats they need to survive. The Center has and continues to actively advocate for increased protections for species and habitats in the planning area on lands managed by the Forest Service. The lands and waters that will be affected by the decision include habitat for many listed, rare, and imperiled species that the Center has worked to protect including the Colorado pikeminnow, humpback chub, bonytail, razorback sucker, Colorado cutthroat trout, and Canada lynx.

The Natural Resources Defense Council (NRDC) is a non-profit environmental organization that uses law, science, and the support of its 1.4 million members (including 11,542 members in Colorado) to protect the planet's wildlife and wild places and to ensure a safe and healthy environment for all living things. NRDC members use and enjoy national forest system lands in Colorado, including roadless lands in the Grand Mesa, Uncompahgre and Gunnison National Forests. NRDC members use and enjoy these lands for a variety of purposes including recreation, wildlife viewing, solitude, and conservation of natural resources. NRDC has a long-established history of advocating to protect public lands in Colorado, in particular national forest roadless areas, and working to address climate change by cutting pollution and expanding clean energy.

Founded in 1967, the Wilderness Workshop's ("WW's") mission is to protect and conserve the wilderness and natural resources of the Roaring Fork Watershed, the White River National Forest, and adjacent public lands. WW is a non-profit organization that engages in research, education, legal advocacy and grassroots organizing to protect the ecological integrity of local landscapes and public lands. WW not only defends pristine public lands from new threats, but also helps restore the functional wildness of a landscape fragmented by human activity. WW protects and preserves existing wilderness areas, advocates for expanding wilderness, defends roadless areas from development that would destroy their wilderness character, and safeguards the ecological integrity of all federal public lands in its area of interest. WW has a long history of participation in forest planning on the White River National Forest. WW has approximately 700 members who support its mission and enjoy the lands WW protects and conserves.

Rocky Mountain Wild ("RMW") is a conservation advocacy organization focused on protecting wildlands for wildlife throughout the Southern Rocky Mountain region (Colorado, eastern Utah, southern Wyoming, and northern New Mexico). The organization has around 600 members who are passionate about protecting the biodiversity and ecosystem health throughout the region. RMW advocates for its members' interests through participating in administrative processes, collaboration, education, and when necessary; litigation.

Rocky Mountain Recreation Initiative works to protect Colorado wildlands and roadless areas from high-impact human disturbance so the integrity of these lands remain intact for wildlife and future generations. RMRI also promotes responsible recreation, working closely with Colorado land management agencies, including the Forest Service and Bureau of Land Management to ensure sustainable trail planning and long-distance motorized trail planning.

Founded in 1986, San Juan Citizens Alliance (“SJCA”) organizes people to protect our water and air, our lands, and the character of our rural communities in the San Juan Basin. SJCA is a membership organization with approximately 450 members and has been active in BLM and National Forest fossil fuel issues in southwest Colorado since the early 1990s.

Great Old Broads for Wilderness is a national organization, with 700 members in Colorado. Great Old Broads for Wilderness engages and ignites the activism of elders to preserve and protect wilderness and wild lands. Broads gives voice to the millions of older Americans who want to protect their public lands as Wilderness for this and future generations. We bring experience, commitment, and humor to the movement to protect the last wild places on Earth.

The Quiet Use Coalition is a Colorado non-profit organization with approximately 300 members working to preserve and create quiet use areas on our public lands and waters, while protecting natural soundscapes and wildlife habitat.

Rocky Smith is a Colorado resident who uses and enjoys Colorado’s national forests and roadless areas, and who has reviewed and responded to plans, projects, laws, regulations, and policies that affect national forest management for 35 years. He drafted various sets of comments on the Colorado Roadless Rule.

For the reasons set forth below, the undersigned groups and individual request, among other things, that the Forest Service:

- adopt the no action alternative, because the proposed action will degrade sensitive roadless lands while worsening climate change, and will likely benefit only a single corporation: Arch Coal.
- ensure that the supplemental EIS focus its analysis of surface impacts on the three roadless areas where the coal mine exception will promote road and methane drainage well pad construction, and in doing so, disclose the values of those areas, an analysis entirely missing from the Colorado Roadless Rule Final EIS.
- disclose in the supplemental EIS the quantity of greenhouse gas emissions likely to occur from coal mining as a result of prolonging the life of one or two North Fork Valley mines.
- disclose in the supplemental EIS the quantity of greenhouse gas emissions likely to occur from coal combustion as a result of prolonging the life of one or two North Fork Valley mines.
- disclose in the supplemental EIS the impacts of additional greenhouse gas emissions likely to occur from coal mining and coal combustion by calculating the social cost of carbon of the agency action.
- address in the supplemental EIS significant new information concerning the nature of, and the urgency of combatting, climate change, including the inconsistency of the proposed action here with this administration’s climate policies.

- address in the supplemental EIS significant new information concerning volatile organic compound emissions from the North Fork mines.
- address in the supplemental EIS significant new information concerning the reduction in coal production, employment, and royalties at North Fork mines.
- address in the supplemental EIS the coal mine exception's foreseeable impacts on wildlife.
- consider a range of reasonable alternatives, including an alternative that protects the most pristine of the roadless lands in the three roadless areas.
- ensure compliance with the Endangered Species Act.
- prepare a new Regulatory Impact Analysis to address significant new information.

I. THE FOREST SERVICE SHOULD ADOPT THE NO ACTION ALTERNATIVE.

A. The Proposed Action Threatens Significant Environmental Harm, But Likely Benefits Just One Giant Corporation.

The undersigned groups urge the Forest Service to adopt the no action alternative and to reject reinstating the North Fork coal loophole. As explained in greater detail below, the proposed action will harm the public – by encouraging the release of vast amounts of climate pollution, by wasting millions of cubic feet a day of methane, and by degrading high-elevation forests and wildlife habitat – but is likely to benefit only a single company: Arch Coal. The Forest Service should not undermine the public interest to benefit one of world's largest purveyors of dirty coal.

Specifically, the 2012 Colorado Roadless Rule Final Environmental Impact Statement (EIS) estimated that permitting road construction for coal mining in the North Fork roadless areas would make available for mining nearly 350 million tons of coal that would otherwise remain in the ground.¹ By extending by years coal mining at one and perhaps two North Fork mines, the proposed action will also prolong the pollution of millions of cubic feet a day of methane, a potent greenhouse gas, which only one North Fork Valley mine has shown limited interest in capturing or mitigating.

Opening these roadless lands to road construction for coal mining is also likely to have significant, damaging impacts on the ground across a 30-square-mile landscape of largely undisturbed roadless lands – the Sunset, Flatirons,² and Pilot Knob Roadless Areas. These areas provide habitat for lynx and goshawk, black bear and elk, frogs and deer. The very purpose of

¹ See Forest Service, Final Environmental Impact Statement, Rulemaking for Colorado Roadless Areas Vol. II (May 2012) (“CRR Final EIS”) at Table 3-9, CRR FEIS at 80-81 (showing an additional 347 million tons recoverable under the Agencies' preferred Alternative 2, which contained the North Fork coal exception, compared to Alternative 1, the Roadless Area Conservation Rule).

² Agencies appear to spell the area both “Flatirons” and “Flat Irons.” We use the former here.

the proposed rulemaking is to pave the way for the construction of between 50 and 90 miles of road crisscrossing the landscape to facilitate such coal mining. CRR Final EIS at 72.³ The purpose of the road construction is to enable coal companies to construct facilities necessary to vent methane. The Forest Service estimated that the coal mine exception could result in the construction of up to 600 drilling pads (a density of 20 per square mile), which would scrape down to bare dirt 180 acres across the North Fork area. CRR Final EIS at 72. The landscape above Arch Coal's West Elk Mine is already blanketed by a tight network of roads, as well as pockmarked and degraded by drill pads.⁴ Those who tout coal from the North Fork as "clean" can only do so by ignoring the degradation of roadless areas and massive amounts of methane wasted to mine it, and the greenhouse gas pollution caused by burning it.

On the other hand, the alleged benefits of allowing this pollution and habitat destruction will likely accrue only to a single entity: Arch Coal's West Elk mine. The Colorado Roadless Rule was likely only to benefit two mines in the North Fork: West Elk and Oxbow's Elk Creek mine. But Elk Creek, closed by a mine fire, has remained idle since 2013 and seems unlikely to re-open in the near future, given current trends in the national and international coal markets. Because West Elk still has approximately 11 years of coal reserves remaining,⁵ the Forest Service has time to help local communities transition to a more stable, cleaner economy in the North Fork Valley while preserving the natural environment and protecting the climate.

Although some may support restoring the coal mine exception because it was originally part of a political deal among numerous interests, that deal was never a good one for Colorado roadless areas. Despite Forest Service assertions to the contrary, the Colorado Roadless Rule with the coal mine exception was less protective of roadless forest than the 2001 national Roadless Rule it supplanted. The proof is in the analysis of road mileage. The 2001 national Roadless Rule was predicted to result in an average of 13.8 miles of road being built annually within or adjacent to roadless forest due to prior existing rights and exceptions. CRR Final EIS at 59. By contrast, the Colorado Roadless Rule with the coal mine exception would permit 19.7 miles of road to be

³ The CRR Final EIS predicts 52 miles of roads will be built for methane drainage wells across the 30-square mile North Fork coal mining area. CRR Final EIS at 72. This number is at odds with the Final EIS's assumption that methane drainage wells require construction of 3 miles of road per square mile. Id. Given that the North Fork coal mining area is a little over 30 square miles, total road construction due to the coal mine exception should be 90 miles. Given this discrepancy, the Forest Service should provide new estimates of road mileage likely to be constructed under the coal mine exception.

⁴ See Photos Of Damage From Methane Drainage Wells And Roads On National Forest Land Above The West Elk Mine, 2009-2015, attached as Ex. 1. Methane drainage and exploration pads have also degraded lands above the Elk Creek mine. See J. Nichols, WildEarth Guardians, A Photo Report of the Sunset Roadless Area and Threats from Coal Mining and Exploration at Arch Coal's West Elk Mine (July 2, 2013), attached as Ex. 2.

⁵ See Forest Service, West Elk Mine (powerpoint) (Dec. 2014) at 13, attached as Ex. 3. ("The West Elk Mine estimates that 55 million tons of coal resources are currently under lease, only a portion of which are permitted for mining. Assuming a 5 million ton year production rate, the current leased coal resources would represent approximately 11 years of production.")

constructed per year within and adjacent to roadless forest, a 43% increase. Id. Much of this increase was due to the fact the national Roadless Rule would have resulted in an average only 0.5 miles of road per year in roadless areas for coal mining, while the Colorado Roadless Rule with the coal mine exception was predicted to result in an average of 3.3 miles per year, nearly 7 times more road mileage annually. Id.

In addition, other measures in the Colorado Rule purported to better protect roadless lands than the national Roadless Rule would actually have had little or no beneficial impact, undercutting the argument that the sacrifice of roadless lands in some areas, including the North Fork area, was justified by better protecting remaining lands elsewhere. For example, the Colorado Rule contains provisions concerning “linear construction zones” for pipelines and similar structures not found in the national Roadless Rule, ostensibly to more strictly limit road construction for such structures. But the Final EIS predicts the same number of road miles per year will be constructed for such zones under either rule, indicating that the Colorado Rule provisions provide no added protection. CRR Final EIS at 61 (4.7 miles of linear construction zones built on average per annum under both Alternative 1 (national Roadless Rule) and Alternative 2 (Colorado Roadless Rule)). Further, many of the so called “upper tier” forest lands supposedly receiving heightened protection under the Colorado Roadless Rule were already more protectively managed as “recommended wilderness” under individual Forest Plan.

In short, the Colorado Roadless Rule as adopted in 2012 provided a host of benefits to special interests – coal mines, ski areas, water providers, those constructing natural gas pipelines, etc. – all at the expense of roadless protection. We therefore do not agree that the mere fact that the State of Colorado brokered a poor deal for roadless areas supports restoring a provision that is demonstrably damaging to roadless forest.

B. The Forest Service Should Adopt The No Action Alternative Because There Is No Immediate Need For The Proposed Action.

The Forest Service should adopt the no action alternative – or defer the rulemaking process for the foreseeable future – because there is no demonstrated, immediate need for a rule promoting road construction on these roadless lands for coal mining.

The Forest Service defines the rulemaking’s purpose as follows:

The purpose and need for this supplemental EIS is to provide management direction for conserving roadless characteristics within the area while addressing the State interest in not foreclosing exploration and development of the coal resources in the North Fork Coal Mining Area.

80 Fed. Reg. 18598, 18599 (Apr. 7, 2015). But it is unclear why there is a pressing need to “not foreclose[e] exploration and development of the coal resources” where there is no immediate need for those resources.

First, there is no demonstrated need for opening the Pilot Knob Roadless Area to potential coal exploration and development. All of the leases adjacent to Pilot Knob are owned by Oxbow’s

Elk Creek mine.⁶ We are aware of no evidence that any other company has an interest in mining coal there. And Elk Creek's ability to take advantage of those coal reserves is questionable.

Elk Creek has been idled for 18 months, since December 2013, due to a fire inside the mine which has prevented the company from using its \$100 million long wall mining equipment.⁷ The mine has produced zero tons of coal since December 2013.⁸ Elk Creek has had only 6-12 miners on payroll through that period. *Id.* Another fire last year burned surface equipment and conveyor structures at the mine.⁹ Recent reports from the media and a state agency indicate that the mine will auction off much of its equipment next month.¹⁰ Elk Creek's decision to liquidate its equipment means that the mine will be unable to operate in the near- or medium-term, even if economic conditions favor renewed coal mining. The unlikelihood that Elk Creek will reopen is reinforced by the general downward trend, or at a minimum, uncertainty in the coal market.¹¹ There is thus no demonstrated need for "not foreclosing exploration and development of the coal resources" in the Pilot Knob Roadless Area. Opening the area to road construction for mining does not achieve the project's purpose of addressing the State's interest in exploration and mining because there is little evidence that any entity is currently interested or capable of mining coal there.¹²

⁶ See Earthjustice, Map, North Fork Coal Mine Exception Area (May 21, 2015), attached as Ex. 4.

⁷ See A. Svaldi, Elk Creek Mine in Somerset will go idle, Denver Post (Dec. 2, 2013), attached as Ex. 5.

⁸ See Colorado Division of Reclamation, Mining and Safety (DRMS), Monthly Coal Detail Report, Jan. 2014 through Dec. 2014 (Feb. 2, 2015) at 2-3 (showing zero tons mined in 2014), attached as Ex. 6; Colorado DRMS, Monthly Coal Detail Report, Jan. 2015 (Mar. 9, 2015) (showing zero tons mined in Jan. 2015, the last month for which DRMS figures are publicly available), attached as Ex. 7.

⁹ L. Palmisano, Fire Damages Multiple Structures At Oxbow's Elk Creek Coal Mine, KVNF (Aug. 12, 2014), attached as Ex. 8.

¹⁰ See D. Webb, Coal mine liquidation sale, Grand Junction Daily Sentinel (May 14, 2015), attached as Ex. 9; Colorado DRMS, Elk Creek March 2015 Inspection Report (Apr. 8, 2015) at PDF p. 3 ("Much of the equipment and machinery, including long wallbelt line was organized around various storage areas of the facility awaiting auction. The auction is scheduled for July 2015. Doug Smith [of Oxbow] noted that all material on [the] waste pile, (beltline, tubing etc.) has been sold to West Elk mine and will be removed."), attached as Ex. 10; *id.* at PDF p. 6 ("At the West refuse pile and throughout various facility areas, equipment was being organized for auction.").

¹¹ See comments of Mark Squillace, quoted in D. Webb, Coal mine liquidation sale (Ex. 9); E. Guerin, Future of Coal Uncertain as Tennessee Valley Authority Cuts Production, KVNF (Dec. 10, 2013), attached as Ex. 11.

¹² As discussed below, the Forest Service must also explain why it seeks to reward this operator – Oxbow – with the ability to potentially mine coal in the Pilot Knob Roadless Area, given the company's recent and systematic failure to comply with rules meant to protect public lands. See

Second, we are unaware that Arch Coal has immediate plans to construct roads for coal exploration or mining in the Flatirons Roadless Area.¹³

Third, it is unclear whether Arch Coal needs to construct roads in the Sunset Roadless Area in the near future, despite the fact that the company re-submitted lease applications for a portion of the area. Arch's staff (under penalty of perjury) stated that if the company was unable to explore proposed lease modifications in a portion of the coal mine exception area by 2013 (or 2014), the West Elk mine would likely bypass any coal there.¹⁴ Under the current schedule for the rulemaking EIS and other approvals Arch will require, it is unlikely that on-the-ground construction activity for coal exploration or mining could occur until spring of 2017 at the earliest, even if the proposed action is adopted.¹⁵ If Arch's staff were truthful in their statements to the court, West Elk will bypass the coal in the lease modifications area and will have no immediate need to enter the Sunset Roadless Area. As noted, West Elk has an 11-year supply of coal under lease. See supra at 5.

Further, it is possible that Arch need not build roads for exploration of the coal in lease modifications it has applied for because it can conduct exploration "in seam."¹⁶ If Arch does explore the area in-seam, it may not find recoverable coal. If Arch can explore in this manner, it seems prudent for the Forest Service to wait to see whether Arch finds what it believes are commercially recoverable coal deposits requiring road construction before the agency leaves the door open to road construction that may never be necessary.

infra at 61-62; D. Webb, Concerns raised over Oxbow well violations, Grand Junction Sentinel (May, 17, 2015), attached as Ex. 12.

¹³ If Arch Coal has pending exploration or development plans in the Flatirons area, those should be disclosed in the draft supplemental EIS.

¹⁴ Declaration of Kathy Welt, Arch Coal (Mar. 14, 2013) at 3 (swearing that if the lease modifications within the Sunset Roadless Area could not be explored "in the Summer of 2013, MCC [Mountain Coal Company] will be forced to abandon that mining course" in the lease modifications area and adjacent lands), attached as Ex. 13; Declaration of Weston Norris (May 8, 2014) at 3 (swearing that "[b]ypass of the coal [in the lease modifications area] remains a significant risk, and highly likely on the current market environment if exploration cannot be conducted in 2014"), attached as Ex. 14.

¹⁵ See email of N. Mortenson, Forest Service to L. Broyles, Forest Service et al. (Dec. 8, 2014 12:57:14 PM) (projecting lease modifications not complete until September 2016 or later), attached as Ex. 15.

¹⁶ Email of L. Broyles, Forest Service to J. Lopez Pearce, Forest Service (Dec. 15, 2014 2:58:33 PM) ("BLM is meeting with industry today to hear a proposal for doing in-seam exploration under Colorado Roadless with no surface occupancy or disturbance.... [I]ndustry is optimistic this may now be possible due to advances in technology.... If MSHA agrees, and the exploration is deemed compliant with Roadless (with or without consideration of the North Fork exception), and BLM issues the authorization to explore, then the use of this technology and application of a no surface disturbance or occupation stipulation in Roadless may be worth consideration as an alternative in the Forest Service planning efforts."), attached as Ex. 16.

II. THE FOREST SERVICE MUST PROVIDE THE PUBLIC WITH SUFFICIENT INFORMATION TO COMMENT ON THE PROPOSAL.

Full and effective public participation in agency decisionmaking is a cornerstone of the National Environmental Policy Act (NEPA). CEQ regulations implementing NEPA state:

“NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality.”¹⁷

“Federal agencies shall to the fullest extent possible: ... [e]ncourage and facilitate public involvement in decisions which affect the quality of the human environment.”¹⁸

“Agencies shall: ... [m]ake diligent efforts to involve the public in preparing and implementing their NEPA procedures.”¹⁹

Federal courts hold that an agency’s NEPA review must “foster both informed decision-making and informed public participation.”²⁰ By requiring agencies to take a “hard look” at the choices before them and how they “affect the environment, and then to place their data and conclusions before the public ... NEPA relies on democratic processes to ensure ... that ‘the most intelligent, optimally beneficial decision will ultimately be made.’”²¹ The Supreme Court has further emphasized that one of NEPA’s purposes is to insure that the public has sufficient information to challenge the agency.²²

On at least one count, the public process the Forest Service has undertaken has fallen short of these high standards.

While the general purpose of the rulemaking is “to reinstate the North Fork Coal Mining Area exception,” the Federal Register’s scoping notice states that the Forest Service also “is proposing to administratively correct the North Fork Coal Mining Area boundary to remedy clerical errors.” 80 Fed. Reg. 18598, 18599 (Apr. 7, 2015). But the Forest Service’s initial notice did not explain what the “clerical errors” are, where these boundary adjustments would occur, and what acreage they would impact. Documents addressing this issue were published without notice and with little explanation on the Forest Service’s website for the project just ten days before the close of the scoping comment period.

¹⁷ 40 C.F.R. § 1500.1(b).

¹⁸ 40 C.F.R. § 1500.2(d).

¹⁹ 40 C.F.R. § 1506.6(a).

²⁰ California v. Block, 690 F.2d 753, 761 (9th Cir. 1982).

²¹ Oregon Natural Desert Ass’n v. Bureau of Land Management, 531 F.3d 1114, 1120 (9th Cir. 2008) (internal citations omitted).

²² Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989).

The Forest Service should therefore provide an additional opportunity for public comment before the Draft EIS is released to enable the public to comment on, and potentially suggest alternatives to, the administrative correction to roadless area boundaries. Or the Forest Service should extend the current scoping period to permit the public to comment on the materials that only became available to the public ten days before the scoping deadline.

III. THE SUPPLEMENTAL EIS MUST FOCUS ITS ANALYSIS OF SURFACE IMPACTS ON THE NORTH FORK VALLEY.

For the Forest Service to fulfill its obligation to take a “hard look” at the environmental effects of the coal mine exception, the supplemental EIS must focus its analysis on those areas and resources likely to be impacted by the proposed action.²³ Further, CEQ regulations require the Forest Service to “succinctly describe the environment of the area(s) to be affected or created by the alternative under consideration.”²⁴ Without such baseline data, the agency will be unable to understand the effects of the exemption or to craft stipulations to protect these values. As such, the supplemental EIS must identify the scope of impacts, as well as the environmental baseline and affected environment, where impacts are most likely to be felt.

The area where nearly all surface impacts will occur as a result of the coal mine road exception – from roads, drill pads, and continued coal mining – is the 19,600-acre exception area and immediate environs. Air impacts will be felt across a larger region. The most acute impacts to surface water from surface disturbance will occur in one watershed – the North Fork of the Gunnison. It is thus appropriate and mandatory that the supplemental EIS focus most of its analysis, and especially its analysis of potential surface impacts, on the North Fork Gunnison Valley.²⁵

This is a far narrower scope than that analyzed in the Colorado Roadless Rule Final EIS. That document looked at impacts across a huge area – over 4 million acres of roadless areas scattered across an entire state, an expanse roughly 2000% larger than the roadless areas covered by the proposed coal mine exception. As a result, the Final EIS’s analysis of the baseline conditions and the potential impacts are both extremely general. In fact there is almost no site specific information in the Final EIS. No maps display forest type; none display probable locations of any surface disturbing activities; and there is almost no description of the values and resources to be found within individual roadless areas. Whether this type of analysis was sufficient is arguable; however, it is certainly more likely to be appropriate where the scope of the action is so immense.

²³ See 40 C.F.R. § 1508.25(c); Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 350-51 (1989) (internal quotation omitted) (NEPA requires that federal agencies take a ‘hard look’ at the environmental consequences of their proposed actions.).

²⁴ 40 C.F.R. § 1502.15.

²⁵ This is not to say that all impacts will be limited to the North Fork Valley. For example, climate impacts from coal combustion will occur at a global as well as a local level.

However, this broad, vague analysis is neither appropriate nor sufficient where the area is much smaller (as with the coal mine exception), and the location and types of impacts (50-90 miles of road, 600 methane drainage wells within a 19,600-acre area) have been identified.

Therefore, the supplemental EIS must disclose the values and resources present within the three roadless areas that are slated for significant bulldozing, and must make reasonable projections about what those impacts will be. The Forest Service thus cannot rely on the Colorado Roadless Rule Final EIS's vague analysis to address the very specific location and impacts at issue in the coal mine exception. Courts have held that "general statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided." Neighbors of Cuddy Mountain v. United States Forest Service, 137 F.3d 1372, 1380 (9th Cir. 1998) (citations omitted). Here, more definitive information about the lands at risk and the potential impacts to those lands could be provided in the form of maps and narrative describing the wildlife values, vegetation types, soils, water courses and wetlands within the discrete areas likely to face bulldozing.

It would be in error for the Forest Service to rely on the Final EIS because using data from this large, 4.6 million acre-baseline would impermissibly minimize the impacts to local resources, including wildlife, on the 19,600 acres of the coal mine exception area. See Pac. Coast Fed'n of Fishermen's Ass'ns v. Nat'l Marine Fisheries Serv., 265 F.3d 1028, 1035-37 (9th Cir.2001) (holding that an agency cannot try to "minimize" the environmental impact of an activity by simply adopting a scale of analysis so broad that it marginalizes the site-level impact of the activity on ecosystem health).

Courts may permit agencies to rely on a prior EIS or to tier to programmatic documents to avoid repeating analysis of broad-scale impacts. See 40 C.F.R. § 1508.28 (tiering is appropriate for referencing general discussions in larger impacts statements in subsequent narrower statements). But tiering has limits. And those limits are stretched beyond the breaking point when agencies attempt to rely on a broadly programmatic EIS to address actions that have more focused, foreseeable impacts. See Natural Res. Def. Council, Inc. v. Morton, 388 F. Supp. 829, 840 (D.D.C. 1974) aff'd, 527 F.2d 1386 (D.C. Cir. 1976) and aff'd sub nom. Appeal of Pac. Legal Found., 527 F.2d 1386 (D.C. Cir. 1976) (holding that BLM programmatic statement alone, "unrelated to individual geographic conditions, does not permit the finely tuned and systematic balancing analysis mandated by NEPA.") (citations omitted); Blue Mountains Biodiversity Project v. Blackwood, 161 F.3d 1208, 1213 (9th Cir. 1998) (holding that the Forest Service must prepare site-specific statement for logging project and road building after fire destroyed portions of forest and could not rely on water impacts analysis of logging and road building in programmatic EIS). Here, the more focused impacts that will occur as a result of the narrowly focused coal mine exception forbid the Forest Service from merely relying on the general analysis in the Colorado Roadless Rule Final EIS.

Supporting the need for more detailed analysis of the roadless areas that will suffer damage as a result of the coal mine exception is the fact that there is virtually no data concerning the three roadless areas at issue (aside from their location) in the Colorado Roadless Rule Final EIS. But NEPA requires the action agency to set an appropriate baseline detailing the nature and extent of the resources in the area. See Council on Environmental Quality, Considering Cumulative Effects under the National Environmental Policy Act 41 (May 11, 1999) ("The concept of a

baseline against which to compare predictions of the effects of the proposed action and reasonable alternatives is critical to the NEPA process.”); Half Moon Bay Fishermans’ Mktg. Ass’n v. Carlucci, 857 F.2d 505, 510 (9th Cir. 1988) (“Without establishing . . . baseline conditions . . . there is simply no way to determine what effect [an action] will have on the environment and, consequently, no way to comply with NEPA.”).

The Forest Service cannot allege that the virtual absence of analysis in the Colorado Roadless Rule Final EIS concerning the values of the three roadless areas at issue in this rulemaking are sufficient to comply with NEPA for the coal mine exception. Once an agency sets an appropriate baseline, the agency must address impacts of the proposed action and alternatives. Certainly, impacts to resources from coal mining and road-building are “reasonably foreseeable” impacts of the exemption, given that bulldozing will impact specific vegetation types, soil types, sub-watersheds, wildlife areas, and the like. The Forest Service cannot dismiss these impacts as too speculative, given that the purpose of the proposed action is to open up these three specific areas to the construction of roads and drilling pads. “[A]ssessment of all ‘reasonably foreseeable’ impacts must occur at the earliest practicable point.” New Mexico ex rel. Richardson v. Bureau of Land Mgmt., 565 F.3d 683, 718 (10th Cir. 2009). “Reasonable forecasting and speculation is . . . implicit in NEPA” and courts “reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as a ‘crystal ball inquiry.’” Scientists’ Inst. for Pub. Info. v. Atomic Energy Comm’n, 481 F.2d 1079, 1092 (D.C. Cir. 1973). When an agency is aware of past energy exploration and development, can estimate the quantity of minerals available, the rate of extraction, the number and size of mines, the location of surface disturbance, and the types of activities that would accompany exploration and mining, the agency has enough information to engage in thorough impacts analysis. See Colo. Env’tl. Coal. v. Office of Legacy Mgmt., 819 F. Supp. 2d 1193, 1209 (D. Colo. 2011); see also New Mexico ex rel. Richardson, 565 F.3d at 718 (impacts of fluid mineral leasing reasonably foreseeable when agency knows the available supply and is aware of the production levels of nearby wells). This is exactly the type of information that the Forest Service already has with respect to potential impacts to the 19,600-acre area the proposed action would open to coal mine road construction.

The Forest Service, for this supplemental EIS, must provide detailed data and maps of the three roadless areas at stake, including information and maps describing: surface and ground water quality, hydrology, influences of past mining, wildlife habitat, endangered species habitat, vegetation, and any other appropriate baseline data. It must then carefully analyze the impacts that the drill pad and road construction made foreseeable by the coal mine exception (and any reasonable alternatives) would have to those resources. Examples of specific issues the supplemental EIS must address follow.

1. The Supplemental EIS Must Analyze And Disclose Impacts To Water Resources.

The Colorado Roadless Rule Final EIS’s analysis of water resources provides an example of the lack of necessary analysis in that EIS and the need for additional analysis in the coal mine exception supplemental EIS. While the Final EIS emphasized that healthy water resources are

an important feature of roadless areas that must be protected,²⁶ and while the need to protect drinking water and fish and wildlife habitats was an important part of the originally-stated “purpose and need” for the CRR,²⁷ the Forest Service provided virtually no information concerning the location of critical watersheds, potentially impacted streams, or important fish habitat. For example, the Final EIS never identified the location and number of wetlands, instead reaching the general and unhelpful conclusion that “all alternatives could result in some wetlands impacts,” without further discussion. CRR Final FEIS at 120. Instead, the Final EIS stated that the scope of the analysis, which included millions of acres of land and multiple proposed actions, was too broad to catalog specific water resources. *Id.* at 50-52 (responding to comments seeking expanded and more detailed impacts analysis of impacts to water resources by stating that this analysis is inappropriate at the programmatic stage). Instead of addressing potential impacts to water resources, the Colorado Roadless Rule Final EIS instead (arguably improperly) deferred consideration of impacts to water resources to later analysis. CRR Final EIS at Appx. H, p. 38.

Such an approach is unsupportable in the context of the supplemental EIS. The coal mine exception covers a much more discrete area, covering less than 1% of the roadless lands originally addressed in the Colorado Roadless Rule Final EIS. The agency knows generally where the roads to the drill pads and drill pads themselves will be located. This would allow the Forest Service to evaluate the reasonably foreseeable impacts of the coal mine exception to water resources in the area. *See Colo. Envtl. Coal. v. Office of Legacy Mgmt.*, 819 F. Supp. 2d at 1209; *New Mexico ex rel. Richardson*, 565 F.3d at 718.

2. The Supplemental EIS Must Analyze And Disclose Impacts To Wildlife.

In addition, the Colorado Roadless Rule Final EIS also contains virtually no data about potential impacts to wildlife from the construction of at least 50 miles of road construction and 600 methane drainage pads across 19,600 acres of biologically and topographically diverse roadless lands. The Forest Service itself has acknowledged that all three of the Colorado Roadless Areas (Sunset, Flatirons, and Pilot Knob) that sit in the cross-hairs of the proposed coal mine exception have important wildlife values, as described below.²⁸

²⁶ *See, e.g.*, CRR Final FEIS at 4-5 (listing high quality waters, public drinking water sources, aquatic and riparian wildlife habitats, and unique wetland complexes as among the nine roadless area characteristics that must be protected); *id.* at Appendix H, p. 50 (“The conservation of Colorado’s water resources for beneficial uses under the Clean Water Act is integral to the purpose and need for this rule.”);

²⁷ *See* Special Areas; Roadless Area Conservation; Applicability to the National Forests in Colorado, 77 Fed. Reg. 39,576-01 (July 3, 2012) (“Colorado Roadless Rule”).

²⁸ U.S. Forest Service, Profiles of Grand Mesa, Uncompahgre and Gunnison National Forests Roadless Areas (July 23, 2008), attached as Ex. 17, available at http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5056407.pdf (last viewed May 22, 2015).

Sunset Roadless Area:

This area provides summer range for elk, mule deer, black bear, and mountain lion. Lynx habitat has been mapped in this CRA. This CRA is adjacent to the West Elk Wilderness, a Mandatory Class I airshed as designated by Congress and listed in the Clean Air Act. The lands directly adjacent to the Wilderness boundary offer a high degree of naturalness. The Deep Creek Slide area exhibits a striking geologic feature. Opportunities for remoteness and solitude are present in the vicinity of the wilderness boundary. The terrain is rugged.²⁹

Flatirons Roadless Area:

The CRA is a fall concentration area for black bear due to the abundant oak mast. This area provides calving areas, summer range, and winter range for elk. Mule deer also summer in this area. The forested areas have been mapped as lynx habitat. This CRA provides habitat for sensitive species that key into oak, like Lewis' woodpecker. This CRA is north of the West Elk Wilderness, a Mandatory Class I airshed as designated by Congress and listed in the Clean Air Act.³⁰

Pilot Knob Roadless Area:

This area provides summer range for mule deer, black bear, mountain lion, and elk. It also provides calving areas and winter range for elk. Moose overall habitat also exists in this area. Lynx habitat has been mapped in this area. Bald eagle winter range extends into this area from the North Fork of the Gunnison River drainage. Aspen dependent sensitive species such as the Northern goshawk, purple martin, flammulated owl, and the American marten have suitable habitat within this CRA.³¹

The impacts on these resources from road and drill pad construction would be significant. However, it is important to note that no NEPA document has addressed these values in the context of the potential impacts of the coal mine exception. The Colorado Roadless Rule Final EIS offers no site-specific information on the wildlife and habitat values of the affected roadless areas in the North Fork Coal Mining Area. The above descriptions from a 2008 Forest Service draft document, while generally helpful, do not constitute an adequate baseline description of the area. The Forest Service must remedy this flaw in the supplemental EIS by fully disclosing the wildlife values found in the affected environment.

Without such baseline wildlife data, the agency will be unable to understand the effects of the exception or to craft stipulations to protect these values. The Gunnison National Forest's 32-year old forest plan is woefully out of date and cannot be relied upon for accurate wildlife data for the affected environment. General assessments undertaken by the agency in the abandoned 2008 Forest Plan revision process are similarly not sufficient. Only with accurate baseline data

²⁹ Id. at 44.

³⁰ Id. at 23.

³¹ Id. at 39.

specific to the North Fork Coal Mining Area will the Forest Service be able to effectively determine what resources may be impacted by the decades-long development that is proposed.

In 2011, the U.S. Court of Appeals for the Ninth Circuit in Northern Plains Resource Council v. Tongue River Railroad addressed the duty of federal agencies to gather “baseline data” about wildlife species during the NEPA process.³² The court ruled that mitigation measures are not a sufficient substitute or “proxy” for gathering baseline data. The court also found that “[r]eliance on data that is too stale to carry the weight assigned to it may be arbitrary and capricious.”³³ Like the agency in Northern Plains, the Forest Service here cannot to rely on old and generalized wildlife data in considering the proposed coal mine exception.

In sum, in its analysis of the coal mine exception, the supplemental EIS must first set an appropriate scope covering the 19,600 acres in question, then provide the public with detailed information regarding the water resources, wildlife habitat, soils, and other resources in the area, and, finally, address impacts to those values and resources.

IV. THE SUPPLEMENTAL EIS MUST ADDRESS SIGNIFICANT NEW INFORMATION CONCERNING THE IMPACTS OF THE PROPOSED ACTION.

A. NEPA Requires Agencies To Disclose Significant New Information In A Supplemental EIS.

CEQ regulations require an agency to prepare a supplemental EIS in one of two cases: 1) if the agency “makes substantial changes in the proposed action that are relevant to environmental concerns,” or 2) if “[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.” 40 C.F.R. § 1502.9 (emphasis added).

Accordingly, “[a]n agency’s NEPA duties do not end when it completes its initial environmental analysis and approves a federal project.” Southern Utah Wilderness Alliance v. Norton, 457 F.Supp.2d 1253, 1264 (D. Utah 2006). “It would be incongruous with . . . the Act’s manifest concern with preventing uninformed action, for the blinders to adverse environmental effects, once unequivocally removed, to be restored prior to the completion of agency action simply because the relevant proposal has received initial approval.” Marsh v. Oregon National Resources Council, 490 U.S. 360, 371 (1989).(internal citations omitted).

Agencies must take a “hard look” at any new information or circumstances and assess whether supplementation might be necessary. Marsh, at 385 (“[R]egardless of its eventual assessment of the significance of this [new] information, the [agency] had a duty to take a hard look at the proffered evidence.”).

³² Northern Plains Resource Council v. Tongue River Railroad, 668 F.3d 1067, 1083-85 (9th Cir. 2011).

³³ Id. at 1086.

Courts have found that a variety of circumstances require the preparation of supplemental EISs. For example, new information and circumstances regarding the cost/benefit analysis of a proposed action have been held to trigger the supplemental EIS requirement. Sierra Club v. Froehlke, 816 F.2d 205, 210 (5th Cir. 1987) (new information or circumstances “need not be strictly environmental, however; the test is whether the new information so alters the project’s character that a new hard-look at the environmental consequences is necessary.”) (internal citations omitted) (emphasis original) (citing Wisconsin v. Weinberger, 745 F.2d 412, 418 (7th Cir. 1984)); NRDC v. Lujan, 768 F. Supp. 870 (D.D.C. 1991) (finding that new information regarding an increase in likelihood of finding and amount of oil to be found in Alaska required a supplemental EIS). New information related to wildlife potentially affected by the agency action can also trigger the requirement to supplement NEPA analysis. See Native Ecosystems Council v. Tidwell, 599 F.3d 926, 937 (9th Cir. 2010) (requiring NEPA supplementation where based on new information concerning the status of sage grouse in the project area); Friends of the Clearwater v. Dombek, 222 F.3d 552, 559 (9th Cir. 2000) (finding Forest Service violated NEPA by failing to adequately consider new information on old growth forests and the listing of seven new sensitive species). New information concerning the roadless values of an area has also necessitated a supplemental EIS. S. Utah Wilderness Alliance v. Norton, 457 F. Supp. 2d 1253, 1264-65 (D. Utah 2006) aff’d in part, appeal dismissed in part sub nom. S. Utah Wilderness Alliance v. Kempthorne, 525 F.3d 966 (10th Cir. 2008).

Here, the Forest Service properly concluded that it must prepare a supplemental EIS if it is to attempt to revive the coal mine exception to the Colorado Roadless Rule, a conclusion compelled by the U.S. District Court’s ruling in High Country Conservation Advocates v. United States Forest Serv., 52 F. Supp. 3d 1174 (D. Colo. 2014). The High Country court held that the Forest Service’s analysis of the Colorado Roadless Rule coal mine exception violated NEPA by:

- failing to quantify projected greenhouse gas (GHG) emissions likely to occur from additional coal mining as a result of implementing the coal mine exception’s goal: prolonging the life of coal mines in the North Fork Valley. Id. at 1195-96.
- failing to disclose the GHG emissions resulting from combustion of North Fork Valley coal made available as a result of implementing the coal mine exception’s goal. Id. at 1196-98.
- failing to respond to the expert report of Dr. Thomas Power concerning the GHG emissions likely to occur as a result of both mining and combustion, which critiqued the Forest Service’s assumption that there would be no climate pollution from paving the way for the removal of nearly 350 million tons of coal because coal consumers would simply find other coal at the very same price elsewhere (the “perfect substitution” myth). Id. at 1198.

Because the Forest Service cannot reinstate the coal mine exception without analyzing and addressing all three of these issues, and because such analysis will disclose significant new information concerning the exception’s impacts, the agency must prepare a supplemental EIS that addresses each of these factors.

Further, the Forest Service has an obligation to address other significant new information that has become available since the Colorado Roadless Rule Final EIS was completed in May 2012.³⁴ Other significant new information includes, but is not limited to: data about the pace and impacts of climate change and the need to limit fossil fuel combustion; data about the importance of protecting roadless habitat; changed circumstances concerning local, national, and international coal markets; and data concerning wildlife.

B. The Supplemental EIS Must Disclose The Quantity Of Projected Greenhouse Gas Emissions From Coal Mining.

The Forest Service must ensure that the supplemental EIS quantifies all GHG emissions from the process of mining, including, but not limited to:

- Pollution from methane drainage well (MDW) venting
- Pollution from the mine's ventilation system
- Pollution from all fixed engines or facilities at the mine portal (including coal washing facilities, conveyance systems, etc.)
- Pollution from vehicle engines and heavy equipment used on-site (including for construction and maintenance of methane drainage vents)
- Pollution from vehicle used to commute to the mines
- Pollution from use of diesel engines (mobile and non-mobile), including for vehicles, loading/unloading equipment, coal washing, etc.
- Pollution attributable to electricity needed to run mine operations.

The supplemental EIS should address climate pollution from all greenhouse gases (GHGs), not just methane. For example, one constituent of pollution from MDW venting is carbon dioxide (CO₂).³⁵ CO₂ is also produced by vehicles and heavy equipment used to mine coal, maintain roads, construct MDW pads, drill MDWs, etc.

With respect to pollution vented from MDWs, we understand that the Mine Safety Health Administration (MSHA) requires that each mine prepare reports on the volume of methane emitted daily. Coal mines in the North Fork also are required to self-report GHG pollution

³⁴ CRR Final EIS (May 2012) at cover page.

³⁵ Analysis provided by the West Elk mine to BLM illustrate that greenhouse gas pollutants from methane drainage wells include CO₂ as well as methane. See West Elk Mine, E Seam Gathering Options (Sep. 2009) at 15 (gas analysis at West Elk mine shows CO₂ is 1.7% of emissions from E Seam methane drainage emissions), attached as Ex. 18. See also Forest Service, Final Environmental Impact Statement, Federal Coal Lease Modifications COC-1362 & COC-67232 (Aug. 2012) ("Lease Mods. Final EIS") at 75 (analysis shows CO₂ comprises 1.5% to 2.3% of emissions from sampled methane drainage vents), excerpts attached as Ex. 19.

volumes to the Environmental Protection Agency (EPA). See <http://ghgdata.epa.gov/ghgp/main.do>. The Forest Service can use this information to build projections of future methane emissions, including calculating the volume of methane per ton of coal mined. Dr. Power used just such data in his 2011 report on the Colorado Roadless Rule.³⁶

The Forest Service should evaluate and disclose other emissions from diesel engines that may worsen climate change, including black carbon.

The Forest Service must disclose all of these emissions because all of them are likely to continue for years or decades longer if the coal mine exception is adopted.

C. The Supplemental EIS Must Disclose The Quantity Of Projected Climate Pollution From Coal Combustion.

1. The Supplemental EIS Must Estimate The Quantity Of Coal Made Available By The Coal Mine Exception.

To quantify the greenhouse gas pollutants attributable to the coal mine exception, the Forest Service must first project the volume of coal that the exception would make available that otherwise would remain in the ground. In doing so, the Forest Service must use a consistent, rational methodology that is supported by evidence in the record. This methodology must also be made public.

The Colorado Roadless Rule Final EIS estimates that the coal mine exception would make accessible 504 million tons of coal, as opposed to 157 million tons under the national 2001 Roadless Rule. CRR Final EIS at 81. Thus the coal mine exception would make available an additional 347 million tons of coal compared to the national Rule. The Forest Service must revisit these estimates for several reasons. First, the baseline for analysis has changed. The supplemental EIS must examine the difference between the Colorado Rule with and without the exception. Because the lands protected by the national 2001 Roadless Rule and the Colorado Rule differ, the difference between the volume of coal made available by the coal mine exception is likely to be different from the figures in the Colorado Rule Final EIS. Second, the fact that 500 acres have been added to the coal mine exception may also change the production of coal made available.

In addition, the Forest Service must justify the basis it provided for predicting the volume of coal underground. The Forest Service, in a “Specialist’s Report” on coal, explains:

Coal resource quantities were estimated using the Bureau of Land Management approach of multiplying the number of acres by 1830 tons of coal/acre, then by 20 feet to account for multiple mineable seams of coal to give an estimation of in-

³⁶ T. Power. Power Consulting, Greenhouse Gas Implications of Changes in North Fork Valley, CO, Coal Mining (July 2011), attached as Ex. 20.

place reserves. Recoverable reserves were then estimated by taking 50 percent of the in-place result.³⁷

This methodology was apparently recommended by a BLM mining engineer to the Forest Service in a 2008 phone call.³⁸ Because this analysis is based on a rough formula more than seven years ago, the Forest Service should revisit it to ensure that it represents reasonable forecasting for coal volumes. This is especially so because a February 2015 document obtained through BLM via the Freedom of Information Act seems to contain a different formula for recoverable coal. That document estimates recoverable tons based on a different predicted thickness (10 feet) and a different estimate of recoverability (60%).³⁹ A BLM estimate of coal within the Sunset Roadless Area, and within an area to be made available for road construction by the coal mine exception, used yet a different set of numbers, these based specifically on the coal seam to be mined and historic data from previous mining of the same seam. There, BLM estimated a seam thickness of 10.9 feet and a recovery rate of 65%.⁴⁰ This estimate covers 1,720 acres of the North Fork coal mine exception area.

Whatever formula the Forest Service uses should be disclosed to the public, rationally based, supported by evidence in the record, and tailored where possible to data previously garnered for the seam(s) and mine in question.⁴¹ Further, we suggest that it may be most reasonable for the Forest Service to provide to the public a high and low estimate to address any uncertainty about the amount of recoverable coal.

Further, in the interest of clarity and public disclosure, we request that the supplemental EIS address the volume of estimated coal within each individual roadless area. This will ensure that the public understands the trade-offs between mining one area versus leaving it free of road and MDW disturbance.

³⁷ L. Mattson, Forest Service, “Colorado Roadless Rule, Specialist Report for Leasable Energy Minerals, Coal,” (Aug. 2011) at 3, attached as Ex. 21.

³⁸ L. Mattson, Forest Service, Notes of Conversation (Apr. 24, 2008) (recounting recommendations of BLM mining engineer Desty Dyer), attached as Ex. 22.

³⁹ BLM, North Fork Coal Exception [sic] Area (NFE) within CRR Federal Coal Leases (Feb. 5, 2015) (“RECOVERABLE TONS based on 10' mining horizon, 84lbs/cu-ft coal density, and 60% recovery.”), attached as Ex. 23.

⁴⁰ D. Dyer, BLM, Combined Geologic And Engineering Report (GER) And Maximum Economic Recovery Report (MER) For Coal Lease Modifications (COC1362 & COC67232) (Dec. 17, 2010) at 5 (“The average mineable thickness for the E-Seam reserve is 10.9 feet.”), attached as Ex. 24; *id.* at 6 (“The total recovery within the 09MOD [Lease Modifications within the coal mine exception are] should approximate the current recovery of existing mining operations demonstrated to be 65% in the adjacent federal lease.”)

⁴¹ We note Arch Coal likely has specific data concerning the extent and number of commercially viable coal seams in the Flatirons Roadless Area, because it drilled numerous exploration wells in an adjacent to the area in the 1990s.

Finally, the formula used by the Forest Service appears to omit coal that is inaccessible on private lands and existing leases, but that will be made available for mining if the coal mine exception is adopted. For example, the Lease Modifications EIS (Aug. 2012) discloses that 5.6 million tons of private coal, and 3.3 million tons of coal on existing leases would otherwise be bypassed were it not for leasing made possible by the coal mine exception.⁴² It is unclear whether other similar areas of private or public coal exist. The supplemental EIS must address this and any other instance where inaccessible coal outside of unleased roadless lands is made available by the coal mine exception.

2. The Supplemental EIS Must Estimate The Quantity Of Climate Pollution From Combustion Of Coal Made Available By The Coal Mine Exception.

With an estimate of the additional amount of coal that the coal mine exception will make available for mining, the Forest Service can, and must as required by the High Country decision, quantify the projected additional climate pollution that combustion of the coal will cause. Coal mining inevitably leads to coal combustion; there is no other commercial use for thermal coal. The High Country court properly held that the Forest Service's analysis was arbitrary because the agency carefully and in minute detail quantitatively disclosed the employment and economic impacts of the additional coal mining the coal mine exception would cause but undertook only the most grossly qualitative analysis of climate pollution.

The easiest way for the Forest Service to disclose the impacts of coal combustion is to perform the analysis the agency performed in the Lease Modifications Final EIS. That analysis looked at the efficiency of various power plants where West Elk coal was likely to be burned and concluded that burning the 6.5 million tons of coal annually mined at West Elk would result in between 18.2 million and 20.6 million tons per year of CO₂ pollution.⁴³ Applying the lowest estimate (18.2 million tons per year), West Elk coal is estimated to produce 2.8 tons of CO₂ per ton of coal. If, as the Colorado Roadless Rule estimated, the coal mine exception will result in an additional 347 million tons of coal mined, then this analysis would conclude that the coal mine exception would result in an additional 972 million tons of CO₂ pollution from combustion over the life of the exception. This figure does not include CO₂ pollution from methane drainage wells, mining, transportation, and other sources related to mining.

This analysis of CO₂ emissions from coal combustion is likely to produce estimates on the high end because it does not account for the market impacts of substitution. That is, if coal from the North Fork Valley is unavailable to coal consumers, they may seek other sources of coal rather than not combusting the amount of coal available from the North Fork. But this substitution will not be perfect, and the Forest Service cannot assume that it will be, as the High Country decision makes clear. High Country Conservation Advocates, 52 F. Supp. 3d at 1197 ("I cannot make sense of [the Forest Service's perfect substitution] argument, and I am persuaded by an opinion

⁴² Lease Modifications Final EIS (Ex. 19) at 51.

⁴³ Id. at 51 (assuming coal production rate at West Elk of 6.5 million tons per year); id. at 80, Table 3.3k (estimating millions of tons per year of CO₂ emissions from combustion of West Elk mine coal).

from the Court of Appeals for the Eighth Circuit that rejected a nearly identical agency justification for not analyzing the future effects of coal combustion”).

Economic models exist that can assist the Forest Service in calculating the climate pollution implications of decisions that will make more or less coal available on the U.S. market. Any such model should, at a minimum, have the following characteristics:

- The ability to estimate greenhouse gas emissions with a high enough precision to differentiate between emissions output from a ‘reference scenario’ and an adjusted scenario where coal from individual mines are removed or added to the baseline scenario;
- The ability to differentiate between coal with different properties both in supply and end user;
- The ability to accurately account for changes in delivered coal prices, including changes in mine-mouth prices and transportation costs;
- The ability to accurately account for price elasticity between supply and demand;
- The ability to account for emissions reduction through fuel switching inherent in our current electric economy;
- The ability to account for coal mine methane emissions; and
- Be transparent and independently verifiable.

The attached report of Dr. Thomas M. Power, Donovan S. Power, and Dr. Joel M. Brown describes their evaluation of several models, and, based on these factors, their recommendation that the Forest Service utilize the National Energy Modeling System (NEMS) developed by the Energy Information Administration.⁴⁴ Dr. Power’s report also specifically recommends against the Forest Service utilizing the Integrated Planning Model (IPM) because that model lacks transparency (Dr. Power describes it as “essentially a ‘black box’”), and because it fails to account for elasticity inherent in the energy economy.⁴⁵ We urge the Forest Service to carefully review Dr. Power’s report before choosing a method for evaluating the greenhouse gas emissions likely to result from a Forest Service decision to make available additional hundreds of millions of tons of coal through the coal mine exception.

Additionally, the Forest Service must analyze the greenhouse gas emissions associated with transporting North Fork Valley coal. Not only are transportation-related greenhouse gas emissions foreseeable and quantifiable, other federal agencies evaluating coal mine expansions have calculated transportation GHGs as part of their NEPA reviews. For example, in evaluating

⁴⁴ Dr. T. M. Power *et al.*, *Assessing the Ability of Contemporary Models to Calculate the GHG Implications of Federal Coal Leasing Decisions and Other Federal Energy Management Decisions* (May 2015), attached as Ex. 25 (“2015 Power Report”).

⁴⁵ *Id.* at 46-48.

a proposed expansion of the Bull Mountain underground coal mine in Montana, the federal Office of Surface Mining quantified direct CO₂ emissions from mining, indirect CO₂ emissions during coal combustion, and GHGs emitted during transporting coal to U.S. and overseas end users.⁴⁶ In evaluating the proposed coal mine exception, the Forest Service must analyze and disclose the pollution impacts (both GHG and otherwise) of transporting North Fork Valley coal to the domestic and any international end users.⁴⁷

Further, the supplemental EIS must address the climate impacts of vegetation removal; that is, of paving the way for hundreds of acres of forest removal for roads and MDW pads. As the Under Secretary of Agriculture for Natural Resources and the Environment Robert Bonnie has stated:

development of forest lands is reducing the amount of carbon we can absorb now and in the future. Carbon pollution is also taking a toll on our forests – heat waves, wildfires, pests and drought are all worsened by climate change, reducing our forests’ ability to sequester carbon.⁴⁸

The proposed action will both remove mature aspen forest and worsen climate pollution. As noted above, the Colorado Roadless Rule Final EIS must be updated with respect to habitat removal because: (1) it failed to address the impacts of removing vegetation for roads; (2) it was based on erroneous assumptions concerning the extent of clearing per drilling pad, as subsequent environmental impact statements and inspections demonstrate; (3) it does not address the additional 500 acres of roadless land that will be subject to the coal mine exception. The supplemental EIS must qualitatively and quantitatively describe the climate impacts of

⁴⁶ Office of Surface Mining, Bull Mountain Mine No. 1 Mining Plan Modification Environmental Assessment at 4-4 (Jan. 2015), available at <http://www.wrcc.osmre.gov/initiatives/bullMountainsMine/BullMountainsMineEA.pdf> (last viewed May 22, 2015).

⁴⁷ The supplemental EIS should also address non-climate related impacts to communities of increased and/or prolonged coal transportation. BLM has sufficient data from EIA regarding the end users of coal generated in the North Fork Valley to analyze likely transportation impacts, and it could secure any necessary additional information from the mining companies themselves as part of the NEPA process. *See, e.g.*, 2015 Power Report (noting that EIA information documents that North Fork Valley mines ship coal to 24 domestic power plants). Numerous studies have raised concerns about the health impacts from coal train traffic, including the effects of the air pollution from the diesel engines (particulate matter, ozone, and mercury), the impacts of coal dust from the open-top coal cars, the impacts of noise pollution and vibrations, the potential danger of derailments, fires, congestion along railways, and collisions, and impacts to emergency services due to delays at rail crossings. *See, e.g.*, Western Organization of Resource Councils, Heavy Traffic Still Ahead, (Feb. 2014), attached as Ex. 26, available at <http://heavytrafficahead.org/pdf/Heavy-Traffic-Still-Ahead-web.pdf> (last viewed May 22, 2015).

⁴⁸ R. Bonnie & A. Castle, Our Forests and Climate Change (Sep. 12, 2013), attached as Ex. 27, available at <https://www.whitehouse.gov/blog/2013/09/12/our-forests-and-climate-change> (last viewed May 22, 2015).

clearcutting and removing hundreds of acres of aspen and spruce-fir forests, and other vegetation which likely act as carbon sinks.⁴⁹

D. The Supplemental EIS Must Disclose The Impacts Of Climate Pollution On The Environment.

Quantifying the amount of additional emissions that result from adopting the coal mine exception will not, by itself, disclose the impacts of those emissions on the environment. However, there is at least one tool available that addresses the environmental and financial impacts of adding a tin of carbon to the atmosphere: the federal interagency social cost of carbon protocol.

The social cost of carbon protocol for assessing climate impacts is a method for estimating the damages associated with a small increase in CO₂ emissions, conventionally one metric ton, in a given year and represents the value of damages avoided for a small emission reduction (i.e. the benefit of a CO₂ reduction).⁵⁰ It is intended to include changes in net agricultural productivity, human health, property damages, and the value of ecosystem services, all of which climate change can degrade.⁵¹ As such, the social cost of carbon includes not only socioeconomic harm but also harm to the environment. The protocol was developed by a working group consisting of a dozen federal agencies, including the U.S. Department of Agriculture, with the primary aim of implementing Executive Order 12866, which requires that the costs and benefits of proposed regulations be taken into account.

The Interagency Working Group's protocol was published in 2010.⁵² It was then revised and updated in 2013.⁵³ The social cost of carbon protocol includes a range of values for the cost of

⁴⁹ See, e.g., W. Chen et al., Effects of climatic variability on the annual carbon sequestration by a boreal aspen forest, *Global Change Biology* (1999) (concluding old aspen forests are "strong carbon sink[s]"), attached as Ex. 28, available at http://research.eeescience.utoledo.edu/lees/papers_pdf/Chen_1999_GCB.pdf (last viewed May 22, 2015).

⁵⁰ U.S. Environmental Protection Agency ("EPA"), "Fact Sheet: Social Cost of Carbon" (Nov. 2013) at 1, attached as Ex. 29, available at <http://www.epa.gov/climatechange/Downloads/EPAactivities/scc-fact-sheet.pdf> (last viewed May 22, 2015).

⁵¹ Interagency Working Group on Social Cost of Carbon, "Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866" (Feb. 2010), attached as Ex. 30, available at <https://www.whitehouse.gov/sites/default/files/omb/inforeg/for-agencies/Social-Cost-of-Carbon-for-RIA.pdf> (last viewed April 22, 2015); see also Cass R. Sunstein, *The Real World of Cost-Benefit Analysis: Thirty-Six Questions (and Almost as Many Answers)*, 114 *Colum. L. Rev.* 167, 171-73 (Jan. 2014) (describing origins of interagency agreement on the social cost of carbon).

⁵² Interagency Working Group on Social Cost of Carbon (Feb. 2010) (Ex. 30) at 1.

⁵³ Interagency Working Group on Social Cost of Carbon, "Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive

each additional ton of carbon, based on varying discount rates. In this way, the protocol addresses uncertainty by providing a range of values to assess the cost of carbon.⁵⁴

Depending on the discount rate and the year during which the carbon emissions are produced, the Interagency Working Group estimates the cost of carbon emissions, and therefore the benefits of reducing carbon emissions, to range from \$11 to \$220 per metric ton of carbon dioxide. In July 2014, the U.S. Government Accountability Office (“GAO”) confirmed that the Interagency Working Group’s estimates were based on sound procedures and methodology.⁵⁵

The interagency social cost of carbon protocol was developed to assist in agencies understanding the costs and benefits of rulemakings. It is thus appropriate to apply the social cost of carbon in disclosing the impacts of this rulemaking.

Further, the social cost of carbon has been recommended or utilized in the NEPA process to evaluate the impacts of project-level decisions. For example, the EPA recommended that an EIS prepared by the U.S. Department of State for the proposed Keystone XL oil pipeline include “an estimate of the ‘social cost of carbon’ associated with potential increases of GHG emissions.”⁵⁶ In addition, BLM, the agency tasked with leasing federal coal, has also utilized the social cost of carbon protocol. In recent Environmental Assessments for oil and gas leasing in Montana, the agency estimated “the annual SCC [social cost of carbon] associated with potential development on lease sale parcels.”⁵⁷ In conducting its analysis, the BLM used a “3 percent average discount rate and year 2020 values,” presuming social costs of carbon to be \$46 per metric ton.⁵⁸ Based on its estimate of greenhouse gas emissions, the agency estimated total carbon costs to be “\$38,499 (in 2011 dollars).”⁵⁹ In Idaho, the BLM also utilized the social cost of carbon protocol

Order 12866” (May 2013), attached as Ex. 31, available at https://www.whitehouse.gov/sites/default/files/omb/inforeg/social_cost_of_carbon_for_ria_2013_update.pdf (last viewed May 22, 2015).

⁵⁴ Interagency Working Group (2010) (Ex. 30) at 1 (“The main objective of this process was to develop a range of SCC [social cost of carbon] values using a defensible set of input assumptions grounded in the existing scientific and economic literatures. In this way, key uncertainties and model differences transparently and consistently inform the range of SCC estimates”)

⁵⁵ General Accounting Office, “Regulatory Impact Analysis, Development of Social Cost of Carbon Estimates,” GAO-14-663 (July 2014), attached as Ex. 32, available at <http://www.gao.gov/assets/670/665016.pdf> (last viewed May 22, 2015).

⁵⁶ EPA, Comments on Supplemental Draft EIS for the Keystone XL Oil Pipeline (June 6, 2011) attached as Ex. 33.

⁵⁷ BLM, “Environmental Assessment for October 21, 2014 Oil and Gas lease Sale,” DOI-BLM-MT-0010-2014-0011-EA (May 19, 2014) at 76, excerpts attached as Ex. 34, available at [http://www.blm.gov/style/medialib/blm/mt/blm_programs/energy/oil_and_gas/leasing/lease_sale/2014/oct_21_2014/july23posting.Par.25990.File.dat/MCFO%20EA%20October%202014%20Sale_Post%20with%20Sale%20\(1\).pdf](http://www.blm.gov/style/medialib/blm/mt/blm_programs/energy/oil_and_gas/leasing/lease_sale/2014/oct_21_2014/july23posting.Par.25990.File.dat/MCFO%20EA%20October%202014%20Sale_Post%20with%20Sale%20(1).pdf) (last viewed May 22, 2015).

⁵⁸ Id.

⁵⁹ Id.

to analyze and assess the costs of oil and gas leasing. Using a 3% average discount rate and year 2020 values, the agency estimated the cost of carbon to be \$51 per ton of annual CO₂e increase.⁶⁰ Based on this estimate, the agency estimated the total carbon cost of developing 25 wells on five lease parcels to be \$3.7 million annually.⁶¹

The social cost of carbon is a simple tool that is easy for federal agencies to use and easy for the public to understand. Putting a dollar figure on each ton of CO₂ emitted as a result of a federal project places climate impacts in a context that both decision makers and the public can readily comprehend. It is backed by years of peer reviewed scientific and economic research, it is designed to be updated to reflect the most current information, and it has already been used by federal agencies in both rulemaking decisions and project-level reviews under NEPA. Therefore, the Forest Service should use the social cost of carbon to disclose the impacts of the coal mine exception in the supplemental EIS pursuant to NEPA, not just as part of the regulatory impact analysis.⁶²

It is important to note that the social cost of carbon protocol presents a conservative estimate of damages associated with the environmental impacts climate change. As the EPA has noted, the protocol “does not currently include all important [climate change] damages.”⁶³

The models used to develop [social cost of carbon] estimates do not currently include all of the important physical, ecological, and economic impacts of climate change recognized in the climate change literature because of a lack of precise information on the nature of damages and because the science incorporated into these models naturally lags behind the most recent research.⁶⁴

Scientific reviews have similarly concluded that the interagency social cost of carbon estimates do not account for, or poorly quantify, certain impacts, suggesting that the estimated values are conservative and should be viewed as a lower bound.⁶⁵ Recent studies have reported

⁶⁰ BLM, “Little Willow Creek Protective Oil and Gas Leasing,” EA No. DOI-BLM-ID-B010-2014-0036-EA (February 10, 2015) at 81, excerpts attached as Ex. 35, available at https://www.blm.gov/epl-front-office/projects/nepa/39064/55133/59825/DOI-BLM-ID-B010-2014-0036-EA_UPDATED_02272015.pdf (last viewed May 22, 2015). This is not to endorse as complete either the Little Willow EA analysis or the Montana lease sale analysis.

⁶¹ Id. at 83.

⁶² For more on the utility and necessity of using the social cost of carbon in NEPA analysis, see letter of Center for Biological Diversity et al. to Council on Environmental Quality (Mar. 25, 2015) at 4-10, attached as Ex. 36; N. Shoaff & M. Salmon, Sierra Club, “Incorporating the Social Cost of Carbon into National Environmental Policy Act Reviews for Federal Coal Leasing Decisions,” (April 2015), attached as Ex. 37.

⁶³ EPA, “Fact Sheet: Social Cost of Carbon” (Ex. 29).

⁶⁴ Id.

⁶⁵ See Peter Howard, et al., Environmental Defense Fund, Institute For Policy Integrity, Natural Resources Defense Council, OMITTED DAMAGES: WHAT’S MISSING FROM THE SOCIAL COST OF

significantly higher carbon costs. For instance, a report published in January 2015 found that current estimates for the social cost of carbon should be increased six times for a mid-range value of \$220 per ton.⁶⁶ In spite of uncertainty and likely underestimation of carbon costs, nevertheless, “the SCC is a useful measure to assess the benefits of CO2 reductions,” and thus a useful measure to assess the costs of CO2 increases.⁶⁷

That the impacts of climate change, as reflected by an assessment of social cost of carbon, should be a significant consideration in agency decisionmaking, is emphasized by a recent White House report, which warned that delaying carbon reductions would yield significant economic costs.⁶⁸ As the report states:

[D]elaying action to limit the effects of climate change is costly. Because CO2 accumulates in the atmosphere, delaying action increases CO2 concentrations. Thus, if a policy delay leads to higher ultimate CO2 concentrations, that delay produces persistent economic damages that arise from higher temperatures and higher CO2 concentrations. Alternatively, if a delayed policy still aims to hit a given climate target, such as limiting CO2 concentration to given level, then that delay means that the policy, when implemented, must be more stringent and thus more costly in subsequent years. In either case, delay is costly.⁶⁹

The requirement to analyze the social cost of carbon is supported by the general requirements of NEPA, specifically supported in federal case law, and by Executive Order 13514.

To this end, courts have ordered agencies to assess the social cost of carbon pollution, even before a federal protocol for such analysis was adopted. In 2008, the U.S. Court of Appeals for

CARBON, (March 13, 2014) (providing, for example, that damages such as “increases in forced migration, social and political conflict, and violence; weather variability and extreme weather events; and declining growth rates” are either missing or poorly quantified in SCC models), attached as Ex. 38; Frank Ackerman & Elizabeth A. Stanton, CLIMATE RISKS AND CARBON PRICES: REVISING THE SOCIAL COST OF CARBON (2010), attached as Ex. 39 (concluding that the 2010 Interagency social cost of carbon “omits many of the biggest risks associated with climate change, and downplays the impact of current emissions on future generations,” and suggesting that the social cost of carbon should be almost \$900 per ton of carbon); Frances C. Moore and Delavane B. Diaz, Temperature impacts on economic growth warrant stringent mitigation policy, NATURE CLIMATE CHANGE (Jan. 12, 2015), attached as Ex. 40 (identifying a central value of \$220 for one ton of additional CO2e).

⁶⁶ See Moore & Diaz, Temperature impacts on economic growth (Ex. 40) at 2.

⁶⁷ EPA, Fact Sheet: Social Cost of Carbon (Ex. 29).

⁶⁸ Executive Office of the President of the United States, Council of Economic Advisers, “The Cost of Delaying Action to Stem Climate Change” (July 2014), attached as Ex. 41, available at https://www.whitehouse.gov/sites/default/files/docs/the_cost_of_delaying_action_to_stem_climate_change.pdf (last viewed May 22, 2015).

⁶⁹ *Id.* at 1.

the Ninth Circuit ordered the National Highway Traffic Safety Administration to include a monetized benefit for carbon emissions reductions in an Environmental Assessment prepared under NEPA. Center for Biological Diversity v. National Highway Traffic Safety Administration, 538 F.3d 1172, 1203 (9th Cir. 2008). The Highway Traffic Safety Administration had proposed a rule setting corporate average fuel economy standards for light trucks. A number of states and public interest groups challenged the rule for, among other things, failing to monetize the benefits that would accrue from a decision that led to lower carbon dioxide emissions. The Administration had monetized the employment and sales impacts of the proposed action. Id. at 1199. The agency argued, however, that valuing the costs of carbon emissions was too uncertain. Id. at 1200. The court found this argument to be arbitrary and capricious. Id. The court noted that while estimates of the value of carbon emissions reductions occupied a wide range of values, the correct value was certainly not zero. Id. It further noted that other benefits, while also uncertain, were monetized by the agency. Id. at 1202.

More recently, the High Country court reach the same conclusion for a federally approved coal lease. That court began its analysis by recognizing that a monetary cost-benefit analysis is not universally required by NEPA. High Country Conservation Advocates, 52 F. Supp. 3d at 1182, citing 40 C.F.R. § 1502.23. However, when an agency prepares a cost-benefit analysis, “it cannot be misleading.” Id. (citations omitted). In that case, the NEPA analysis included a quantification of benefits of the project. However, the quantification of the social cost of carbon, although included in earlier analyses, was omitted in the final NEPA analysis. Id. at 1190-91. The agencies then relied on the stated benefits of the project to justify project approval. This, the court explained, was arbitrary and capricious. Id. at 1191. Such approval was based on a NEPA analysis with misleading economic assumptions, an approach long disallowed by courts throughout the country. Id. at 1191-92.

For all of these reasons, the Forest Service must include the social cost of carbon in its supplemental EIS as a way of disclosing the scope and nature of climate pollution impacts – including but not limited to the increase in climate pollution from coal combustion – on the human environment.⁷⁰

Further, where that pollution is methane, the Forest Service should use multipliers that reflect the latest science concerning the short- and long-term impacts of methane pollution. In 2014, the IPCC calculated the global warming potential of one ton of methane as 34 times that of one ton of CO₂ on a 100-year time scale (up from 25 in IPCC’s Fourth Assessment Report (“AR4”) from 2007) and 86 times that of one ton of CO₂ on a 20-year time scale (up from 72 in AR4).⁷¹

⁷⁰ Draft guidance from the Council on Environmental Quality fails to properly address the social cost of carbon. See letter of Center for Biological Diversity (Mar. 25, 2015) (Ex. 36) at 4-10. However, even CEQ’s draft guidance recognizes that where an agency chooses to disclose the economic and financial benefits of an action – as the Forest Service did in the Colorado Roadless Rule Final EIS at 315-327, the social cost of carbon represents an appropriate tool to disclose the costs of the agency’s action, including the social cost of carbon. See 79 Fed. Reg. 77,802, 77,827 (Dec. 24, 2014).

⁷¹ IPCC, Climate Change 2013: The Physical Science Basis, Ch. 8- Anthropogenic and Natural Radiative Forcing (2013), at 714, available at <http://www.ipcc.ch/pdf/assessment->

Because methane remains in the atmosphere for an average of 8 to 12 years, the 20-year figure is the most relevant.⁷²

These multipliers, however, will not likely capture the full social cost of methane pollution. The Interagency Working Group developed the federal SCC values to assess the social impacts of CO₂ emissions in particular, not all GHGs. Advocates have urged federal policymakers to develop similar social cost frameworks for other GHGs, but no such efforts have yet been undertaken by the government. The need for a comprehensive social cost analysis for non-CO₂ GHGs is especially pressing in the case of methane, which is the second largest driver of climate change in terms of overall emissions and is associated with many projects that entail federal action. Until the federal government develops a social cost of methane estimate, we urge CEQ to instruct agencies to consider and address the available research on this topic when performing NEPA reviews for projects that may result in methane emissions. Notably, in 2012, EPA economists Alex L. Marten and Stephen C. Newbold published a peer-reviewed analysis estimating the social cost of methane at a range of \$450 to \$2,300 per metric ton in 2015.⁷³ The study authors largely followed the methodology used by the Interagency Working Group to estimate the SCC, and their results should serve as a starting point for any climate impact analysis involving methane emissions. However, in light of developments following the publication of the Marten and Newbold paper (namely, the IPCC's upward revision of the radiative forcing capacity of methane⁷⁴ and methodological changes adopted in 2013⁷⁵ by the Interagency Working Group that increased the SCC estimates), the Marten and Newbold study would yield a much greater social cost of methane if repeated today. The supplemental EIS should address the findings of the Marten and Newbold paper (and any other relevant research) while acknowledging that it significantly underestimates the true social cost of methane.

[report/ar5/wg1/WG1AR5_Chapter08_FINAL.pdf](#) (last viewed May 22, 2015). The methane multipliers include climate-carbon feedbacks (cc fb) in response to methane emissions. Id.

⁷² These figures for methane's global warming potential are more recent and more defensible than those used in, for example, AECOM's "Technical Reference Document for the Colorado Underground Coal Mine Emission Inventory Tool," which assumes a global warming potential for methane of just 21. See AECOM's "Technical Reference Document for the Colorado Underground Coal Mine Emission Inventory Tool," (Oct. 2012) at 2-12, attached as Ex. 42.

⁷³ See Marten, A.L., and Newbold, S.C., Estimating the social cost of non-CO₂ GHG emissions: Methane and nitrous oxide, 51 Energy Policy 957 (2012), attached as Ex. 43. available online as EPA Working Paper No. 11-10 at [http://yosemite.epa.gov/ee/epa/eed.nsf/ec2c5e0aaed27ec385256b330056025c/f7c9fc6133698cc38525782b00556de1/\\$FILE/2011-01v2.pdf](http://yosemite.epa.gov/ee/epa/eed.nsf/ec2c5e0aaed27ec385256b330056025c/f7c9fc6133698cc38525782b00556de1/$FILE/2011-01v2.pdf) (last viewed May 22, 2015). See id. at 18.

⁷⁴ See supra, note 71.

⁷⁵ See generally Interagency Working Group (2013) (Ex. 31).

E. The Supplemental EIS Must Address Significant New Information Concerning Climate Change.

Since completion of the Colorado Roadless Rule Final EIS in May 2012, a plethora of new studies have confirmed and deepened scientific knowledge about the nature and consequences of climate change. Further, new studies demonstrate that the need to keep the vast majority of the world's known reserves of fossil fuels in the ground if the planet is to avoid warming so severe as to have significant damage consequences for all life, including human life. The significant threat posed by climate change undermines the purpose and need of the proposed action, which is to unlock yet more coal for combustion and to prolong the life of coal mines in the North Fork Valley, which will feed our dependence on fossil fuels and add to climate pollution for decades to come.

First, an increasing body of scientific literature indicates that to avoid the worst consequences of climate change, the vast majority of fossil fuel reserves must stay in the ground. As part of its consideration of a rule that would make hundreds of millions of tons of federally-owned coal available for mining and combustion, the Forest Service must inform the public and decisionmakers of the dramatic reductions in GHGs that are required to avert global catastrophe. Recent scholarship affirms the urgency of keeping fossil fuels in the ground in order to avert the worst harms from climate change. For example, a recent peer-reviewed article published in the prestigious research journal *Nature* concluded that if we are to keep climate change below dangerous levels – 80 percent of global coal reserves, half of all oil reserves, and a third of oil reserves must stay in the ground through 2050.⁷⁶ The United States must leave between 92% and 95% of its coal reserves in the ground.⁷⁷ As President Obama affirmed recently, “climate change can no longer be denied – or ignored.”⁷⁸

Notably, there is international consensus that in order to avoid the worst impacts of climate change, global temperature increases must not exceed 2°C above preindustrial temperatures.⁷⁹

⁷⁶ Christophe McGlade & Paul Ekins, *The Geographical Distribution of Fossil Fuels Unused When Limiting Global Warming to 2 [deg] C*, NATURE Vol. 517, pp. 187-190 (Jan. 7, 2015), attached as Ex. 44, summary available at <http://www.nature.com/nature/journal/v517/n7533/full/nature14016.html> (last viewed May 22, 2015).

⁷⁷ *Id.* at 189, Table 1.

⁷⁸ Barack Obama, President of the United States, Weekly Address (Apr. 18, 2015), attached as Ex. 45, available at <https://www.whitehouse.gov/the-press-office/2015/04/17/weekly-address-climate-change-can-no-longer-be-ignored-0> (last viewed May 22, 2015).

⁷⁹ Copenhagen Accord, ¶ 1 (Dec. 18, 2009) (“To achieve the ultimate objective of the Convention to stabilize greenhouse gas concentration in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system, we shall, recognizing the scientific view that the increase in global temperature should be below 2 degrees Celsius, on the basis of equity and in the context of sustainable development, enhance our long-term cooperative action to combat climate change.”)

To meet this threshold of safety, “deep cuts in global emissions are required.”⁸⁰ In order to have better than even odds of meeting this target “cumulative CO₂ emissions from all anthropogenic sources [must] stay between ... 0 and 1000 GtC.... An amount of 531 [446 to 616] GtC, was already emitted by 2011.”⁸¹ This means that for the rest of century all nations on the planet can only emit approximately 470 GtC.⁸² To meet this limit, “between two-thirds and four-fifths of the planet’s reserves of coal, oil, and gas” need to stay in the ground.⁸³ However, if unabated, “[b]urning all fossil fuels would produce a different, virtually uninhabitable, planet.”⁸⁴ A proposal to unlock 347 million tons of coal must be viewed in this context. Indeed, the purpose and need for this proposal is questionable given the dire consequences of “business as usual” with respect to coal mining and combustion.

Other studies and reports that the supplemental EIS must address to understand the proposed action in the context of climate change include:

- the 2013 update of the Interagency Working Group on the social cost of carbon.⁸⁵ This update increased the federal government’s estimate of the costs of each additional ton of climate pollution, indicating both that our understanding of the costs of climate change has improved, and that the cost of climate pollution – by constraining our ability to enjoy a livable planet – is increasing.
- The International Panel on Climate Change (IPCC) Fifth Assessment, completed in 2014, which provides additional evidence of the harms that are occurring and are likely to result from climate change.⁸⁶
- The 2014 National Climate Assessment, which details the threat climate change poses to water resources in the American Southwest (including Colorado) and concludes that the

⁸⁰ Id. ¶ 2.

⁸¹ IPCC, Working Group I Contribution to the IPCC Fifth Assessment Report: Climate Change 2013: the Physical Science Basis: Summary for Policy Makers (2013).

⁸² Stated in terms of GtCO₂, the remaining budget is approximately 1900. IPCC, Climate Change 2014: Synthesis Report (2014) at 8.

⁸³ Bill McKibben, *Global Warming’s Terrifying New Math*, Rolling Stone (Aug. 2, 2012), attached as Ex. 46; Bill McKibben, *Obama and Climate Change: The Real Story* (Dec. 17, 2013), attached as Ex. 47.

⁸⁴ Hansen, et al., *Climate Sensitivity, Sea Level and Atmospheric Carbon Dioxide*, 371 Phil. Trans. R. Soc’y (2013); see also Global Carbon Project, Global Carbon Budget 2014 (Sept. 14, 2014).

⁸⁵ See Interagency Working Group (2013) (Ex. 31).

⁸⁶ See IPCC Fifth Assessment report webpage <https://www.ipcc.ch/report/ar5/> (last viewed May 22, 2015); see also IPCC, Climate Change 2014 Synthesis Report, Summary for Policymakers (2014), attached as Ex. 48, available at https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf (last viewed May 22, 2014)

elderly, children, the poor and the sick are all more vulnerable to climate change-related health impacts.⁸⁷

- EPA's 2015 report detailing the latest information on U.S. anthropogenic greenhouse gas emission trends from 1990 through 2013.⁸⁸
- Two papers from late 2012 authored by Hansen *et al.* demonstrating the link between anthropogenic climate change and extreme weather events, including extreme heat and drought.⁸⁹
- A 2014 report detailing the risks to business of existing, continued and worsening climate change.⁹⁰
- Two recent U.S. Department of Agriculture initiatives that respond to the threat of climate change.⁹¹ Adopting the coal mine exception will undermine these initiatives by worsening climate change.
- A recent speech by Secretary of the Interior Jewell in which she stated that the "federal coal program needs reform" and asked "[h]ow do we manage the [federal coal] program

⁸⁷ J. M. Melillo *et al.*, eds., *Climate Change Impacts in the United States: The Third National Climate Assessment*, U.S. Global Change Research Program (2014), excerpts attached as Ex. 49, available at nca2014.globalchange.gov (last viewed May 22, 2015).

⁸⁸ U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2013* (Apr. 2015), excerpts attached as Ex. 50, available at <http://www.epa.gov/climatechange/ghgemissions/usinventoryreport.html> (last viewed May 22, 2015).

⁸⁹ J. Hansen *et al.*, *Perceptions of Climate Change*, *Proceedings of the National Academy of Science* (Sep. 11, 2012), attached as Ex. 51; J. Hansen *et al.*, *Increasing Climate Extremes and the New Climate Dice* (Aug. 10, 2012), attached as Ex. 52.

⁹⁰ K. Gordon, *Risky Business: The Economic Risks of Climate Change* (2014), attached as Ex. 53.

⁹¹ See U.S. Dep't of Agriculture, *Fact Sheet, USDA's Building Blocks for Climate Smart Agriculture & Forestry*, Fact Sheet, available at <http://www.usda.gov/documents/climate-smart-fact-sheet.pdf>, (last viewed May 22, 2015) (describing an April 23, 2015 "plan to help farmers, ranchers, and forest land owners respond to climate change. The framework consists of ten building blocks that span a range of technologies and practices to reduce greenhouse gas emissions, increase carbon storage, and generate clean renewable energy."); U.S. Dep't of Agriculture, *Secretary Vilsack Announces Regional Hubs to Help Agriculture, Forestry Mitigate the Impacts of a Changing Climate* (Feb. 5, 2014), available at <http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=2014/02/0016.xml> (last viewed May 22, 2015) (describing a Feb. 5, 2014 climate initiative to "address increasing risks such as fires, invasive pests, devastating floods, and crippling droughts on a regional basis, aiming to translate science and research into information to farmers, ranchers, and forest landowners on ways to adapt and adjust their resource management").

in a way that is consistent with our climate change objectives?”⁹² This question is of paramount importance for the supplemental EIS, because the proposed action will pave the way for mining and combustion of so many millions of tons of federal coal, in addition to releasing millions of cubic feet each day of methane.

The supplemental EIS must address all of these studies and reports, and any other relevant data developed since May 2012 in order to address new information relevant to the science and impacts of climate change.

The supplemental EIS must also analyze whether the proposed coal road exception would interfere with efforts to meet federal greenhouse gas emission reduction targets recently established by President Obama. As explained by the Council on Environmental Quality in its recent Draft Climate Guidance, federal agencies evaluating the climate impacts of their decisions should “incorporate by reference applicable agency emissions targets such as applicable Federal, state, tribal, or local goals for GHG emission reductions to provide a frame of reference and make it clear whether the emissions being discussed are consistent with such goals.”⁹³

In particular, the Forest Service must address whether the proposed exemption, and the additional coal combustion it facilitates, are in line with the goals of President Obama’s Clean Power Plan. The Clean Power Plan calls for reducing power sector emissions to 30 percent below 2005 levels by 2030.⁹⁴ Additionally, in November 2014 the President announced a joint U.S.-China agreement aimed at reducing climate pollution that calls for even more aggressively cutting net greenhouse gas emissions to 26-28 percent below 2005 levels by 2025.⁹⁵

As part of its analysis, the Forest Service should disclose to the public the clearly competing interests at stake: one the one hand, meeting these national climate emission reduction targets set by the President; and on the other, the fact that reinstating the proposed coal road exemption will likely benefit only a single coal company.

F. The Supplemental EIS Must Address Significant New Information Concerning Emissions Of Volatile Organic Compounds From MDWs.

⁹² Sally Jewell, Secretary of the Interior, Address at the Center for Strategic and International Studies (Mar. 17, 2015) at 5, attached as Ex. 54, available at <http://www.doi.gov/news/speeches/loader.cfm?csModule=security/getfile&pageid=1014220>, (last viewed May 22, 2015).

⁹³ Council on Environmental Quality, “Revised Draft Guidance on the Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews,” 79 Fed. Reg. 77,802, 77,826 (Dec. 24, 2014).

⁹⁴ EPA, Fact Sheet, Clean Power Plan (2014), attached as Ex. 55.

⁹⁵ White House Fact Sheet, U.S.-China Joint Announcement on Climate Change and Clean Energy Cooperation (November 11, 2014), attached as Ex. 56, available at <https://www.whitehouse.gov/the-press-office/2014/11/11/us-china-joint-announcement-climate-change>, (last viewed May 22, 2015).

New data made available since publication of the Colorado Roadless Rule Final EIS indicates that venting from MDWs at each of the three coal mines in the North Fork Valley may release significant amounts of volatile organic compounds (VOCs).

VOC emissions are a significant concern because atmospheric VOCs and nitrogen oxides react in the presence of sunlight to form ozone pollution (smog).⁹⁶ Ground-level ozone poses a threat to public health.⁹⁷ Under Clean Air Act regulations, VOCs include “any compound of carbon,” including propane, pentane, butane, hexane and benzene. 40 C.F.R. § 51.100 (s)(1).

The Colorado Roadless Rule Final EIS fails to even mention the potential for the coal mine exception to permit the continuation of VOC emissions. CRR Final EIS at 129-30 (mentioning VOCs only as a potential pollutant from coal combustion). However, since the preparation of the Final EIS, new information has surfaced indicating that VOC emissions are a significant issue and that these emissions at both Oxbow’s Elk Creek mine and Arch’s West Elk mine are in violation of Colorado air quality regulations.

In June of 2009, an analysis of mine ventilation emissions was prepared for Arch Coal and revealed that the ratio of regulated VOC emissions to methane emissions was around 0.007 (low value of 0.007677 and a high value of 0.007913).⁹⁸ Subsequent analysis of ventilation emissions at the Elk Creek mine conducted in February and August of 2014 found the ratio of regulated VOC emissions to methane emissions to average 0.005216 and 0.006048, respectively.⁹⁹ Although the ratio of VOC/methane is low, because of the high quantity of methane releases, the total VOC emissions have the potential to be significant.

Recognizing this, the Colorado Air Pollution Control Division calculated the likely VOC emissions from several Colorado mines, including West Elk and Elk Creek. Based on total methane emissions reported to the EPA in 2012, the Division estimated that total VOC emissions from West Elk and Elk Creek were as high as 321 and 408 tons/year, respectively, and that emissions exceeded several permitting thresholds, including state construction permitting thresholds (5 tons/year), Clean Air Act Title V Operating Permit thresholds (100 tons/year), and Prevention of Significant Deterioration (PSD) thresholds (250 tons/year).¹⁰⁰ The table and chart

⁹⁶ See Lease Mods FEIS (Ex. 19) at 57 (FSLeasing-46776 at 46854).

⁹⁷ Id. at 58 (FSLeasing-46776 at 46855) (“Ozone in the lower atmosphere is harmful to human health”). See also EPA, Final Rule, National Ambient Air Quality Standards for Ozone, 73 Fed. Reg. 16,436, 16,436 (Mar. 27, 2008) (describing “an array ... adverse health effects” from ozone pollution).

⁹⁸ See West Elk Mine, E Seam Gathering Options (Ex. 18) at 25 (setting forth gas component analysis for two MDWs).

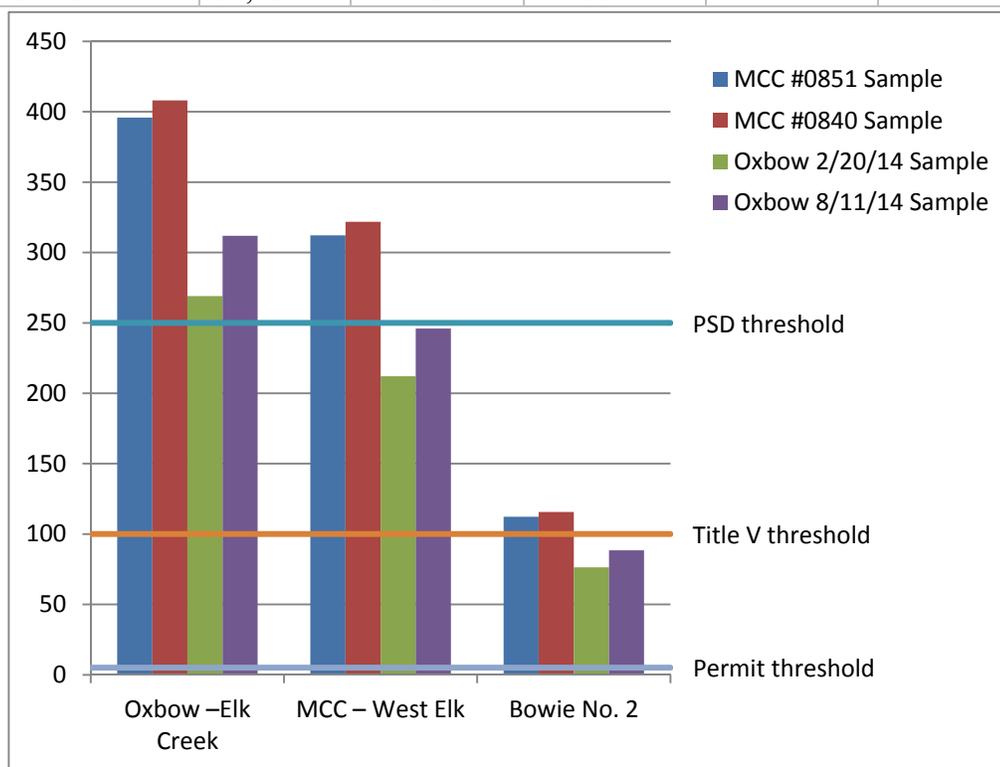
⁹⁹ See Gas Sample Analysis, Oxbow Elk Creek Mine, attached as Ex. 57 (setting forth analysis of gas samples from generator inlets at Elk Creek mine).

¹⁰⁰ See e-mail of B. Cappa, Air Pollution Control Division to P. Carr, Air Pollution Control Division, “Recent Oxbow Gas Analysis and Mine VOC Summary” (Aug. 7, 2014), attached as Ex. 58 (transmitting “Coal Mine VOC Gas Analysis Calculations 8/6/2014” and “MCC and Vessels Gas Analyses Reports”); see also “Coal Mine VOC Gas Analysis Calculations 9/2/2014”

below show the Division’s analyses of the North Fork coal mines and comparisons with regulatory thresholds.¹⁰¹

Estimated VOC emissions using 2012 CH₄ data (in US short tons/year)

	2012 Total Methane reported to EPA	VOC by #0851 ratio (0.007677)	VOC by #0840 ratio (0.007913)	VOC by 2/20/14 Oxbow Avg ratio (0.005216)	VOC by 8/11/14 Oxbow Avg ratio (0.006048)
Oxbow –Elk Creek	51,574.5	395.9	408.1	269.0	311.9
MCC – West Elk	40,672.4	312.2	321.8	212.1	246.0
Bowie No. 2	14,623.5	112.3	115.7	76.3	88.4



Even using 2013 methane emissions data reported to the EPA by the coal companies, total VOC emissions from the Elk Creek and West Elk mines continue to exceed regulatory thresholds. At Elk Creek, emissions still are exceeding state permitting thresholds and at West Elk, emissions are still exceeding state permitting thresholds, Title V Operating Permit thresholds, and likely PSD thresholds.

(presenting updated calculations using August gas analysis data from Elk Creek mine), attached as Ex. 59.

¹⁰¹ The Division’s report was obtained by WildEarth Guardians through a Colorado Open Records Act request.

Estimated VOC emissions using 2013 CH₄ data (in US short tons):

	2013 Total Methane reported to EPA	VOC by #0851 ratio (0.007677)	VOC by #0840 ratio (0.007913)	VOC by 2/20/14 Oxbow Avg ratio (0.005216)	VOC by 8/11/14 Oxbow Avg ratio (0.006048)
Oxbow –Elk Creek	3,779.0	29.0	29.9	19.7	22.9
MCC – West Elk	33,119.1	254.3	262.1	172.7	200.3
Bowie No. 2	12,934.2	99.3	102.3	67.5	78.2

In spite of this, neither Arch nor Oxbow have applied for and obtained state construction permits, or any necessary Title V Operating Permit or PSD permit under the Clean Air Act. Recognizing this, the Colorado Air Pollution Control Division has recommended enforcement actions be undertaken at both the West Elk and Elk Creek mines. For instance, in an Inspection Report for the Elk Creek Mine dated November 26, 2012, the Division noted violations related to the mine ventilation shafts and blower systems, stating:

[T]he Division is comfortable making the determination that the mine Ventilation Shaft #1 and #2 emit VOCs far above the 2 tpy APEN-reporting threshold. These emissions have not been reported to the Division, and a request for permit modification should have been made, thus violating Condition 12.d, as well as AQCC Regulation 3, Part A, Section II.A. Enforcement action is recommended to address this violation.¹⁰²

Although the state has not undertaken an enforcement action to date, this does not mean that the mines are not releasing VOC emissions, posing potentially significant air quality impacts, or that the West Elk and Elk Creek mines are not violating Colorado air quality rules.

In light of this, it is crucial that the supplemental EIS fully analyze and assess the extent and significance of current VOC emissions from the West Elk and Elk Creek mines and analyze and assess the VOC emissions that would be released as a result of any future mining in the North Fork Coal Area. To this end, the supplemental EIS must also fully analyze and assess to what extent that these coal mine VOC emissions affect air quality in the area, particularly in the context of ozone concentrations.

Further, the supplemental EIS must fully analyze and assess to what extent the West Elk and Elk Creek mines are complying with state air quality rules. Under the Clean Air Act, federal agencies must ensure their actions comply with “all Federal, State, interstate, and local requirements, administrative authority, and process and sanctions respecting the control and abatement of air pollution[.]” 42 U.S.C. § 7418(a). If approval of additional mining in the North Fork Coal Area would pave the way for mining that would not comply with state air quality rules, then the Forest Service would have to disapprove such mining.

¹⁰² See Air Pollution Control Division, “Field Inspection Report, Oxbow Mining-LLC Elk Creek Mine” (Nov. 20, 2012) at 21, attached as Ex. 60; see also Air Pollution Control Division, “Field Inspection Report, Mountain Coal Co-LLC West Elk Mine” (April. 4, 2013), attached as Ex. 61.

G. The Supplemental EIS Must Address Significant New Information Concerning Coal, Jobs, And Royalties.

Since the Colorado Roadless Rule Final EIS was completed in 2012, there have been significant changes in international, national, and regional coal markets. The supplemental EIS must address these changes.

1. Demand For Coal Is Declining.

The purpose and need for this proposal are undermined by the fact that coal markets are in distress due to weak demand and competition with cheaper natural gas, which is also cleaner burning. Major private investors have recently announced that investments in coal are a dead end.¹⁰³ A recent report by Goldman Sachs sums up the current and projected state of the coal industry:

Thermal coal has enjoyed a long period of strong demand growth but in our view the next 10 years will not be as benign

Earning a return on incremental investment in thermal coal mining and infrastructure capacity is becoming increasingly difficult. Mines are long-lived assets with a long payback period, while thermal coal is a geographically abundant resource in an industry with relatively low barriers to entry. As coal demand becomes increasingly constrained, the competition among suppliers is likely to intensify. The change in outlook is reflected in the way diversified mining companies are reallocating their capital towards more attractive sectors.¹⁰⁴

Among the reasons behind the impending obsolescence of coal are: (1) decreasing acceptance of pollution from coal and, accordingly, increased regulation of coal pollution; (2) increased competition from other energy sources, such as renewables and natural gas; and (3) increases in energy efficiency.¹⁰⁵ A chief reason for the decreased social acceptance of coal is that its externalities—i.e., costs borne by society which are not included in the purchase price of coal—are tremendous, amounting annually to hundreds of billions of dollars in the United States alone.¹⁰⁶ As society has become better able to recognize and calculate these costs that are being

¹⁰³ E.g., Anthony Yuen, *The Unimaginable: Peak Coal in China*, Citi Research (Sept. 4, 2013) (attached as Ex. 62) (explaining expected decrease in coal consumption in China and global ripple effects); Bernstein Research, *Asian Coal and Power: Less, Less, Less . . . The Beginning of the End of Coal* (June 2013) (attached as Ex. 63).

¹⁰⁴ Christian Lelong et al., Goldman Sachs, *Rocks & Ores, The Window for Thermal Coal Investment Is Closing* (July 24, 2013) at 3 (attached as Ex. 64).

¹⁰⁵ Id. at 20-29.

¹⁰⁶ National Research Council, *Hidden Costs of Energy* (2010); Nicholas Z. Muller et al., *Environmental Accounting for Pollution in the United States Economy* 101 *Am. Economic Review* 1649 (2011) (cost of economic harm from coal vastly exceeds market value generated by coal); Ben Machol & Sarah Razk, *Economic Value of U.S. Fossil Fuel Electricity Health Impacts* 52 *Env't Int'l* 75 (2013) (fossil fuel generation costs nation \$361-886 billion annually in

forced upon it, there has been an ever-growing rejection of coal as a legitimate energy source. Stock value of coal companies is plummeting; stock in Peabody, the largest private sector coal company, has been reduced dramatically.¹⁰⁷ Bankruptcy seems probable for some (e.g., Arch Coal).¹⁰⁸

Information from the Energy Information Administration corroborates that the demand for coal and coal markets in general are very different than they were in 2009. In 2012 the Colorado Roadless Rule Final EIS relied on EIA's 2009 Annual Energy Outlook for many of its assumptions and projections.¹⁰⁹ EIA recently released its 2015 Annual Energy Outlook,¹¹⁰ and the Forest Service should incorporate the updated information in this recent analysis rather than rely on the 2009 data relied on in its prior evaluation. The EIA's revised analysis presents a significantly different picture of coal's place in the U.S. energy landscape than existed in 2009. As recently confirmed by the EIA, from 2008 to 2013, U.S. coal production fell by 187 million short tons (approximately 16 percent), as declining natural gas prices made coal less competitive as a fuel for generating electricity.¹¹¹

The supplemental EIS should further note, however, that EIA projections have frequently overestimated U.S. coal production. Indeed, it is likely that the 2015 Annual Energy Outlook similarly over-projects coal consumption and production by not factoring in the pending Clean Power Plan regulations. As EIA explains, "[t]he cases presented in AEO2015 do not include EPA's proposed Clean Power Plan, which would have a material impact on projected levels of

externalized costs); Paul R. Epstein *et al.*, Full Cost Accounting for the Life Cycle of Coal 1219 *Ann. N.Y. Acad. Sci.* 73 (2011) (life cycle of costs from coal causes \$175 to \$523 billion in damages in United States annually).

¹⁰⁷ Moody's Investor Service, Moody's Downgrades Peabody to Ba2; Outlook Stable (Aug. 21, 2013), available at https://www.moodys.com/research/Moodys-downgrades-Peabody-to-Ba2-outlook-stable--PR_280688?source=email_rt_mc_body&app=n (last viewed May 22, 2015).

¹⁰⁸ Barron's, *Arch Coal Shares Could Fall to 75 Cents*, (Oct. 30, 2014), <http://online.barrons.com/articles/arch-coal-shares-could-fall-to-75-cents-1414686385> ("[R]estructuring on or before the May 16, 2018, term-loan maturity seems likely . . ."). In fact, Arch Coal's shares closed below 75 cents on May 19, 2015. *See also* Seeking Alpha, *Arch Coal: Walking Dead* (Sept. 2, 2012), attached as Ex. 65, available at <http://seekingalpha.com/article/841941-arch-coal-walking-dead> (last viewed May 22, 2015).

¹⁰⁹ *See, e.g.*, CRR Final EIS at 307 ("Production for the energy sectors within the mining industry was based on average prices for 2009 reported by . . . the Energy Information Administration (natural gas, coal), the Colorado Division of Reclamation, Mining, and Safety (coal), and the Colorado Mining Association (coal)"), 309 (numbers based on 2009 projections), 318 (same), 319 (same) 321(same), 325(same).

¹¹⁰ U.S. Energy Information Administration, *Annual Energy Outlook*, available at http://www.eia.gov/forecasts/aeo/section_energyprod.cfm (last viewed May 22, 2015).

¹¹¹ *Id.*

coal-fired generation. A separate EIA analysis of the Clean Power Plan is forthcoming.”¹¹² EIA is correct that the Clean Power Plan will likely have a significant impact on coal production. In EPA’s Regulatory Impact Analysis for the proposed Clean Power Plan, EPA estimates that under the options considered the plan will reduce coal-fired electricity generation by 16 to 22 percent in 2020 and by 25 to 27 percent in 2030.¹¹³

In his working paper, *Instrument Choice, Carbon Emissions, and Information*, Dr. Michael Wara explains that EIA’s annual energy projections have consistently overstated coal’s place in our energy mix:

[F]orecasts of emissions over the past 15 years deviate significantly from observed emissions. This deviation is due to several factors including the Great Recession, the advent of unconventional oil and gas drilling and consequent switching from higher-emitting coal to lower-emitting gas in the electricity sector, and a general decline in the energy consumption per unit of GDP in the U.S.¹¹⁴

For these reasons, the supplemental EIS must rely on the best data to evaluate the national market for coal, and the best data indicates that the national and international markets for coal is still shrinking.

2. Production And Employment At North Fork Mines Has Declined.

Reflecting wider market trends, demand for, and production of, coal in the North Fork Valley has declined since 2012, and so has mine employment. The economic assumptions of the Colorado Roadless Rule Final EIS are therefore no longer valid. The Forest Service must base its analysis of the potential impacts of reviving the coal mine exception on the current, different situation.

The Colorado Roadless Rule Final EIS’s economic analysis was based on several assumptions concerning coal markets. Most of them have proven incorrect. For example, the Economics Specialist Report, upon which the Final EIS’s analysis was based, assumed:

Current coal production levels for each mine were assumed to continue until leased reserves are exhausted. Based on remaining mine lives provided either by corporate (Arch Coal 2011; Oxbow Mining, LLC 2011) or Bureau of Land

¹¹² Id.

¹¹³ EPA, *Regulatory Impact Analysis for the Proposed Carbon Pollution , Guidelines for Existing Power Plants and Emission Standards for Modified and Reconstructed Power Plants*, 3-26 to 3-29 (June 2014) <http://www2.epa.gov/sites/production/files/2014-06/documents/20140602ria-clean-power-plan.pdf> (last viewed May 22, 2015).

¹¹⁴ Wara, Michael W., *Instrument Choice, Carbon Emissions, and Information* (July 21, 2014), available at SSRN: <http://ssrn.com/abstract=2469397> or <http://dx.doi.org/10.2139/ssrn.2469397> (last viewed May 22, 2015).

Management (BLM) sources (Dyer 2011) the Bowie mine will cease operations about 2015, Elk Creek mine about 2017, and West Elk mine about 2021.¹¹⁵

Despite these predictions: (1) the Bowie mine (unaffected by the coal mine exception) is still in operation in 2015, and it subsequently has acquired or proposed to acquire additional leases, none of them are near Forest Service roadless lands; (2) the Elk Creek mine is idle; it is unclear whether it will ever reopen (see supra at 7); and (3) the Forest Service reports that the West Elk mine currently has enough coal under lease to exploit at current production levels (5.5 million tons per year) until 2025 or 2026. See supra at 5.

More importantly, the supplemental EIS must address the fact that reviving the coal mine exception will likely benefit a single company's mine: Arch Coal's West Elk.

As maps make clear, the coal mine exception promises no benefit to Bowie Resource's #2 mine. All of Bowie's leases are north of Highway 133 and well to the east of the Pilot Knob Roadless Area. None of the known coal resources north of Bowie's current leases overlap with Forest Service roadless lands or the Pilot Knob area.¹¹⁶ Thus, whether or not the coal mine exception is adopted, Bowie is not barred from seeking coal reserves adjacent to its existing leases and mine facilities. Forest Service staff recently told Bowie that Bowie's production data is only relevant in the upcoming NEPA process for cumulative impacts purposes since the exception will not affect Bowie's operations.¹¹⁷

To the extent that the Forest Service does use data concerning Bowie's coal production, employment, royalties, etc. – something it may choose to do to address cumulative effects – the agency must use current data for Bowie, which indicates that Bowie cut production in late 2014 due to a lost contract, and that employment at Bowie has fallen 40% due to layoffs.¹¹⁸

Further, the economic analysis in the Final EIS was based largely on data from 2009.¹¹⁹ Substantial changes in the Colorado coal market – and in particular in the North Fork Valley –

¹¹⁵ M. Retzlaff, "Economics Specialist Report, Colorado Roadless Area Rulemaking," (Oct. 27, 2011) at 63, attached as Ex. 66.

¹¹⁶ See Earthjustice, Map, North Fork Coal Mine Exception Area (Ex. 4); BLM, Map, North Fork Mines (no date) (obtained from BLM through FOIA), attached as Ex. 67, showing no part of Bowie's current leases, in orange, near coal mine exception areas, outlined in red.

¹¹⁷ Email of L. Mattson, Forest Service to A. Etter, Bowie Resources (January 05, 2015 4:06 PM) ("We understand Bowie does not have leases affected by roadless area concerns"), attached as Ex. 68.

¹¹⁸ See Dennis Webb, 150 mine layoffs rock North Fork, Grand Junction Sentinel (Oct. 30, 2014), attached as Ex. 69.

¹¹⁹ M. Retzlaff, "Economics Specialist Report," (Ex. 66) at 3 ("The economic and fiscal models have been updated using ... the latest available data from Federal, state, and private sources. The most recent data year common across all data sets was 2009."); id. at 62 ("Physical production and employment for each mine in the Energy Roadless area was obtained from 2009 Monthly

have occurred since then. For example, although the proposed action would apply the coal mine exception to coal reserves in the Pilot Knob Roadless Area abutting leases mined at Oxbow’s Elk Creek mine, that mine is closed, and there appears to be little interest in reopening it. See supra at 6-7. No coal has been mined at Elk Creek since the end of December 2013. The supplemental EIS must address this change.

Because the coal mine exception will not impact Bowie at all and is unlikely to impact employment or coal production at the idle Elk Creek mine, it is likely that the coal mine exception will benefit just one mine, Arch Coal’s West Elk mine.

The closure of the Elk Creek mine has reduced the number of miners working in the two mines potentially impacted by the coal mine exception – Elk Creek and West Elk – from 671 miners in January 2012 to 361 miners in January 2015, a drop of 46%. See Table 1, below. Similar employment drops occurred in the area from 2009 levels, which was the baseline used by the Forest Service economist for use in the 2012 Final EIS.¹²⁰ Employment at all three North Fork mines fell from 983 to 559 from 2012 to 2015, a drop of 43%. See Table 1. The supplement EIS must address this significant change in employment.

TABLE 1. Employment in North Fork Valley Mines, 2009 & 2012-2015

Mine	Miners Employed, Jan. 2009	Miners Employed, Jan. 2012	Miners Employed, Jan. 2013	Miners Employed, Jan. 2014	Miners Employed, Jan. 2015	% Change, Miners Employed, 2009-2015; 2012-2015
Bowie No. 2	308	313	338	372	198	-36% (2009-15) -37% (2012-15)
Elk Creek Mine	313	320	310	12	6	-98% (2009-15); -98% (2012-15)
West Elk Mine	382	351	340	301	355	-7% (2009-15); +1% (2012-15)
<i>TOTAL, mines impacted by coal mine exception (Elk Creek & West Elk)</i>	<i>695</i>	<i>671</i>	<i>650</i>	<i>313</i>	<i>361</i>	<i>-48% (2009-15); -46% (2012-15)</i>
<i>TOTAL, all North Fork mines</i>	<i>1,003</i>	<i>983</i>	<i>988</i>	<i>685</i>	<i>559</i>	<i>-44% (2009-15) -43% (2012-15)</i>

Employment figures derived from Colorado Division of Reclamation, Mining and Safety Monthly Coal Reports, 2009-2015. Available at <http://mining.state.co.us/Reports/Reports/Pages/Coal.aspx> (last visited May 22, 2015).

Coal Detail Reports provided by the Colorado Department of Natural Resources, Division of Reclamation, Mining, and Safety.”)

¹²⁰ See id.

Coal production in the North Fork Valley also dropped since the Colorado Roadless Rule Final EIS was prepared, down 40% from 2009 levels (again, the baseline year used by the Economics Specialist),¹²¹ and nearly one-third of 2011 levels at the two mines the exception was meant to benefit, and down nearly a quarter at all three North Fork mines. See Table 2, below.

TABLE 2. Coal Produced from North Fork Valley Mines, 2009 & 2011-2014

Mine	Coal Produced, 2009 (mln tons)	Coal Produced, 2011 (mln tons)	Coal Produced, 2012 (mln tons)	Coal Produced, 2013 (mln tons)	Coal Produced, 2014 (mln tons)	% Change, Coal Produced, 2009-2014; 2011-2014
Bowie No. 2	1.2	2.24	3.43	3.32	2.41	+101% (09-14) +8% (11-14)
Elk Creek Mine	5.7	3.01	2.96	0.44	0	-100% (09-14) -100% (11-14)
West Elk Mine	4.8	6.04	6.95	6.13	6.28	+31% (09-14) +4% (11-14)
<i>TOTAL, mines impacted by coal mine exception (Elk Creek & West Elk)</i>	<i>10.5</i>	<i>9.05</i>	<i>9.91</i>	<i>6.57</i>	<i>6.28</i>	<i>-40% (09-14)</i> <i>-31% (11-14)</i>
<i>TOTAL, all North Fork mines</i>	<i>11.7</i>	<i>11.29</i>	<i>13.34</i>	<i>9.89</i>	<i>8.69</i>	<i>-26% (09-14)</i> <i>-23% (11-14)</i>

Coal production figures derived from Colorado Division of Reclamation, Mining and Safety Monthly Coal Reports, 2011-2015. Available at <http://mining.state.co.us/Reports/Reports/Pages/Coal.aspx> (last visited May 22, 2015).

The Final EIS’s analysis was further based on the assumption that “the three existing [North Fork] mines collectively produced between 10 and 15 million tons of coal per year, which accounted for about 40 percent of the coal production in Colorado.” CRR Final EIS (2012) at 70. See also CRR Final EIS at 80, Table 3-9 (assuming time to deplete mineable reserves in the 19,100-acre North Fork area at 15 million tons per year). As the table above indicates, in the last two full calendar years for which DRMS has complete information, the three North Fork Valley mines produced between 8 and 10 million tons of coal per year, far less than the amount assumed in the Colorado Roadless Rule Final EIS. Further, it is unclear why the Final EIS uses the three North Fork Valley mines as a reference for calculating the rate of mining, when only two – West Elk and Elk Creek – could possibly be impacted by the coal mine exception. Those two mines produced between 6 and 7 millions tons during 2013 and 2014, less than 30% of the total produced in Colorado.¹²²

¹²¹ Id.

¹²² Under its current air permits, the West Elk mine can remove at a maximum rate of 8 millions tons per year. In practice, it has approached that rate only several months in the past few years.

In sum, the supplemental EIS must use more up-to-date figures, and provide for a proper comparison of those mines upon which the coal mine exception can actually have an impact. Any calculation of the rate that coal reserves can be mined should be based on the rate of mining at the two mines that could possibly benefit from the coal mine exception, which would not include Bowie.

Further, the supplemental EIS must update the analysis of the potential for royalty payments, given potential new information about the volume of coal and the actual royalty rate paid by the mines at issue.

The assumption used to calculate royalties in the Colorado Roadless Rule Final EIS are not clear, although the Final EIS notes that: “[R]oyalties of 8 percent are paid on production value from Federal coal leases for underground mines.” CRR Final EIS at 311. However, actual royalty rates in Colorado – and those paid by the two mines that could take advantage of the coal mine exception – are well below 8%. According to a 2013 GAO report, completed after the Colorado Roadless Rule Final EIS, “[i]n fiscal year 2012, the effective royalty rate[]” for federal coal in Colorado was “5.6 percent.”¹²³ Further, for many current leases, the West Elk and Elk Creek mines have sought, won, and continue to seek, royalty rate reductions from 8% to 5%, and each coal mine in the North continues to seek such rate reductions.¹²⁴ In its most recent royalty rate reduction decision, BLM predicted that the conditions under which it granted the reduction to the West Elk mine “will continue to affect operations for the remainder of the mine life,” indicating that West Elk is likely to never pay the full 8% royalty rate for taxpayer-owned coal.¹²⁵ Given this new information, the Forest Service cannot assume a royalty rate of 8% in the supplemental EIS.

Further, if the Forest Service assumes that the Elk Creek mine will likely not re-open, or considers an alternative in which Pilot Knob is removed from the coal mine exception, then Gunnison County will see no tax or royalty benefits from restoring the coal mine exception due to that mine.

¹²³ General Accounting Office, Coal Leasing: BLM Could Enhance Appraisal Process, More Explicitly Consider Coal Exports, and Provide More Public Information (Dec. 2013) at 25, available at <http://www.gao.gov/assets/660/659801.pdf> (last viewed May 22, 2015), attached as Ex. 70.

¹²⁴ See letter of C. Smith, Ark land Co. to C. Beecham, BLM (Jan. 18, 2015) at 1 (West Elk mine seeks royalty rate reduction from 8% to 5% based on the fact that “the same adverse geologic conditions resulting in [BLM’s prior decision granting royalty rate reduction to 5%] ... continue to exist in areas currently being mined as well as the areas projected for future mining”), attached as Ex. 71; Colorado BLM, Decision Royalty Rate Reduction Granted (Sep. 14, 2012) (granting royalty rate reduction for coal mined in two active leases at West Elk for the period between 2010 and 2015), attached as Ex. 72; email of W. Radden-Lesage, BLM to C. Beecham, BLM (Feb. 3, 2015 09:30:02) (noting that BLM as of February 2015 had pending royalty rate reduction requests from each of the three North Fork coal mines), attached as Ex. 73.

¹²⁵ Colorado BLM, Decision Royalty Rate Reduction Granted (Sep. 14, 2012) at 2 (Ex. 71).

The supplemental EIS must also reflect the change in the coal market as it impacts reduced tax revenues and royalties due to lower production and lower coal prices. A presentation prepared by the Forest Service in late 2014 indicates that coal royalties in 2013 fell nearly 50% from those in 2012, and that royalties were “expected to decrease even further this year [2014] and more still into 2015.”¹²⁶ To the extent coal production and coal prices have declined, and that coal production is likely to continue at a reduced level for the foreseeable future, any supplemental EIS projections must address this recent trend.

H. The Supplemental EIS Must Address the Impacts of Coal Exports

Since publication of the Colorado Roadless Rule Final EIS, it has become clear that a portion of coal produced from the North Fork Valley, including the West Elk mine, is being exported overseas. The supplemental EIS must address this fact and fully analyze and assess the environmental and economic implications of coal export activities.

In 2014, a report was released detailing exports from the West Elk mine, as well as from other mining operations that rely heavily on federal coal to sustain their operations.¹²⁷ Among the details specific to the West Elk mine:

- Half of the coal mined from West Elk in 2013 was exported overseas for use as thermal coal;
- Exported coal from West Elk is shipped to Europe, Latin America, and Asia;
- Exported coal is shipped through both West Coast and Gulf Coast ports; and
- Arch hoped to export more coal overseas as port capacity expands.¹²⁸

More recently, Arch Coal confirmed the importance of exports for the viability of the West Elk mine.¹²⁹ In a first quarter 2015 earnings conference call, Arch Coal officials revealed:

¹²⁶ See Forest Service, West Elk Mine (powerpoint) (Dec. 2014) at 13, attached as Ex. 3. This document does not indicate whether the coal royalty figures reflect statewide, North Fork Valley, or West Elk specific, data.

¹²⁷ See Williams-Derry, Clark, “Unfair Market Value: By Ignoring Exports, BLM Underprices Federal Coal” (July 2014), attached as Ex. 74, available at <http://www.sightline.org/research/unfair-market-value/> (last viewed May 22, 2015).

¹²⁸ *Id.* at 10.

¹²⁹ See “Arch Coal (ACI) John W. Eaves on Q1 2015 Results – Earnings Call Transcript” (Apr. 21, 2015), available from Seeking Alpha, attached as Ex. 75, (quoting Arch executive stating: “bottom line is West Elk is always going to be a concern. It plays into the export market well, but the export market isn’t very strong right now”), available at <http://seekingalpha.com/article/3087626-arch-coal-aci-john-w-eaves-on-q1-2015-results-earnings-call-transcript> (last viewed May 22, 2015).

- Most of Arch Coal's thermal exports are coming from its western operations with the majority coming from the West Elk mine;
- According to Arch Coal, the viability of the West Elk mine is tied in part to the export markets; and
- Arch Coal hopes to export 20% of West Elk's coal in 2016.¹³⁰

In this light, it is critical that the Forest Service address the environmental and economic implications of coal exports in its supplemental EIS. This is especially true from an economic standpoint. As Arch Coal itself indicated, West Elk mining operations are dependent in part on the export market, not solely on coal availability or reserves. Thus, giving companies access to more coal does not necessarily lead to more jobs or more revenue, a potential impact that must be fully investigated by the Forest Service in its analysis.

Further, from an environmental standpoint, it is critical that the Forest Service analyze and assess all reasonably foreseeable impacts associated with coal exports. Such impacts include, but are not limited to:

- Rail-related impacts: The impacts of hauling coal from the West Elk mine to West Coast and Gulf Coast ports must be analyzed and assessed. The impacts that must be addressed include, but are not limited to: the air quality impacts of rail traffic, noise impacts of rail traffic, fish and wildlife impacts of rail traffic, and water quality impacts. Such an analysis must take into account the potential for spills and/or derailments and the impacts such events may have on land, water, fish, wildlife, and air.
- Port-related impacts: The impacts of unloading coal from trains, loading coal onto barges and/or ships, constructing and/or maintaining port facilities, and the impacts of port operations, including ship, locomotive, and/or truck operations must be analyzed and assessed. The impacts that must be addressed include, but are not limited to, the air quality impacts of all port operations, including ship, locomotive, and truck emissions, water quality impacts (including wetland impacts), and fish and wildlife impacts.
- Shipping impacts: The impacts of shipping coal, both within waters of the United States and through international waters must be addressed. The impacts that must be analyzed and assessed include air quality impacts, impacts to water quality (particularly through discharge from ships), and impacts to river and ocean species, especially species listed as threatened or endangered under the Endangered Species Act.
- Coal unloading impacts at overseas ports: Just as coal unloading and loading at American ports must be addressed, the impacts of unloading coal from ships and loading coal onto trains and/or trucks at Asian ports must be analyzed and assessed.

¹³⁰ Id. at 9 and 12.

- Coal transport overseas: The impacts of transporting coal from Asian and other ports to facilities must be analyzed and assessed. Such an analysis must analyze and assess whether the coal is hauled by rail or by truck, and analyze and assess the attendant impacts.
- Coal combustion abroad: Finally, the impacts of combusting coal from the West Elk mine must be analyzed and assessed. Such an analysis must include, but not be limited to, an analysis of the air quality impacts of coal combustion (including greenhouse gas emission impacts), water quality impacts, coal ash disposal impacts, fish and wildlife impacts, and impacts to lands.

Although the Forest Service may not have complete information available to analyze and assess these reasonably foreseeable impacts, NEPA does not allow agencies to ignore reasonably foreseeable impacts because of less than perfect data availability. In fact, NEPA requires the Forest Service to gather necessary information relevant to reasonably foreseeable impacts unless the cost of obtaining the data is exorbitant. See 40 C.F.R. § 1502.22(a). To this end, the agency must make an effort to analyze and assess these impacts and cannot simply dismiss them.

I. The Supplemental EIS Must Address Significant New Information Concerning Wildlife.

The estimated recoverable coal resources made available by the coal mine exception over and above those made available by the nation Roadless Rule is 347 million tons.¹³¹ Besides the direct and indirect impacts to wildlife from surface disturbing activities, the EIS must also disclose impacts to wildlife and habitat from burning nearly 350 million tons of coal and venting enormous amounts of methane. “The forests of the Rockies are facing a triple assault: tree-killing insects, wildfires, and heat and drought. If allowed to continue unchecked, these stresses and their impacts could fundamentally alter these forests as we know them.”¹³²

Climate change is directly and indirectly affecting the growth and productivity of forests¹³³ – directly due to changes in atmospheric carbon dioxide and climate, and indirectly through complex interactions in forest ecosystems. Climate also affects the frequency and severity of many forest disturbances.¹³⁴ In conjunction with the projected impacts of climate change, forests face impacts from land development, suppression of natural periodic forest fires, and air pollution. Although it is difficult to separate the effects of these different factors, the combined

¹³¹ CRR Final EIS at 80.

¹³² J. Funk, et al., Union of Concerned Scientists, Mountain Forests at Risk: Confronting Climate-driven Impacts from Insects, Wildfires, Heat, and Drought 1 (2014) available at <http://www.ucsusa.org/sites/default/files/attach/2014/09/Rocky-Mountain-Forests-at-Risk-Full-Report.pdf> (last viewed May 22, 2015).

¹³³ EPA, Forests, Climate Impacts on Forests, available at <http://www.epa.gov/climatechange/impacts-adaptation/forests.html#forestgrowth> (last viewed May 22, 2015).

¹³⁴ Id.

impact is already leading to changes in forests. As these changes are likely to continue in the decades ahead, some of the valuable goods and services provided by forests may be compromised.¹³⁵

These impacts and results were confirmed in the most recent IPCC Fifth Assessment Report (“IPCC Fifth Report”), which was released in 2014, after the Colorado Roadless Rule Final EIS, which noted that impacts from climate change are already occurring.

Many plant and animal species have moved their ranges, altered their abundance, and shifted their seasonal activities in response to observed climate change over recent decades (*high confidence*). They are doing so now in many regions and will continue to do so in response to projected future climate change (*high confidence*). The broad patterns of species and biome shifts toward the poles and higher in altitude in response to a warming climate are well established for periods thousands of years in the past (*very high confidence*). These general patterns of range shifts have also been observed over the last few decades in some well-studied species groups such as insects and birds and can be attributed to observed climatic changes (*high confidence*). Interactions between changing temperature, precipitation, and land use can sometimes result in range shifts that are downhill or away from the poles. Certainty regarding past species movements in response to changing climate, coupled with projections from a variety of models and studies, provides high confidence that such species movements will be the norm with continued warming.¹³⁶

The IPCC Fifth Report noted that under all climate change scenarios for the 21st century it expects with “high confidence” that we will see: (1) community composition changes due to reduced abundance of some species and increases of others, and (2) differing changes in the seasonal activity of many species, which will disrupt life cycles and interactions between species.¹³⁷

These composition and seasonal changes will both alter ecosystem function.¹³⁸ Regarding terrestrial and freshwater aquatic ecosystems, the IPCC Fifth Report specifically noted that:

Climate change is projected to be a powerful stressor on terrestrial and freshwater ecosystems in the second half of the 21st century, especially under high-warming

¹³⁵ See id.

¹³⁶ J. Scholes, et al., Climate Changes 2014: Impacts, Adaptation, and Vulnerability, Part A.: Global and Sectoral Aspects, Contribution of Working Group II to Fifth Assessment Report of the Intergovernmental Plan on Climate Change, Chapter 4: Terrestrial and Inland Water Systems 274 (2014) available at https://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-Chap4_FINAL.pdf (last viewed May 22, 2015) (hereinafter “IPCC Fifth Assessment Chapter 4”).

¹³⁷ Id.

¹³⁸ Id.

scenarios . . . Direct human impacts such as land use and land use change, pollution, and water resource development will continue to dominate the threats to most freshwater (*high confidence*) and terrestrial (*medium confidence*) ecosystems globally over the next 3 decades. Changing climate exacerbates other impacts on biodiversity (*high confidence*).¹³⁹

It is predicted that many species will not be able to move into suitable habitat quickly enough to adapt to the changing climate.¹⁴⁰ Large changes in climate will reduce population, vigor, and viability of species that are spatially restricted, as in the proposed carve-out area where wildlife is confined to small and isolated habitats, mountaintops, and/or mountain streams.¹⁴¹

Further limiting wildlife's ability to adapt to climate change are non-climate factors such as "inhospitable land uses, habitat fragmentation and loss, competition with alien species, exposure to new pests and pathogens, nitrogen loading, and tropospheric ozone."¹⁴² The predicted result (with "high confidence") is an increased rate of extinction for both freshwater and terrestrial species during the 21st century, which is exacerbated by the overlap of other pressures such as habitat modification, overexploitation, pollution, and invasive species.¹⁴³

Forest Service scientists acknowledge that climate change effects challenge the agency's ability to implement its mission to sustain the health, diversity, and productivity of Forest Service lands. While the Forest Service already manages dynamic ecosystems, climate change will amplify and compound existing stressors on forests systems including invasive species, fire, pathogens, disease, insects, pollution, and floods. Other changes, including variations in the timing, amount, and type of precipitation; altered stream flows; prolonged drought; more extreme weather events; and shifting wildlife and plant species ranges, will create a "kaleidoscope of new patterns and trends" and require new management strategies.¹⁴⁴ The Forest Service itself has recognized for over a decade that:

Climate change is one of the most critical long-term threats to fish population and habitat population resilience. Increasing stream temperature, altered stream

¹³⁹ Id. (emphasis in original).

¹⁴⁰ Id. at 275.

¹⁴¹ Id.

¹⁴² Id.

¹⁴³ Id.

¹⁴⁴ E. Long, Wyoming v. USDA: A Look Down the Road at Management of Inventoried Roadless Areas for Climate Change Mitigation and Adaptation, 40 Ecology Law Quarterly 329, 350 (2013) available at http://www.boalt.org/elq/documents/07_Long_Website.pdf (last viewed May 22, 2015).

flows, and changing patterns of disturbance affect the ability of aquatic habitats to support fish populations.¹⁴⁵

As climate change creates conditions inhospitable to particular species, migration corridors across a range of elevations will become vital because species will generally migrate north and upward in elevation.¹⁴⁶

The significance of climate change and its impacts on Rocky Mountain wildlife has led the Forest Service's sister agency, USGS's Northern Rocky Mountain Science Center ("NOROCK"), to study the climate change nexus for both aquatic and terrestrial species.¹⁴⁷ Given the well-known fragility of native inland cutthroat species, as many of them have been proposed for listing or are already listed¹⁴⁸, it is critical that impacts to these species be re-considered in this SEIS, especially in light of new science on climate change, as found in the IPCC Fifth Report:

Rising water temperatures, due to global warming, will lead to shifts in freshwater species distributions and worsen water quality problems, especially in those systems experiencing high anthropogenic loading of nutrients (*high confidence*). Climate change-induced changes in precipitation will substantially alter ecologically important attributes of flow regimes in many rivers and wetlands and exacerbate impacts from human water use in developed river basins (*medium confidence*).¹⁴⁹

NOROCK has also identified climate change impacts to big game as a critical concern.¹⁵⁰ Of particular focus is how climate change-induced events such as decreased snow pack, early spring conditions, and increased drought may alter species migration routes and population numbers, influence disease prevalence such as brucellosis in feed grounds, and impact abundance of vegetation such as aspen.¹⁵¹ Such impacts would have significant ramifications on local economies and the currently healthy and robust Gunnison County big game populations. Big

¹⁴⁵ Forest Service, USDA, Research & Development, Aquatic Ecosystem Resilience, available at <http://www.fs.fed.us/research/wildlife-fish/themes/aquatic.php> (last viewed May 22, 2015).

¹⁴⁶ *Wyoming v. USDA: A Look Down* 40 Ecology Law Quarterly at 356.

¹⁴⁷ Northern Rocky Mountain Science Center, USGS, Wildlife as Indicators of Climate Change, available at http://nrm-sc.usgs.gov/science/feature/wildlife_climate (last viewed May 22, 2015).

¹⁴⁸ *Id.*; Colorado Parks & Wildlife, Cutthroat Trout, available at <http://cpw.state.co.us/learn/Pages/ResearchCutthroatTrout.aspx> (last viewed May 22, 2015).

¹⁴⁹ IPCC Fifth Assessment Chapter 4, at 274.

¹⁵⁰ Northern Rocky Mountain Science Center, USGS, Wildlife as Indicators of Climate Change.

¹⁵¹ *Id.*; see also IPCC Fifth Assessment Chapter 4 at 276 ("**Increases in the frequency or intensity of ecosystem disturbances such as droughts, wind storms, fires, and pest outbreaks have been detected in many parts of the world and in some cases are attributed to climate change (*medium confidence*). Changes in the ecosystem disturbance regime beyond the range of natural variability will alter the structure, composition, and functioning of ecosystems (*high confidence*).**" (emphasis in original)).

game is a large revenue generator for both Gunnison and Delta County, as evidenced by CPW's most recent figures in 2007 that show the counties receiving over \$31 million and over \$16.3 million, respectively, and supported over 600 jobs in Gunnison County and nearly 300 jobs in Delta. At the state level, fees from hunting and fishing licenses, as well as camping fees help fund the management of these species. Climate change impacts stand to not only directly affect these big game species but also the ability of managers to promote conservation and would likely negatively impact on local economies.

With overwhelming consensus since 2012 that climate change will have significant impacts on wildlife and their habitat, it is unquestionable that a new direct, indirect, and cumulative impacts analysis for wildlife and their habitat must be undertaken as part of this supplemental EIS process. The need to conduct such analysis is only bolstered by the GMUG National Forest's own acknowledgment, over the past year and a half at public meetings regarding a large timber harvest project, that it is predicting hotter and drier weather due to climate change. The Forest Service is obligated to disclose the impacts on wildlife from climate change that would result from this exemption, which would allow access to coal and the venting of methane that otherwise would be inaccessible.

If the Forest Service is not going to take action wholly within its power that is necessary to give wildlife and their habitat a fighting chance in the face of climate change by protecting vital roadless areas from destruction, it must, at the very least, conduct a new analysis for the carve-out's impacts on these resources so the public and decisionmaker has full knowledge of the deleterious impacts it would have on these precious and irreplaceable resources.

1. New Information Concerning Wildlife and Climate Change Shows That The Forest Service Must Protect Roadless Forests To Provide Wildlife With The Best Opportunities To Adapt To Climate Change And To Keep Populations Healthy And Robust Or To Recover.

The scoping notice for the coal mine exception states that “[t]he purpose and need for this supplemental EIS is to provide management direction for conserving roadless characteristics within the area while addressing the State interest in not foreclosing exploration and development of the coal resources in the North Fork Coal Mining Area.”¹⁵² Simply put, one cannot conserve roadless characteristics while constructing 50 miles of roads, altering hundreds of acres for methane drainage wells and associated infrastructure, and allowing vehicular access within those roadless areas, all while facilitating expansion of an industry that is a primary driver for human-induced climate change.

The coal mine exception would allow construction of a network of roads and methane vents throughout 19,600 acres of roadless landscape, causing habitat destruction and fragmentation. This would harm important, endangered, threatened and/or sensitive species likely or known to occur in or adjacent to the area, including elk, mule deer, Canada lynx, mountain lion, black bear and bald eagles. The Colorado Roadless Rule Final EIS's analysis is broad and offers virtually no discussion wildlife impacts specific to coal exploration and development. Coupled with a

¹⁵² See 80 Fed. Reg. 66 (Apr. 7, 2015).

lack of disclosure of wildlife resources and habitat values in the North Fork Coal Mining Area, the Final EIS provides the public with little useful data concerning affected resources and likely impacts to these resources within the focus area: the North Fork Coal Mining Area. The supplemental EIS must these deficiencies.

Turning to the Colorado Roadless Rule Final EIS for indications of the proposed development characteristics, the document hints at the extent and timescale of activity that could be expected:

Typical coal-related surface uses include exploration drilling and associated road construction, well drilling for methane drainage (vent) with associated access roads, ongoing resource monitoring facilities, and mine infrastructure facilities with associated access roads. *Certain coal-related surface facilities and associated roads may exist on the landscape for many years (20- 30)* in the case of ventilation shafts, monitoring or other facilities and life-of-mine roads, or may be of shorter term (less than 2, or 3 to 5 years) in the case of exploration holes or methane drainage (vent) wells, and other short-term uses.¹⁵³

Thus so called “temporary roads” would in fact be on the currently-roadless landscape for three decades or more. The North Fork Coal Area could see 50-90 miles of new road and hundreds of acres of surface disturbance, which would significantly alter the roadless value of the North Fork Coal Area.¹⁵⁴ Such actions would have long-term impacts on the region’s diverse wildlife.

These roads and pads would be on the landscape for years, if not decades in some cases. Development of roads, methane vents and associated infrastructure would have substantial negative impacts to the roadless areas that could not easily be rehabilitated following the useful life of the mines. These impacts are not only the actual surface disturbances, but also impacts to wildlife, watersheds and recreation opportunities during and after an operation’s lifespan.

Roads are a major contributor to habitat fragmentation because they divide large landscapes into smaller patches and convert interior habitat into edge habitat.¹⁵⁵ Impacts from roads to wildlife include direct loss of habitat, barrier effects, habitat fragmentation, mortality from vehicle collisions, pollution, introduction of invasive species, disturbance and other impacts due to increased human access.¹⁵⁶ The Forest Service must consider and disclose impacts from roads including harm to wildlife, spread of tree diseases and bark beetles, promotion of insect

¹⁵³ CRR Final EIS at 71.

¹⁵⁴ *Id.* at 75. See also *supra* at 5.

¹⁵⁵ M. Watson, Habitat Fragmentation and the Effects of Roads on Wildlife and Habitats, Conservation Services Division, New Mexico Department of Game and Fish 3 (January 2005) available at <http://www.safepassagecoalition.org/resources/Habitat%20Fragmentation.pdf> (last viewed May 22, 2015).

¹⁵⁶ S. Jacobson, Sandra, Roads and Wildlife: Impacts and Solutions. U.S. Forest Service Pacific Southwest Research Station. Power Point (2010) available at http://www.5counties.org/docs/roadedu/2012_5c_roads/effects_on_wildlife_sjacobson_2012.pdf (last viewed May 22, 2015).

infestations, introduction of non-native species, damage to soil resources and tree growth, and adverse impacts on aquatic species.¹⁵⁷

Even if roads are “temporary,” impacts to wildlife and roadless values would be long-lasting and significant. The Forest Service has concluded that “[t]emporary road construction has most of the same effects as permanent road construction.”¹⁵⁸ In fact, the agency acknowledged temporary roads may pose an even “higher risk of environmental impacts” because they are not constructed to the same standards as other roads.¹⁵⁹ The Forest Service concluded that temporary roads can result in the “introduction of nonnative vegetation and degradation of stream channels,”¹⁶⁰ can cause “increased risk of surface erosion and landslides” as well as sedimentation,¹⁶¹ can result in “extensive” “short- and long-term effects on aquatic species and habitats,”¹⁶² and may cause the loss of rare plant populations,¹⁶³ among other impacts. As a result, the Forest Service deliberately prohibited temporary road construction in the final National Roadless Rule.¹⁶⁴

While such “temporary roads” may, after years of use, be reclaimed and re-planted with native grasses, it will take generations to replace mature aspen, spruce, fir, and other forest stands likely to be bulldozed for roads and wells. Fragmentation impacts from “temporary” road construction would thus be long-lasting and widespread across the North Fork Coal Mining Area. Characteristics of roads that influence the level of impact include proximity to wildlife habitat, the size of the road, traffic volume, type and frequency of use, speed of vehicles, road density, season of use, surface type, ability of vehicles or people to leave the road edge, and proximity to human development.¹⁶⁵ The Forest Service must analyze and disclose the impacts of road construction and use, as well as well pad development and access, in its EIS.

¹⁵⁷ See A. Ercelawn, End of the Road: The Adverse Ecological Impacts of Roads and Logging: A Compilation of Independently Reviewed Research (Jan. 2000), available at <http://www.nrdc.org/land/forests/roads/chap7.asp>, (last viewed May 22, 2015).

¹⁵⁸ U.S. Dep’t of Agric., The Roadless Area Conservation Final Environmental Impact Statement 3-45 (November 2000) available at <http://catalog.hathitrust.org/Record/003550314> (last viewed May 22, 2015).

¹⁵⁹ Id. at 3-30.

¹⁶⁰ Id. at 2-18.

¹⁶¹ Id. at 3-55.

¹⁶² Id. at 3-164.

¹⁶³ Id. at 3-176.

¹⁶⁴ U.S. Dep’t of Agric., Final Rule and Record of Decision, 66 Fed. Reg. 3244, 3251 (Jan. 12, 2001) (“[T]he definition of road has expanded to include ‘temporary road.’”).

¹⁶⁵ S. Jacobson, Sandra, Roads and Wildlife: Impacts and Solutions. U.S. Forest Service Pacific Southwest Research Station. Power Point (2010) available at http://www.5counties.org/docs/roadedu/2012_5c_roads/effects_on_wildlife_sjacobson_2012.pdf (last viewed May 22, 2015).

As noted above, the reality of climate change means that the negative impacts non-climate factors have on wildlife and wildlife habitat will be compounded.¹⁶⁶ This means that the impacts we know have negative effects on wildlife, as outlined in the immediately preceding paragraphs, and their habitat will have even greater impacts throughout this century. And, with the increased scale of proposals in the Paonia Ranger District of the Gunnison National Forest since 2012, it is necessary that the Forest Service take a fresh hard look at impacts to wildlife and their habitat. See discussion of cumulative impacts, *infra*.

- a. The Forest Service must take a hard look at the proposals' direct, indirect and cumulative impacts on Canada lynx in light of new climate and wildlife data.

Canada lynx habitat has been mapped in all three affected Colorado Roadless Areas, and lynx are likely to be present in the North Fork Coal Area. Activity allowed under the proposed action could destroy and/or fragment lynx habitat. Denning habitat could be destroyed by removal of spruce-fir trees for construction of roads and well pads, and the clearing of trees would also remove any down dead log piles or other structures used by lynx to den. Such vegetation removal would also destroy seedlings that might constitute winter foraging habitat for lynx. These impacts compounded with those from climate change require the Forest Service to consult with the Fish and Wildlife Service under section 7 of the Endangered Species Act as part of the SEIS analysis.

The Lynx Conservation Assessment and Strategy (LCAS) recommends actions that Federal land management agencies should take at the programmatic planning stage to ensure the viability of lynx, including: “[m]ap oil and gas production and transmission facilities, mining activities and facilities, dams, and agricultural lands on public lands and adjacent private lands, in order to assess cumulative effects”; “[d]evelop and implement a plan to protect key linkage areas on federal lands from activities that would create barriers to movement. Barriers could result from an accumulation of incremental projects, as opposed to any one project”.¹⁶⁷

In order to make a full recovery in Colorado, lynx will need to disperse into large areas, and the North Fork Coal Mining Area exemption could remove or damage lynx habitat. All of the activities associated with this proposal (road construction, well-pad construction and operation, timber removal, increased human presence, etc.) would reduce the size and quality of lynx habitat. In addition to immediate loss of denning habitat, the removal of logs and old and dying trees would entail a reduction in future denning habitat as well. Noise, human presence and surface disturbance could all result in displacement of lynx that might be living in or travelling through the North Fork Coal Mining Area. The impacts should be thoroughly evaluated, disclosed and mitigated in concert with applicable Forest Service lynx management regulations and policies including the GMUG Forest Plan and Southern Rockies Lynx Amendment. And these impacts must be evaluated in light of the new information about climate change and its effects.

¹⁶⁶ IPCC Fifth Assessment Chapter 4 at 275.

¹⁶⁷ B. Ruediger, *et al.*, USDA, Forest Service, USDI, Fish & Wildlife Serv., USDI, BLM, and USDI Nat'l Park Serv. Canada Lynx Conservation Assessment and Strategy 88 (2000).

A thorough analysis is necessary to make an accurate determination of the coal mine exception's potential impact on lynx viability. The creation of major linear barriers, such as "temporary" roads, within lynx habitat could harm lynx by impeding movement or dispersal and increasing traffic. A major impact to lynx from mineral development is the potential for plowed roads to provide competing predators with access into lynx habitat. Packed snow travel paths can increase the likelihood of intrusion into lynx habitat by predator species and species that compete with lynx for prey (i.e. coyotes and bobcats). The Forest must address the likely effects of road construction and vehicle travel on lynx in the supplemental EIS.

After the release of the Colorado Roadless Rule Final EIS, Colorado Parks and Wildlife ("CPW") released a Wildlife Research Report containing preliminary analysis that contains helpful information regarding lynx habitat and seasonal use variations.¹⁶⁸ These findings suggest that lynx were predicted to avoid montane forest (Douglas-fir, Ponderosa pine), large distances to forest patches, and areas near high traffic volume road segments, especially during summer.¹⁶⁹

The forest cover type found in much of the roadless areas that would be affected if the carve-out is re-instated is the type that—regardless of the season—lynx prefer: spruce/fir, mixed spruce/fir, aspen, elevation and slope.¹⁷⁰ During winter months, lynx negatively associated with distance from large patches of conifer and associated with spruce/fir, mixed spruce/fir, elevation and slope. Importantly, lynx "[p]redicted use was also positively associated with topographic wetness and aspen cover," including moist spruce-fir forests on north-facing slopes at mid-elevations, as found in the roadless areas that would be affected if the carve-out is re-instated, as the West Elk Ranges are of high predicted lynx use.¹⁷¹

Because "mature spruce-fir may be the most valuable stand type for snowshoe hares in the region," the Forest Service needs to take a hard look at the proposed carve-out's impacts on this iconic Rocky Mountain species – a species for which both the federal and state governments have spent significant funds seeking to recover.¹⁷²

b. The Forest Service must take a hard look at the proposal's impact to big game.

While elk and deer populations in the North Fork Coal Mining Area may be significantly impacted by the proposal, the Colorado Roadless Rule Final EIS fails to contain any baseline

¹⁶⁸ J. Ivan, CPW, Wildlife Research Reports Mammals Program July 2011 – June 2012: Monitoring Canada Lynx in Colorado using Occupancy Estimation: Initial Implementation in the Core Lynx Research Area 26, available at <http://cpw.state.co.us/Documents/Research/Mammals/Lynx/Ivan2012AnnualReportLynx.pdf>, (last viewed May 22, 2015).

¹⁶⁹ Id. at 36.

¹⁷⁰ Id.

¹⁷¹ Id. at 38.

¹⁷² Id.

discussion of wildlife in the area. That EIS is so broad that it cannot suffice for any semblance of accurate analysis of specific wildlife values in the affected environment.

All three affected Colorado Roadless Areas provide summer range of elk and deer. The Pilot Knob and Flatirons Roadless Areas also contain calving areas and winter range for elk. Constructing a large network of roads would greatly reduce the effectiveness of habitat for deer and elk, and may displace animals. The supplemental EIS must assess the impacts on deer and elk, especially if they are displaced, and discuss where the animals would go and what impacts they would have in the areas they go to.

Roads have some of the most pervasive impacts of human development on natural landscapes. Their greatest impact lies in the indirect effects of habitat fragmentation and avoidance by wildlife. Effects of roads on elk can be divided into two broad categories: indirect effects on habitats occupied by elk, and direct effects on individual elk and their populations. Effects of roads in forested ecosystems in general have been well summarized.¹⁷³ Scientists have determined that in areas with limited cover, elk habitat is completely lost at a road density of only 0.8 miles of road per square mile.¹⁷⁴ A study on elk habitat effectiveness in north-central Wyoming found that few elk used areas with road densities higher than 0.5 miles per square mile.¹⁷⁵

An extensive literature review was conducted by Rowland in 2005 concerning elk avoidance of roads.¹⁷⁶ Numerous studies document that elk avoid roads and do not use habitat adjacent to roads to its full potential. For example, when road densities are as low as one mile per square mile, elk habitat effectiveness is reduced by 25 percent.¹⁷⁷ In another literature review prepared in 2008, Hebblewhite referenced almost 200 resources relating to this topic. In eight studies that measured the distance of ungulate avoidance from roads, the average “zone” of influence extended approximately 1000 meters from roads and wells.¹⁷⁸ In another study, human access

¹⁷³ M. Rowland, et al., Effects of Roads on Elk: Implications for Management in Forested Ecosystems Transactions of the North American Wildlife and Natural Resources Conference 2 (2005) available at http://www.fs.fed.us/pnw/lagrande/starkey_na/PDFs_Preprints/ms-04_Rowland.pdf (last viewed May 22, 2015).

¹⁷⁴ C. Weller, et al., The Wilderness Society, Fragmenting Our Lands: The Ecological Footprint from Oil and Gas Development 28 (Sept. 2002) available at <http://wilderness.org/resource/fragmenting-our-lands-ecological-footprint-oil-and-gas-development> (last viewed May 22, 2015).

¹⁷⁵ Id. at 16.

¹⁷⁶ M. Rowland, et al., Effects of Roads on Elk: Implications for Management in Forested Ecosystems Transactions of the North American Wildlife and Natural Resources Conference 2.

¹⁷⁷ C. Weller, et al., Fragmenting Our Lands: The Ecological Footprint from Oil and Gas Development 16.

¹⁷⁸ M. Hebblewhite, Report Prepared for Montana Fish, Wildlife and Parks, A Literature Review of the Effects of Energy Development on Ungulates: Implications for Central and Eastern Montana 85 (2008).

facilitated by road development indirectly resulted in a 43 to 50 percent loss of high-use elk habitat in Wyoming.¹⁷⁹ In Wyoming's Jack Marrow Hills, elk avoided roads the most during summer months, strongly selecting habitats greater than 2,000 meters from these features. In a major volume reviewing elk ecology and management, Lyon and Christensen state, "Access — mainly that facilitated by roads — is perhaps the single most significant modifier of elk habitat and a factor that will remain central to elk management on public and private lands."¹⁸⁰

Where they have not habituated to human disturbance, elk flee from motorists, running until they find security. Big game biologists note cases where motorized disturbance have prompted elk to prematurely abandon rich forage and cover on National Forest summer range, seeking enhanced security on private land. An example of this can be seen on the Grand Mesa, where biologists have observed elk leaving historically prime habitat on the top of the mesa in favor of steep sides and agricultural bottoms to escape disturbance.¹⁸¹

Recent studies (post-dating the Colorado Roadless Rule Final EIS) demonstrate that mule deer numbers are declining across Colorado and the West,¹⁸² and mule deer have been significantly affected by road construction and well development associated with mineral extraction.¹⁸³ The direct loss or alteration of mule deer habitat is always a concern. But while the collective area of disturbance may encompass a small percentage of the land, the influence of each piece of development (road, pad, etc.) extends to a larger surrounding area where the proximity of

¹⁷⁹ C. Buchanan, et al., Seasonal Resource Selection and Distributional Response by Elk to Development of a Natural Gas Field, 67 *Rangeland Ecology and Mgmt.* 369, 377 (2014) available at http://www.uwyo.edu/esm/faculty-and-staff/beck/_files/docs/publications/buchanan-et-al-2014.pdf (last viewed May 22, 2015).

¹⁸⁰ J. Thomson, Janice L., et al., The Wilderness Society, Wildlife at a Crossroads: Energy Development in Western Wyoming. Effects of Roads on Habitat in the Upper Green River Valley, 18 (Feb. 2005) available at <http://wilderness.org/sites/default/files/wildlife-at-crossroads-report.pdf> (last viewed May 22, 2015).

¹⁸¹ D. Peterson, Trout Unlimited, Where the Wild Lands Are: The Importance of Roadless Area's to Colorado's Fish, Wildlife, Hunting and Angling 12 (2005) available at <http://www.tu.org/sites/default/files/CO-Where-the-wildlands-are.pdf> (last viewed May 22, 2015).

¹⁸² See S. Willoughby, With Colorado's mule deer population declining, wildlife officials seek help, Denver Post (Aug. 13, 2014), available at http://www.denverpost.com/outdoors/ci_26326126/colorado-hunt-mule-deer-population-declining-wildlife-officials-dow (last viewed May 22, 2015); B. Finley, Deer declining across Colorado and West, Denver Post (July 14, 2014), available at http://www.denverpost.com/environment/ci_26143275/deer-declining-across-colorado-and-west (last viewed May 22, 2015).

¹⁸³ See H. Sawyer and R. Nielson, Mule Deer Monitoring in the Pinedale Anticline Project Area 2013 Annual Report, Prepared for Pinedale Anticline Project Office (August 2013) available at <http://www.wy.blm.gov/jio-papo/papo/wildlife/reports/muledeer/2013annual-rpt.pdf> (last viewed May 22, 2015).

disturbance causes stress and avoidance by wildlife. For mule deer, alert and flight reactions have been detected up to 0.29 miles from the source of disturbance, whereas habitat avoidance responses may extend to distances of over a mile.¹⁸⁴

Reduction of effective habitat near roads for deer and elk is well documented.¹⁸⁵ The effects on terrestrial and aquatic wildlife include mortality from collisions, modifications of animal behavior, disruption of the physical environment, alteration of the chemical environment, fragmentation of connected habitats, spread of exotic species, and changes in human use of lands and water.¹⁸⁶ As densities of wells, roads, and facilities increase, the effectiveness of adjacent habitats can decrease until most animals no longer use the habitat. Although vegetation and other natural features may remain unaltered within areas development, wildlife make proportionately less use of these areas than their availability. Animals attempting to forage inside the affected zones are also subjected to increased physiological stress. The avoidance/stress effect impairs function by reducing the capability of wildlife to use the habitat effectively. In addition, physical or psychological barriers lead to fragmentation of habitats and further reduce the availability of effective habitat. These impacts can be especially problematic when they occur within limiting habitat components such as reproductive habitats.¹⁸⁷

Besides roads, the checkerboard development of methane drainage wells would also have significant impacts on elk and deer. While drill pads directly remove vegetation on up to an acre, the overall impact extends far beyond the area where vegetation is removed. The Wyoming Game and Fish Department calculated that there is a 29-acre area of reduced habitat effectiveness around gas well pads.¹⁸⁸ Thus, a single methane drainage well in the North Fork Coal Mining Area may have wildlife impact footprint much greater than its actual surface area. In one study, lower predicted probabilities of use within 2.7 to 3.7 km of well pads suggested indirect habitat losses may be substantially larger than direct habitat losses.¹⁸⁹ Following three

¹⁸⁴ Wyoming Game and Fish Department, Recommendations for development of oil and gas resources within important wildlife habitats: version 6.0, 9 (April 2010) available at https://wgfd.wyo.gov/web2011/Departments/Wildlife/pdfs/HABITAT_OILGASRECOMMENDATIONS0000333.pdf (last viewed May 22, 2015).

¹⁸⁵ See M. Watson, Habitat fragmentation and the effects of roads on wildlife and habitats: background and literature review (January 2005).

¹⁸⁶ J. Thomson, Janice L., et al., The Wilderness Society, Wildlife at a Crossroads: Energy Development in Western Wyoming, Effects of Roads on Habitat in the Upper Green River Valley, 15 (Feb. 2005).

¹⁸⁷ Wyoming Game and Fish Department, Recommendations for development of oil and gas resources within important wildlife habitats 5 (December 2004) available at <http://www.oilandgasbmps.org/docs/WY001-og.pdf> (last viewed May 22, 2015).

¹⁸⁸ Wyoming Game and Fish Department, Recommendations for development of oil and gas resources within important wildlife habitats 13 (December 2004).

¹⁸⁹ H. Sawyer, et al., Winter habitat selection of mule deer before and during development of a natural gas field. The Journal of Wildlife Management 70(2): 396 (2006) available at

years of gas development in western Wyoming, 41 percent of areas classified as high deer use areas prior to development changed to medium-low or low-use areas. This change in distribution occurred with only two percent direct habitat loss.¹⁹⁰ Thus, the Forest Service must conduct as part of the supplemental EIS a thorough direct, indirect, and cumulative impacts analysis on elk and mule deer.

c. The Forest Service must take a hard look at direct, indirect, and cumulative impacts on Colorado River cutthroat trout.

For over a decade, a scientific consensus has concluded that climate change will have negative impacts on freshwater (cold water) fisheries, by reducing suitable habitat and increasing exposure to “stochastic disturbance events.”¹⁹¹ For Colorado River cutthroat trout (“CRCT”), CPW has identified climate change, in addition to genetic contamination and disease, as the risks to the populations.¹⁹² A long predicted impact has been that climate change would reduce biodiversity through cross-breeding between native and invasive species.¹⁹³ A study published last May confirms this long predicted impact and found that negative impacts on native cutthroat due to climate change are already occurring in Montana and British Columbia in native cutthroat trout streams throughout the Flathead River system.¹⁹⁴ The study found that climate change is accelerating hybridization between native and invasive species of trout.¹⁹⁵ As climate change reduces the range of native cutthroat, it has increased the range for non-native rainbow trout and hybridization, and, as one of the authors noted, is “putting many populations and species at greater risk than previously thought.”¹⁹⁶ This hybridization decreases genetic diversity in the

http://www.west-inc.com/reports/big_game/Sawyer%20et%20al%202006.pdf (last viewed May 22, 2015).

¹⁹⁰ H. Sawyer, Final report for the Atlantic Rim mule deer study. Western Ecosystems Technology Inc. 25 (April 2007) available at http://www.west-inc.com/reports/big_game/AR_report_final.pdf (last viewed May 22, 2015).

¹⁹¹ C. Hirsch, M. Dare, and S Albeke, CPW, Range-wide status of Colorado River cutthroat trout (Oncorhynchus clarkii pleuriticus), Colorado River Cutthroat Trout Conservation Team Report 26 (2010) available at <http://cpw.state.co.us/Documents/Research/Aquatic/CutthroatTrout/CRCTRangewideAssessment-08.04.2013.pdf> (last viewed May 22, 2015).

¹⁹² Id. at 22, 29 for maps demonstrating risk posed by climate change to watersheds comprising the current range of CRCT, including areas within close proximity to the proposed action.

¹⁹³ See U.S.G.S., Climate Change Accelerates Hybridization between Native and Invasive Species of Trout (May 25, 2014), available at <http://www.usgs.gov/newsroom/article.asp?ID=3903&from=rss#.VVv7LvlVhBc> (last viewed May 22, 2015).

¹⁹⁴ Id.

¹⁹⁵ Id.

¹⁹⁶ Id.

native population's gene pool, and thus directly affects the species ability to be resilient and better adapt to rapidly changing climate.

Because CRCT, a species of special concern and with historic range and current populations within the North Fork of the Gunnison River¹⁹⁷, are negatively impacted by to hybridization with non-natives¹⁹⁸ just as the native cutthroat trout studied in the 2014 Study¹⁹⁹, it is imperative that the supplemental EIS include new analysis accounting for the recent study demonstrating that prior analyses underestimated the negative impacts that hybridization, when coupled with climate change, will have on our native trout populations. The Forest Service should take action that helps protect and maintain the genetic integrity of native species so they have the best opportunity to adapt to the changing climate.

- d. The Forest Service must take a hard look at direct, indirect, and cumulative impacts to black bear, mountain lion, bald eagles, as well as sensitive and management indicator species.

Constructing a large network of roads and wells would greatly reduce the effectiveness of habitat for black bear, which are known to reside in the North Fork Roadless Area. The Flatirons Roadless Area is a concentration area for black bear due to the abundant oak mast. Construction and use of the roads and well pads may drive these animals out of the area. Gaines *et al.* (2005) found that the presence of roads reduced habitat effectiveness across all seasons for female black bears.²⁰⁰ The Forest Service must assess the impacts on black bears, especially if they are displaced, and discuss where the animals would go and what impacts they would have in the area(s) they go to.

The Sunset and Pilot Knob Roadless Areas contain mapped summer range for mountain lions. Mountain lions are generalists in habitat use and are behaviorally adaptable to a wide variety of ecological conditions. Optimal cougar habitat has three characteristics: (1) prey species, (2) vegetative cover, and (3) steep, rugged terrain. The primary prey species in the Rocky Mountains are mule deer, elk, and mountain sheep. Preferred cover types are coniferous or deciduous trees, and large shrubs. Sufficient plant cover, plus steep terrain, enables cougars to

¹⁹⁷ C. Hirsch, M. Dare, and S Albeke, Range-wide status of Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*) at 9, 12.

¹⁹⁸ *Id.* at 15 (demonstrating the presence of 12 non-native species in the North Fork of the Gunnison River) and 16 (showing that Gunnison River populations are seeing negative genetic changes).

¹⁹⁹ CPW, Cutthroat Trout, available at <http://cpw.state.co.us/learn/Pages/ResearchCutthroatTrout.aspx> (last viewed May 22, 2015).

²⁰⁰ W. Gaines *et al.*, Landscape evaluation of female black bear habitat effectiveness and capability in the Northern Cascades, Washington. *Biological Conservation*. 125(4): 411–425 (2005) available at http://www.fs.fed.us/pnw/pubs/journals/pnw_2005_gaines001.pdf (last viewed May 22, 2015).

successfully stalk prey animals.²⁰¹ All of these conditions are prevalent in the three roadless areas targeted for the coal mine exception.

Telemetry studies in Arizona and Utah demonstrated that mountain lions consistently concentrated their activities in areas where road densities were lower than average for the region. They crossed improved dirt roads and hard-surfaced roads less frequently than unimproved roads, and male home ranges were selected in areas with road densities lower than the study area average, no recent timber sales, and few or no sites of human residence.²⁰²

Bald eagle winter range extends into the Pilot Knob Roadless Area from the North Fork of the Gunnison River drainage. Zones of negative response to disturbance can reach up to several hundred meters for some raptor species during egg laying and early incubation.²⁰³ The Forest Service must thoroughly evaluate impacts to bald eagles.

Finally, the supplemental EIS must evaluate all species in the North Fork Coal Area that are listed in the Regional Forester's Sensitive Species List for Region 2. In accordance with FSM 2672.43 (Region 2), the Forest Service must prepare a biological evaluation for sensitive species. This includes "field reconnaissance", *i.e.*, surveying populations and/or habitat of some sensitive species likely to be present and which would be affected by the proposed action.

Similarly, the possible effects on management indicator species must be assessed.

- e. The Forest Service must take a hard look at direct, indirect, and cumulative impacts to Gunnison Sage-grouse.

GIS analysis conducted by Rocky Mountain Wild indicates that Gunnison Sage-grouse historical habitat occupies approximately 57% of the Pilot Knob Roadless Area. On November 12, 2014, the U.S. Fish and Wildlife Service announced that the Gunnison Sage-grouse requires the protection of the Endangered Species Act ("ESA") as a threatened species—a decision that post-dates the Colorado Roadless Rule Final EIS. Furthermore, Gunnison County has been adamant about taking a lead role in addressing sage-grouse conservation. To the extent that development in the coal mine exception area may have direct, indirect, and cumulative impacts on the species and their current or historical habitat, the Forest Service must disclose this in the supplemental EIS.

All Gunnison Sage-grouse populations must be increased in size in order to avoid inbreeding depression and/or maintain adaptive potential and avoid increased extinction risk. It is now widely agreed that it will be necessary to maintain large expanses of suitable sagebrush habitat across the landscape to conserve populations. As such, the Forest Service must consider what

²⁰¹ F. Craighead, Wildlife-related Road Impacts in the Yellowstone to Yukon Region, Unpublished report for Yukon to Yellowstone Conservation Initiative 8 (1999) available at <http://transwildalliance.org/resources/20088417200.pdf> (last viewed May 22, 2015).

²⁰² Id.

²⁰³ Wyoming Game and Fish Department, Recommendations for development of oil and gas resources within important wildlife habitats: version 6.0., 10 (April 2010).

impacts mining and development on suitable, former Gunnison Sage-grouse habitat would have on ongoing efforts to protect this species from extinction. In order to promote the recovery of this species, it is very important to promote population growth, and expansion into historical habitat could be an important step in doing so. The Pilot Knob Roadless Area contains historic habitat which may still be suitable for occupancy by Sage-grouse should populations expand. The SEIS analysis should consider the need for management prescriptions to maintain and enhance the potential for Gunnison Sage-grouse restoration in the wake of expanded development.

J. The Supplemental EIS Must Address Significant New Information Concerning Surface Impacts Of Road And Pad Construction.

1. New Information Suggests The CRR Final EIS's Assumptions About Surface Disturbance Caused By Methane Drainage Wells And Roads Are Too Low.

The Colorado Roadless Rule Final EIS assumes that up to 600 MDW pads will be constructed under the Colorado Rule's coal mine exception, which it states will cause up to 180 acres in disturbance. CRR Final EIS at 72 (Table 3-8). That EIS thus assumes that each well pad will result in 0.3 acres of disturbance.

This figure is low, and contradicted by subsequent (as well as prior) Forest Service analysis concerning the disturbance caused by well pads in the North Fork. For example, the August 2012 Lease Modifications Final EIS made a "conservative estimate" that each MDW pad within the Sunset Roadless Area would require "about 1 acre of disturbance" although "most MDW pads are 0.5 acres or less."²⁰⁴ This 1-acre per pad estimate was close to that projected by the Forest Service in 2007, when the GMUG National Forest concluded that construction of well pads for the West Elk mine would result in the disturbance of 0.8 acres per well pad.²⁰⁵ In estimating the impacts of exploration drilling pads within the Lease Modifications area in June 2013, BLM and the Forest Service assumed that such pads would disturb 0.46 acres.²⁰⁶ Exploration pads may be smaller than the pads required to construct MDW vents.

Further, information concerning MDW pads constructed by the Elk Creek mine on Forest Service land directly adjacent to the Pilot Knob Roadless Area, indicates that the mine plan permitted Elk Creek there to build MDW pads 150 feet by 150 feet in size, which is just over half an acre.²⁰⁷ It would be arbitrary for the Forest Service to assume that the surface disturbance

²⁰⁴ Lease Modification EIS (Ex. 19) at 53.

²⁰⁵ U.S. Forest Service, Final EIS, Deer Creek Shaft and E Seam Methane Drainage Wells Project (Aug. 2007), at 110, excerpts attached as Ex. 76.

²⁰⁶ BLM, Environmental Assessment, Sunset Trail Area Coal Exploration Plan, DOI-BLM-CO-S050-2013-0027 (June 2013) at 4, attached as Ex. 77.

²⁰⁷ DRMS, Elk Creek Mine Inspection Report (Dec. 9, 2014) ("DRMS Report") at 7 ("150 x 150 [feet] ... is the permitted size" of MDW pads for the Elk Creek mine), attached as Ex. 78. $150' \times 150' = 22,500$ square feet. One acre = 43,560 square feet. $22,500 / 43,560 = 0.52$ acres.

would be less than the permitted size.²⁰⁸ The supplemental EIS must address these inconsistencies and use a defensible projection for the area likely to be cleared for each MDW.

While the Colorado Roadless Rule Final EIS displays the miles of road likely required to construct MDWs for coal mines, as it should, it failed to quantify the habitat eliminated by road construction. This failure is arbitrary given that: (1) the Forest Service calculated habitat disturbance caused by MDW pad clearance, albeit inadequately, as noted above; and (2) BLM and the Forest Service subsequently quantified habitat projected to be eradicated by road construction for the Sunset Trail coal exploration project, concluding that road construction would “disturb 4.24 acres per mile.”²⁰⁹ If that projection is accurate, reinstating the coal mine exception could result in over 220 acres of linear clearcuts.²¹⁰ The supplemental EIS must address this new information by quantifying habitat likely to be destroyed for road construction.

New information also suggests that the Colorado Roadless Rule Final EIS’s assumptions concerning the impacts of road construction required for exploration are too low. The Final EIS assumes “that 1.5 miles of road would be needed for exploration purposes per 640-acre section.”²¹¹ However, the Sunset Trail exploration plan in 2013 approved 5.9 miles of road over a 2.7 square mile area, for an average of more than 2.1 miles of road per 640-acre section.²¹² This is significantly more than the 1.5 miles per square mile assumed by the Colorado Rule Final EIS.

The Forest Service may not dismiss its failure to accurately project the impacts of roads and drilling pads as mere flyspecks. The damage the proposed action will cause to roadless forest is one of the key distinguishing factors between the ‘no action’ and ‘action’ alternatives.

2. New Information Suggests Coal Mine Operators Have Ignored, And May Continue To Ignore, Limits On Surface Disturbance.

New information demonstrates that the supplemental EIS must not assume that coal mines will comply with permit conditions that relate to limits on road and methane drainage well pad construction, and as a result must further increase the Forest Service’s estimate of damage from roads and methane drainage well pads.

²⁰⁸ As discussed below, given that the Elk Creek mine systematically ignored and exceeded the permitted pad size as documented by inspections by state and federal regulators, the Forest Service should consider the permitted size the absolute lower bound of likely disturbance.

²⁰⁹ BLM, Sunset Trail Area Coal Exploration Plan (Ex. 77) at 4.

²¹⁰ The Colorado Rule Final EIS project 52 miles of new roads for coal mine roads under the proposed rule, which included the coal mine exception. CRR Final EIS at 72, Table 3-8.

²¹¹ CRR Final EIS at 72.

²¹² BLM, Sunset Trail Area Coal Exploration Plan EA (Ex. 77) at 30 (5.9 miles of road). The Lease Modifications area proposed for exploration was 1,721 acres. Lease Mods EIS (Ex. 19) at i.

In October 2014, the U.S. Department of the Interior’s Office of Surface and Mining (“OSM”) and Colorado’s Division of Reclamation, Mining and Safety (“DRMS”) inspected roads and methane drainage (or gob vent borehole (GVB)) pads on federal and private lands leased by Oxbow’s Elk Creek coal mine. That inspection found numerous violations of state mining laws and the terms of Oxbow’s mining permit.²¹³ The inspection revealed that Oxbow illegally constructed drill pads and roads for methane drainage wells far beyond the mine’s permit limits, needlessly bulldozing or disturbing 28 acres of oak scrub and forest habitat – an area the size of more than 21 football fields. Much of this illegal bulldozing occurred on public lands managed by the Bureau of Land Management (BLM) or the Gunnison National Forest.²¹⁴ Inspectors concluded that “the majority of drill pads” for several coal panels “were larger than 150 x 150” feet, the maximum size permitted, indicating a systematic disregard for environmental safeguards.²¹⁵ The most egregious example identified in the reports was a MDW pad sized 396’ x 177’, or 1.6 acres – more than 3 times larger than permitted.²¹⁶

Oxbow also violated the law by failing to properly plug and seal drilled drainage wells,²¹⁷ and by mismanaging sediment and topsoil around the structures, as required by permit conditions that are important to protect air and water quality and ensure proper restoration of fragile habitats.²¹⁸ OSM explains that proper sealing of wells is required to “prevent acid or toxic drainage from entering ground or surface waters, to minimize disturbance to the prevailing hydrologic balance, and to ensure the safety of people, livestock, fish and wildlife, and machinery in the permit and adjacent areas.”²¹⁹ Inspectors found Oxbow failed to disclose several of these violations by failing to submit timely well abandonment reports and by failing to include accurate information in the reports the company submitted.²²⁰ Despite the fact that many of the violations occurred on

²¹³ See DRMS, Elk Creek Mine Inspection Report (Dec. 9, 2014) (“DRMS Report”), attached as Ex. 78; OSM, Elk Creek Partial Oversight Inspection Report, October 2014 (Dec. 10, 2014) (“OSM Report”), attached as Ex. 79; DRMS, Notice of Violation (Dec. 9, 2014), attached as Ex. 80. Although Elk Creek mine is currently idle, see DRMS Report (Ex. 78) p. 2, Oxbow has not relinquished its leases or permits, and thus is responsible for ensuring its wells and other structures comply with these commitments as well as environmental and safety laws.

²¹⁴ Compare DRMS Report (Ex. 78) at 7 (stating 28.6-acre expansions occurred in longwall panels 18-19); with Oxbow, Elk Creek Mine Map (Aug. 9, 2013) (“Map”) (showing longwall panels 18-19 located in part on Forest Service land), attached as Ex. 81; OSM Report (Ex. 79) p. 6 (describing surface pad disturbance greatly exceeding permit locations located on GVB-LW-1507) with Map (Ex. 81) (showing GVB-LW-1507 located on BLM land); see also OSM Report (Ex. 79) at 6-7; *id.* at 6 (drill pad about 50% larger than permitted); DRMS Report (Ex. 78) at 8.

²¹⁵ DRMS Report (Ex. 78) at 7 (emphasis added).

²¹⁶ OSM Report (Ex. 79) at 6.

²¹⁷ See DRMS Report at 2-7, 8 (summarizing violations) (Ex. 78); OSM Report at 2-7 (Ex. 79).

²¹⁸ OSM Report (Ex. 79) at 3-5.

²¹⁹ OSM Report (Ex. 79) at 5.

²²⁰ See DRMS Report (Ex. 78) at 8.

Forest Service and BLM lands, it is unclear whether federal land managers were aware of Oxbow's failure to protect public lands.

Following the October 2014 inspection, DRMS issued a formal "notice of violation" in December 2014, proposed fining Oxbow \$1,500, and ordered Oxbow "abate" nearly a dozen violations.²²¹ Oxbow has yet to complete its remediation.

In light of this new information, the Forest Service cannot assume that impacts from road and methane drainage well construction will be limited to the area approved in coal mines' permits, and thus it is likely that more damage to pristine forests areas and the environment will occur than the CRR Final EIS predicted. If, as Oxbow has done, mining companies ignore permit limits and expand construction zones beyond the areas in which they are allowed to build, even greater environmental disturbance and damage will occur. Further, if, as Oxbow has done, companies do not properly seal wells, there is a potential for increased air, greenhouse gas, and groundwater pollution. And because Oxbow and Arch Coal will likely view the financial penalty proposed here (\$1,500) as a tiny cost of doing business, such penalties are unlikely to have much of a deterrent effect.²²² The fact that a spokesman for state regulatory agencies brushed off these violations as not "a major offense" also seems unlikely to discourage future violations.²²³ The supplemental EIS must therefore disclose that coal mines are likely to disturb lands well beyond what they are permitted to.

Finally, Oxbow's illegal actions should lead the Forest Service to question whether it should complete a rulemaking for the express purpose of allowing this company – Oxbow – to mine within the undisturbed forest of the Pilot Knob Roadless Area. The risk that unnecessary damage will occur is too great.²²⁴

²²¹ DRMS, Notice of Violation (Ex. 80), at 1, 4 ("abate"); DRMS, Notice Of Proposed Amount Of Civil Penalty (Dec. 9, 2014) (proposing \$1,500 penalty), attached as (Ex. 82).

²²² We note that the Elk Creek Mine paid over \$100,000 in penalties every year from 2006 through 2013 for violations of mine safety regulations. See Mine Safety and Health Administration, Mine Data Retrieval System database, available at www.msha.gov/drs/drshome.htm (last viewed May 22, 2015).

²²³ D. Webb, Concerns raised over Oxbow well violations, Grand Junction Sentinel (May, 17, 2015), attached as Ex. 12.

²²⁴ We cannot agree with a Forest Service spokesman who was paraphrased as stating that "it wouldn't be appropriate for the Forest Service to be making judgments about specific companies at a time when it's simply considering whether an area should be open at all for coal mining." D. Webb, Concerns raised over Oxbow well violations (Ex. 12). Oxbow is the only coal mine that could foreseeably benefit from coal mining in the Pilot Knob Roadless Area proposed to be made available by the coal mine exception. Further, the Colorado Roadless Rule Final EIS's analysis was based on assumptions concerning continued operations of the three specific mines in the North Fork Valley, including the Elk Creek mine. See, e.g., L. Mattson, "Colorado Roadless Rule, Specialist Report for Leasable Energy Minerals, Coal," (Ex. 21) at 5; M. Retzlaff,

3. Because Surface Disturbance Will Be Greater Than Predicted In The Colorado Rule Final EIS, The Forest Service Must Re-evaluate Impacts To Wildlife And Other Resources.

Given that, in light of new information, the Colorado Roadless Rule Final EIS underestimated the total area of habitat likely to be scraped to bare dirt for coal mine exploration and development, the supplemental EIS must analyze and disclose the impacts to surface resources – streams, vegetation, wildlife, etc. – of that increased surface disturbance.

In doing so, the supplemental EIS must do more than identify the total acreage likely to be bulldozed. Mere numbers of acres will not reflect the fact that roads and drilling pads will fragment the forest, making it impossible to travel more than a few hundreds anywhere in the 19,600 acre area without encountering habitat disturbance. The impacts will be ubiquitous and long-lasting. The supplemental EIS must address these impacts.

V. THE SUPPLEMENTAL EIS MUST PROPERLY DISCLOSE THE IMPACTS OF THE PROPOSED ACTION.

A. The Supplemental EIS Must Properly Disclose the Economic Impacts of the Proposed Action.

Given the changed circumstances of coal markets internationally, regionally, and locally, as described above, the supplemental EIS must undertake a new and proper analysis of the economic and environmental impacts of the coal mine exception, including an improved analysis of how the proposed action could affect coal mine development and operations, and thus coal production.²²⁵

For example, the supplemental EIS should disclose and clearly present the underlying data for estimated coal production year-by-year over period affected by the coal mine exception. In addition, the supplemental EIS must analyze and disclose how the paving the way for additional coal mining could affect coal production, in terms of both physical output (tons) and the value of that output (dollars). This analysis should be rigorous, reviewable, and based on current and likely future conditions, coal prices, environmental regulations, and other information. Energy markets are dynamic; they have been evolving very rapidly and will continue to evolve. The supplemental EIS should explore a range of outcomes and the likelihood of various outcomes.

The supplemental EIS should also acknowledge and address the significant limitations and uncertainties of the IMPLAN models and instead adopt a hybrid model that is dynamic and offer offers the most flexibility and detail in tailoring an analysis. At an absolute minimum, if the Forest Service intends to rely on IMPLAN models more disclosure, customization, and analysis is required.

“Economics Specialist Report, Colorado Roadless Area Rulemaking,” (Oct. 27, 2011) at 13-15, 23-24, 54, 63 attached as Ex. 66.

²²⁵ These issues are more fully addressed in a report prepared by The Goodman Group and attached as Ex. 83. We request that the Forest Service review and respond to this report.

Any economic analysis must also acknowledge and address the fact that there are sizable adverse environmental impacts from coal production (including transport, consumption, and waste disposal) that will have adverse economic impacts. These adverse environmental and economic impacts (costs) generally increase based on the amount of coal production and mine operations. Locally, coal production could adversely affect other economic activity, and especially other economic activity that is based on a high quality of life and environment. Especially in Colorado and specifically in the area proximate to North Fork Valley coal production, there is substantial outdoor recreation, in-migration of retirees, and other activity (including economic activity) that is based on a high quality of life and environment. To the extent that coal production adversely impacts the environment, it could adversely impact other economic activity. In short, the supplemental EIS must balance the consideration of the economic benefits from coal production against the economic costs from coal production.

B. The Supplemental EIS Must Properly Disclose the Cumulative Impacts of the Proposed Action.

A cumulative impact is defined as “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 regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”²²⁶ In taking a hard look at direct, indirect, and cumulative impacts, the Forest Service must analyze all impacts that are “reasonably foreseeable.”²²⁷

In 2010, the 9th Circuit rejected a Bureau of Land Management NEPA review for mineral exploration that had failed to include detailed analysis of impacts from nearby proposed mining operations, stating:

In a cumulative impact analysis, an agency must take a “hard look” at all actions. An . . . analysis of cumulative impacts must give a sufficiently detailed catalogue of past, present, and future projects, and provide adequate analysis about how these projects, and differences between the projects, are thought to have impacted the environment. . . . Without such information, neither the courts nor the public . . . can be assured that the [agency] provided the hard look that it is required to provide.²²⁸

The roadless areas that make up the coal mine exception area are part of a larger landscape of the Upper North Fork Valley that is becoming increasingly impacted by coal mining and natural gas development. The North Fork Coal Mining Area exemption must be considered within the

²²⁶ 40 C.F.R. § 1508.7.

²²⁷ 40 C.F.R. 1508.8.

²²⁸ Te-Moak Tribe v. U.S. Dep’t of Interior, 608 F.3d 592, 603 (9th Cir. 2010). See also Wyoming Outdoor Council, 351 F. Supp. 2d at 1243 (failure to adequately review all cumulative impacts is arbitrary and capricious and violates NEPA).

context of energy development actions in the North Fork Valley. Considering the high degree of disturbance caused by the current level of human activities to wildlife species and habitat near existing transportation routes, any incremental increase in negative impacts, short-term or long-term, such as additional roads, developments, or resource extraction, will have the cumulative effect of reducing wildlife habitat. As habitat is reduced, either directly or indirectly, populations of wildlife species become smaller in size and more isolated.²²⁹ The Forest Service's supplemental EIS must consider the cumulative impacts of other past, present and reasonably foreseeable actions proximate to the proposed activities including, but not limited to, the impacts of mineral extraction on wildlife.

The Colorado Roadless Rule Final EIS's analysis of cumulative impacts was exceedingly broad, likely because the scope of the rulemaking itself covered millions acres spread across the entire state of Colorado. See CRR Final EIS at 53 (analysis area for effects is 4.6 million acres of roadless forests). The Final EIS mentioned no individual projects that might cumulatively impact certain resources when taken together with the proposed Colorado Rule. Instead, the EIS identified broad categories of action likely to have cumulative impacts, including: "Increase in oil and gas operations" and "Increase in coal mining operations." CRR Final EIS at 61-62. Virtually none of the cumulative effects analysis is tied to specific places, instead describing the potential for impacts in only the most general terms. See, e.g., *id.* at 104 ("Revisions to forest plans or forest-wide leasing availability decisions (reasonably foreseeable future actions) could add to the significant cumulative effect on natural gas development in roadless areas," without describing nature or location of impacts).

The focus of the coal mining exception, however, is narrowly drawn to a 19,000-acre area in the North Fork Valley. Therefore the supplemental EIS should focus its analysis on those individual projects that, when combined with additional coal mining and coal combustion, are likely to have cumulative effects on resources impacted by the coal mining exception.

The Supplemental EIS should address the projects and actions identified below. It should focus on these because information about many of the projects and actions or their impacts has become known only since the completion of the 2012 CRR Final EIS.

- Bull Mountain Master Development Plan: The BLM Uncompahgre Field Office issued a Draft EIS in January 2015 analyzing a proposed Master Development Plan (MDP) submitted by SG Interests, Ltd to drill up to 150 wells within the Bull Mountain Unit and to construct associated access roads, pipelines, and infrastructure.²³⁰ The Bull Mountain Unit includes approximately 19,645 acres of federal and private subsurface mineral estate located about 30 miles northeast of the Town of Paonia and bisected by State Highway 133. The Bull Mountain project area boundary is directly adjacent to the Pilot Knob Roadless Area, and about 8 miles from the Flatirons Roadless Area. The MDP and the proposed rulemaking here impact the same watershed (North Fork Gunnison), and many species of wildlife

²²⁹ F. Craighead, Wildlife-related Road Impacts in the Yellowstone to Yukon Region, Unpublished report for Yukon to Yellowstone Conservation Initiative 4 (1999)

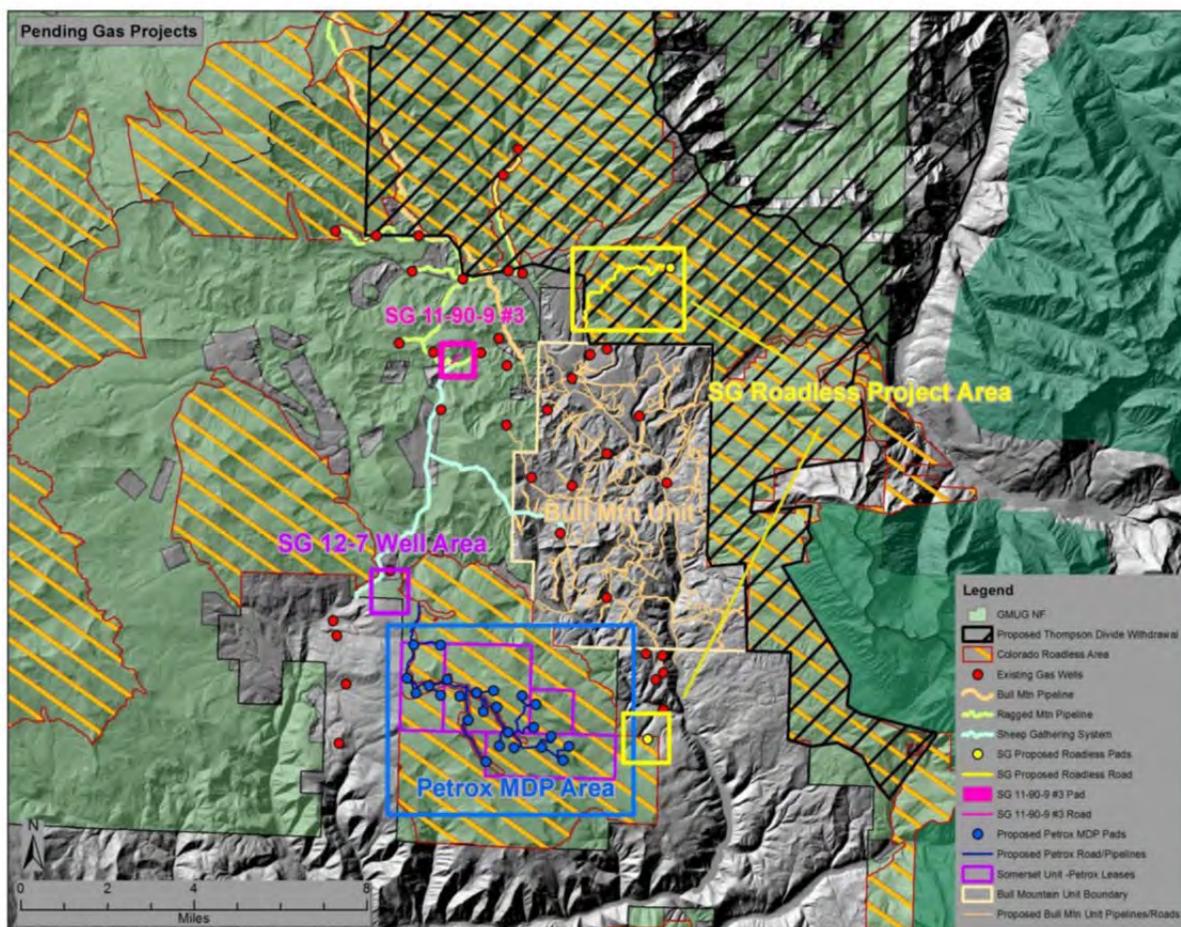
²³⁰ See http://www.blm.gov/co/st/en/BLM_Information/nepa/ufo/Bull_Mountain_EIS.html.

- likely move between the Bull Mountain area and the roadless lands likely to be degraded by the coal mine exception. The Forest Service must consider the cumulative impacts of this proposal in conjunction with analysis of the wildlife (as well as water, air, and other impacts).²³¹
- 67 Active Gas Wells in Delta and Gunnison Counties: As of April 1, 2015, Gunnison and Delta Counties contain 67 active gas wells, the majority of which are located in the Upper North Fork Valley. The Forest Service must discuss the impacts of these wells on wildlife, air, water and other resources in conjunction with road and methane drainage well development likely to occur as a result of the coal mine exception. This number of wells is likely higher than it was when the Colorado Roadless Rule Final EIS was completed in May 2012, as over 32 applications have been received and approved by Gunnison County alone for natural gas extraction in the North Fork area. At a minimum, the current proposed amount of natural gas development in the North Fork by far exceeds that in 2012 as noted below.
 - Petrox 50-Well Proposal at Pilot Knob: Petrox has proposed bulldozing roads and scraping well pads for up to 50 wells in a 6,400-acre project area that largely overlies the Pilot Knob Roadless Area.²³² The Pilot Knob Roadless Area would be directly impacted by coal mining under the proposed North Fork Coal Mining Area exemption. In fact, if this proposal is approved, this project, taken together with the coal mining exception, will result in road construction across the vast majority of the Pilot Knob Roadless Area, potentially destroying the area's roadless, natural character and rendering far less fit as wildlife habitat. The Supplemental EIS must disclose the impacts of this proposal in conjunction with the proposed coal mining exception. The map below exhibits the proposed Petrox MDP Area, within and surrounding the Pilot Knob CRA and that it would be directly adjacent to the coal carve-out for this CRA if re-instated.

²³¹ The Bull Mountain MDP Draft EIS identified North Fork coal mining as among the projects or activities "having the greatest likelihood to generate potential cumulative impacts when added to the Bull Mountain Unit MDP alternatives." BLM, Bull Mountain MDP Draft EIS (Jan. 2012) at 4-11 – 4-12, available at

http://www.blm.gov/style/medialib/blm/co/information/nepa/uncompahgre_field/13-22_bull_mountain.Par.23863.File.dat/Bull_Mtn_DEIS_Jan2015_508_reduced.pdf (last viewed May 22, 2015). Beyond estimating the total acres disturbed by coal mining, however, the Bull Mountain MDP Draft EIS does not address the actual impacts of coal mining in its cumulative impacts analysis.

²³² See D. Webb, Roadless dispute clouds drilling proposal, Grand Junction Sentinel (Mar. 1, 2015), attached as Ex. 84, available at <http://www.gjsentinel.com/news/articles/roadless-dispute-clouds-drilling-proposal> (last viewed May 22, 2015).



- Pilot Knob APD: SG in 2010 proposed an APD (12-89-30#1) in the Pilot Knob CRA on lease COC 64169. See above map for this well's proposed location within the Pilot Knob CRA. Development of that lease would add to, and have similar impacts to, the development of the Petrox 50-well proposal.
- Gunnison Energy 60 to 400-Well Master Plan: Gunnison Energy is proposing large-scale development north of Somerset for up to 600 wells.²³³ Industrial development of this size, in conjunction with approval of the North Fork Coal Mining Area exemption, would have significant impacts on wildlife.

²³³ See D. Webb, North Fork Drilling Plans Remain Small, Grand Junction Sentinel (Feb. 15, 2015) attached as Ex. 85, available at <http://www.gjsentinel.com/news/articles/north-fork-drilling-plans-remain-small> (last viewed May 22 2015).

- 16-well development in the North Fork/Muddy Creek Planning Unit: In February, 2009 BLM approved a Master Surface Use Plan from Gunnison Energy for 16 wells adjacent to the Bull Mountain Unit in the Upper North Fork Valley.²³⁴
- 30,000-Acre Lease Sale: In December of 2011 BLM proposed leasing approximately 30,000 acres of public lands and minerals for oil and gas development in the North Fork Valley.²³⁵ While the lease sale has been deferred, future leasing remains foreseeable.
- Coal: The Forest Service must analyze and disclose the impacts to wildlife from currently operating coal mining operations in the North Fork Valley, including the Bowie mine.
- Residential and traffic growth. The Bull Mountain MDP Draft EIS states: “Residential developments in the area around the communities of Paonia, Hotchkiss, Crawford, and Delta have been growing in population, with many new houses being built. Most of this development has been down-valley from the coal mines in broader portions of the North Fork Valley. This development has increased the traffic load and demand for maintenance on State Highway 133.”²³⁶

Each and all of these developments must be addressed as part of the supplemental EIS’s cumulative impacts analysis. As these developments proceed, suitable wildlife habitat becomes scarcer, and adjacent landscapes suffer. “As densities of wells, roads, and facilities increase, the effectiveness of adjacent habitats can decrease until most animals no longer use the habitat. Although vegetation and other natural features may remain unaltered within areas near oil and gas features, wildlife make proportionately less use of these areas than their availability.”²³⁷

²³⁴ See S. Mensing, Gas Developers Propose Three New Water Pits for North Fork, THE Crested Butte News (May 4, 2015), attached as Ex. 86; In the Matter of the Promulgation and Establishment of Field Rules to Govern Operations in West Muddy Creek Field, Gunnison County, Colorado, Cause No. 1, Order No. 1-143, Colorado Oil and Gas Conservation Commission (March 30, 2009), attached as Ex. 87, available at <http://cogcc.state.co.us/orders/orders/1/143.html> (last viewed May 22, 2015).

²³⁵ See Uncompahgre Field Office, BLM, Oil and Gas Lease Sale February 2013, available at: http://www.blm.gov/co/st/en/BLM_Information/nepa/ufo/august_lease_sale.html, last viewed May 22, 2015).

²³⁶ BLM, Draft Environmental Impact Statement for the Bull Mountain Unit Master Development Plan (Jan. 2015) at 4-14, available at http://www.blm.gov/style/medialib/blm/co/information/nepa/uncompahgre_field/13-22_bull_mountain.Par.23863.File.dat/Bull_Mtn_DEIS_Jan2015_508_reduced.pdf (last viewed May 22, 2015).

²³⁷ J. Thomson, Janice L., et al., The Wilderness Society, Wildlife at a Crossroads: Energy Development in Western Wyoming, Effects of Roads on Habitat in the Upper Green River Valley 15-16 (Feb. 2005).

C. The Supplemental EIS Must Properly Disclose The Air Pollution Impacts Of The Proposed Action.

The Forest Service must fully analyze and assess impacts to air quality, including impacts to air quality in the context of all national ambient air quality standards (“NAAQS”), prevention of significant deterioration (“PSD”) increments for Class I and II areas, and visibility impacts to Class I areas. We are particularly concerned over the direct, indirect, and reasonably foreseeable impacts of mining to NAAQS for ozone, particulate matter (particularly PM_{2.5}), nitrogen dioxide, and sulfur dioxide.

Important NAAQS that the Supplemental EIS Must Address

Pollutant	Date Adopted	Standard	Citation
Ozone	2008	0.075 parts per million over an 8-hour period	40 C.F.R. § 50.15
PM _{2.5}	2006	35 micrograms/cubic meter over a 24-hour period	40 C.F.R. § 50.13
PM _{2.5}	2012	12 micrograms/cubic meter annually	40 C.F.R. § 50.18
NO ₂	2010	100 parts per billion over a one-hour period	40 C.F.R. § 50.11(b)
SO ₂	2010	75 parts per billion over a one-hour period	40 C.F.R. § 50.17

With regards to ozone, the Forest Service must also take into account that the EPA is poised to adopt strengthened NAAQS by the end of 2015. At the end of 2014, the agency proposed to adopt a standard of between 0.065 parts per million and 0.070 parts per million. See 79 Fed. Reg. 75234-75411 (Dec. 17, 2014). As a recent Air Pollution Control Division presentation indicated, if the standard is lowered to 0.065 parts per million, several western Colorado regions, including the Grand Junction area, the Rangely area in Rio Blanco County, and southwest Colorado would be in violation of the NAAQS.²³⁸ Given that the NAAQS are established based solely on what is necessary to protect public health (see Whitman v. Am. Trucking Ass’n, 531 U.S. 457 (2001)), this indicates the cumulative impacts to public health from air pollution associated with coal mining could be severe.

An analysis of ozone impacts must take into account VOC emissions from mine ventilation activities. As discussed above, the North Fork mines emit VOC pollution at significant rates, making it imperative that the impact of these emissions to ozone concentrations be fully disclosed in any supplemental EIS.

When analyzing and assessing air quality impacts, the Forest Service must not only take into account emissions directly from mining activities, including engines, generators, locomotives, trucks and other traffic, drilling rigs, but also emissions from indirect, or reasonably foreseeable activities. This includes the air quality impacts of coal combustion, locomotive operation outside

²³⁸ See Air Pollution Control Division, “Ozone Update March 2015 AQCC Meeting” (March 2015) at slide 25, attached as Ex. 88.

of the North Fork Coal Area (as well as particulate emissions associated with coal dust from train cars), and the air quality impacts of exporting coal overseas.

VI. THE FOREST SERVICE MUST EVALUATE A RANGE OF REASONABLE ALTERNATIVES AND MUST EVALUATE MITIGATION MEASURES.

A. NEPA Mandates That Agencies Evaluate All Reasonable Alternatives.

NEPA requires agencies to “study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternatives uses of available resources.” 42 U.S.C. § 4332(2)(E), (2)(C). The analysis of alternatives “is characterized as ‘the heart’ of the environmental impact statement.” Colo. Envtl. Coal. v. Dombeck, 185 F.3d 1162, 1174 (10th Cir. 1999) (quoting 40 C.F.R. § 1502.14). In the EIS, the agency must “[r]igorously explore and objectively evaluate all reasonable alternatives” in response to a “specif[ie]d] ... purpose and need.” 40 C.F.R. §§ 1502.13, 1502.14(a) (emphasis added); see also New Mexico ex rel. Richardson, 565 F.3d at 703 (stating that “an EIS must ‘rigorously explore and objectively evaluate’ all reasonable alternatives to a proposed action, in order to compare the environmental impacts of all available courses of action” (quoting 40 C.F.R. § 1502.14)).

Without substantive, comparative environmental impact information regarding other possible courses of action, the ability of an EIS to inform agency deliberation and facilitate public involvement would be greatly degraded. See Baltimore Gas & Elec. Co. v. Natural Res. Defense Council, 462 U.S. 87, 97 (1983). While NEPA “does not require agencies to analyze the environmental consequences of alternatives it has in good faith rejected as too remote, speculative, or impractical or ineffective,” it does require the development of “information sufficient to permit a reasoned choice of alternatives as far as environmental aspects are concerned.” Colo. Envtl Coal., 85 F.3d at 1174 (quotations and alteration omitted). See also New Mexico ex rel. Richardson v. Bureau of Land Mgmt., 565 F.3d 683, 708 (10th Cir. 2009). Courts hold that an agency need not provide a detailed study of alternatives that do not accomplish that purpose or objective, as those alternatives are not “reasonable.” Citizens’ Comm. to Save Our Canyons v. U.S. Forest Serv., 297 F.3d 1012, 1031(10th Cir. 2002). Courts apply this same analysis to rulemakings such as the one at issue here, as well as to site-specific project. See, e.g., Wyoming v. U.S. Dep’t of Agric., 661 F.3d 1209, 1243-44 (10th Cir. 2012) (applying NEPA’s mandate that agencies analyze all reasonable alternative in a challenge to national Roadless Rule).

While an agency has some discretion in fashioning an action’s purpose and need, agencies may not constrain the range of alternatives by “defin[ing] its objectives in unreasonably narrow terms.” City of Carmel-by-the-Sea v. United States Dept. of Transp., 123 F.3d 1142, 1155 (9th Cir. 1997). See also Wyoming, 661 F.3d at 1244 (“agencies are not permitted to define the objectives [of a proposed action] so narrowly as to preclude a reasonable consideration of alternatives”); Davis v. Mineta, 302 F.3d 1104, 1119 (10th Cir. 2002); Citizens’ Comm. to Save Our Canyons v. U.S. Forest Serv., 297 F.3d 1012, 1030 (10th Cir. 2002).

B. NEPA Mandates That Agencies Analyze Potential Mitigation Measures.

NEPA's statutory language implicitly charge agencies with mitigating the adverse environmental impacts of their actions. Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 351-52 (1989); Holy Cross Wilderness Fund v. Madigan, 960 F.2d 1515, 1522 (10th Cir. 1992). Mitigation measures are required by NEPA's implementing regulations. 40 C.F.R. §§ 1502.14(f), 1502.16(h).

The CEQ also has stated: "All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperation agencies" Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed. Reg. 18026, 18031 (March 23, 1981). According to the CEQ, "[a]ny such measures that are adopted must be explained and committed in the ROD." Forty Questions, 46 Fed. Reg. at 18036.

The Tenth Circuit has held that an agency's analysis of mitigation measures "must be 'reasonably complete' in order to 'properly evaluate the severity of the adverse effects' of a proposed project prior to making a final decision." Colo. Env'tl Coalition v. Dombeck, 185 F.3d 1162, 1173 (10th Cir. 1999) (quoting Robertson, 490 U.S. at 352). Mitigation "must be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated." City of Carmel-by-the-Sea v. U.S. Dept. of Transp., 123 F.3d 1142, 1154 (9th Cir. 1997) (quoting Robertson, 490 U.S. at 353).

"[O]mission of a reasonably complete discussion of possible mitigation measures would undermine the 'action-forcing' function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 353 (1989). A "perfunctory description," of mitigation, without "supporting analytical data" analyzing their efficacy, is inadequate to satisfy NEPA's requirements that an agency take a "hard look" at possible mitigating measures. Neighbors of Cuddy Mountain v. U.S. Forest Serv., 137 F.3d 1372, 1380 (9th Cir. 1998). An agency's "broad generalizations and vague references to mitigation measures ... do not constitute the detail as to mitigation measures that would be undertaken, and their effectiveness, that the Forest Service is required to provide." *Id.* at 1380-81. See also Northwest Indian Cemetery Protective Association v. Peterson, 795 F.2d 688, 697 (9th Cir. 1986), *rev'd on other grounds*, 485 U.S. 439 (1988) ("A mere listing of mitigation measures is insufficient to qualify as the reasoned discussion required by NEPA."); Idaho Sporting Congress v. Thomas, 137 F.3d 1146, 1151 (9th Cir. 1988) ("Without analytical data to support the proposed mitigation measures, we are not persuaded that they amount to anything more than a 'mere listing' of good management practices."). Moreover, in its final decision documents, an agency must "[s]tate whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not." 40 C.F.R. § 1505.2(c).

C. The Forest Service Must Evaluate Alternatives That Foreclose Exploration And Mining On Some Of The North Fork Coal Mining Area.

As noted above, the Forest Service defines the rulemaking's purpose as follows:

The purpose and need for this supplemental EIS is to provide management direction for conserving roadless characteristics within the area while addressing the State interest in not foreclosing exploration and development of the coal resources in the North Fork Coal Mining Area.

80 Fed. Reg. 18598, 18599 (Apr. 7, 2015). This statement thus anticipates that the purpose and need can be met by providing management direction for conserving roadless character while not foreclosing exploration and development for coal within some of the North Fork Coal Mining Area, while foreclosing exploration and development on other parts of the Area. Such an alternative will “address[] the State interest” in potential future coal mining “in the ... Area,” without leaving the door open to exploration and development on every acre of the Area.²³⁹

1. The Forest Service Must Evaluate An Alternative That Does Not Permit Road Construction for Coal Mining in the Pilot Knob Roadless Area.

Given the rulemaking's purpose and need, the Forest Service must evaluate an alternative that does not permit road construction for coal mining or exploration in the Pilot Knob Roadless Area.

The Pilot Knob Roadless Area includes only that part of the North Fork Coal Mining Area north of Highway 133 and directly adjacent to lands leased by Oxbow's idled Elk Creek mine.²⁴⁰ The area is about 4,900 acres in size, representing about one-fourth of the lands within the 19,600 acre exception area. This alternative meets the rulemaking's purpose and need because it would not foreclose road construction for coal mining and exploration within the North Fork Coal Mining Area south of Highway in the Sunset and Flatirons roadless areas. It would also better conserve the roadless character of the Pilot Knob area.

This alternative is also reasonable because while the State of Colorado may have an interest in “not precluding” coal mining and exploration within the Pilot Knob area, such development may

²³⁹ The scoping notice appears to indicate that the Forest Service will consider only two alternatives: the proposed action and no action. 80 Fed. Reg. at 18,599 (describing the proposed action, and then stating: “The other alternative being considered is the no-action alternative” (emphasis added)). The Forest Service cannot consider only the action and no action alternatives because, as described below, other reasonable alternatives exist that fulfill the purpose and need. To the extent the Forest Service reads the purpose and need so narrowly that only the action alternative can fulfill it, the agency has drawn that purpose and need in an impermissibly narrow manner. See Davis v. Mineta, 302 F.3d at 1119 (10th Cir. 2002).

²⁴⁰ See Earthjustice, Map, North Fork Coal Mine Exception Area (May 21, 2015). (Ex. 4).

have already been effectively foreclosed. The only mine likely to develop the area – the only one with adjacent leases – is Oxbow’s Elk Creek mine. That mine is idled. As noted above, it seems unlikely to reopen, given that the mine has lost access to its \$100 million longwall mining machine. Oxbow is preparing to auction off much of its movable equipment. Oxbow already has coal under lease that it is not mining. Further, the soft coal market and declining international demand make it appear that economic conditions are unlikely to favor a sizeable investment to recoup the amount of coal that remains in the roadless area. In short, whatever economic interest the State has in promoting coal mining at the expense of roadless areas is unlikely to be realized in the Pilot Knob Roadless Area.

2. The Forest Service Must Evaluate An Alternative That Does Not Permit Road Construction Within Wilderness Capable Lands.

The Forest Service must also evaluate an alternative that bars road construction within the most pristine roadless lands within the three roadless areas: those found by the GMUG National Forest in 2005 to be “wilderness capable.”

As part of its effort to revise its Forest Plan, the GMUG National Forest undertook a “Roadless Inventory & Evaluation of Potential Wilderness Areas” in 2005.²⁴¹ The inventory mapped and identified roadless areas, and determined whether they were “capable” of wilderness protection because they met all the hallmarks of the most pristine roadless lands, based on an evaluation of factors including: naturalness, opportunities for solitude, challenge for recreationists, manageability of boundaries, and any special features. A map displaying the wilderness capable lands in the Flatirons and Sunset Roadless Areas is attached.²⁴²

The 2005 inventory found about 4,000 acres of the 8,000+-acre Flatirons Roadless Area was “capable” for wilderness protection because that part “retains a high degree of naturalness.”²⁴³ The evaluation found that “[t]he area provides a moderate degree of challenge,” and that “steep terrain provides opportunities for self-reliance.” The wilderness-capable lands were not recommended for wilderness protection however, because those portions were less than 5,000 acres.²⁴⁴

The inventory also found that about half of the 5,880-acre Sunset Roadless Area was “capable” of wilderness protection because that part of the area directly adjacent to the West Elk Wilderness “offer[s] a high degree of naturalness,” because “[o]pportunities for remoteness and solitude are present in the vicinity of the wilderness boundary,” because of the “moderate-high degree of challenge” resulting from the “rugged” terrain, and because of the existence in the area

²⁴¹ See GMUG National Forest, 2005 Roadless Inventory & Evaluation Of Potential Wilderness Areas (July 2006), excerpts attached as Ex. 89 (“GMUG 2005 Roadless Inventory”).

²⁴² See Earthjustice, Map, North Fork Coal Mine Exception Area and Wilderness Capable Lands (May 21, 2015), attached as Ex. 90.

²⁴³ GMUG 2005 Roadless Inventory (Ex. 89) at 52.

²⁴⁴ *Id.* at 52-53.

of the “Deep Creek Slide,” a “striking geologic feature.”²⁴⁵ Nevertheless, the GMUG national Forest found the area not “available” for wilderness protection because of “mineral values”; that is the presumed existence of coal under the area, and because “boundary management would be difficult.”²⁴⁶

Excluding the wilderness-capable lands from North Fork Coal area would meet the rulemaking’s purpose and need by protecting those roadless lands with the highest degree of naturalness while not precluding coal mining on roughly two-thirds of the lands encompassed by the coal mine exception. Analyzing this alternative will thus place in sharp relief the balancing between protecting the most pristine lands and not foreclosing some amount of coal exploration and mining. This would leave open to access for coal mining more than 60% of the tonnage of coal that would otherwise have been available.

We note that this entire rulemaking process and the litigation that led to it could have been avoided had the Forest Service been willing to bar road construction for coal mining within the wilderness capable lands in the Sunset Roadless Area. Conservation groups challenging West Elk’s lease modifications within the Sunset area offered in 2012 to drop their administrative appeal if the Forest Service would agree not to approve road construction with Sunset’s wilderness capable lands. At Arch Coal’s insistence, the Forest Service rejected the offer.

D. The Supplemental EIS Must Analyze Alternatives That Require Mitigation Measures That Limit Carbon Pollution.

In its supplemental EIS, the Forest Service should consider and analyze mitigation measures that will reduce the climate pollution damage of coal mining that the proposed rule seeks to unleash. The Forest Service should therefore analyze in full:

- at least one action alternative that significantly reduces the climate change impacts of methane emissions caused by mining made possible by road construction within the North Fork Coal Mining Area. The Forest Service could achieve this goal by analyzing in full an alternative that: (1) requires any mine that will build roads within the North Fork Coal area to use best available technology to capture and/or combust the vast majority of methane to be emitted from the mine, including from methane drainage wells; and/or (2) requires any mine that will build roads within the North Fork Coal area to use best available technology to capture and/or combust a set amount (e.g., 33%, or 50%) of methane to be emitted from the mine. Technology in use today abroad and in the United States could significantly reduce such

²⁴⁵ Id. at 49.

²⁴⁶ Id.

emissions.²⁴⁷ Further, Oxbow is using flaring and capture technology at its closed Somerset mine to reduce methane's climate impacts while generating electricity.²⁴⁸

- at least one action alternative that offsets some or all of the climate change impacts likely to occur as a result of future mining, and of combusting the coal from, the North Fork Coal Mining Area. The Forest Service could achieve this goal by analyzing in full an alternative that: (1) includes as a mitigation measure a requirement that any mine seeking to construct roads within the North Fork Coal area offset all of the carbon emissions caused by mine operations, coal transport, and coal combustion, thereby making the mine "carbon neutral;" (2) includes as a mitigation measure a requirement that any mine seeking to construct roads within the North Fork Coal area offset a set amount (e.g., 33%, or 50%) of the carbon emissions caused by mine operations, coal transport, and coal combustion; (3) factors in the cost of greenhouse gas emissions and global warming when determining the fair market value of coal made available by the proposed rule; (4) includes as a mitigation measure a requirement that any coal mined from the coal mine exception area can only be sold to those facilities using Integrated Gasification Combined Cycle (IGCC) technology or verified carbon capture and storage (CCS) technology to significantly reduce the GHG emissions of downstream coal; (5) requires any coal mined from the coal mine exception area to be combusted in the U.S., or in a country with environmental standards for coal combustion that are equal to or stronger than those in the United States. Numerous tools exist to reduce or offset the harmful effects of greenhouse gas pollution.²⁴⁹
- an action alternative that requires any mine that will build roads within the North Fork Coal area to be a "net zero" carbon emitter. This alternative would require any such mine to secure offsets, reduce carbon emissions either on-site or off-site or take other measures to ensure that the impacts of coal mining, including the direct impacts and the impacts of coal combustion, produce a net of zero carbon emissions.

VII. THE SUPPLEMENTAL EIS MUST CORRECT ERRORS IN THE 2012 COLORADO ROADLESS RULE FINAL EIS.

The supplemental EIS must correct errors contained in the Colorado Roadless Rule Final EIS concerning the impacts of coal mining.

For example, the Colorado Roadless Rule Final EIS in part seeks to justify permitting massive amounts of road and drill pad construction with the Pilot Knob, Sunset and Flatirons Roadless

²⁴⁷ See letter of E. Zukoski, Earthjustice to G. Wallace, BLM (Mar. 17, 2009) at 42-48 (attached as Ex.91).

²⁴⁸ J. Blevins, Aspen Skiing Co. partners with coal mine for methane power, Denver Post (Nov. 12, 2012), attached as Ex. 92, available at http://www.denverpost.com/ci_21966674/aspen-skiing-co-partners-coal-mine-methane-power (last viewed May 22, 2015).

²⁴⁹ See letter of E. Zukoski to G. Wallace (Ex. 91) at 42-48.

Areas based on the assumption that such impacts are temporary, and that reclamation has succeeded in eliminating impacts of prior bulldozing within a few years. The Final EIS states:

About 75 miles of roads have been constructed or reconstructed since the 1960s in IRAs and CRAs on the GMUG National Forests for coal exploration, surface uses (such as methane drainage), and monitoring activities....

Decommissioning has occurred on about 55 of these miles. Decommissioning by obliteration has been effective in restoring disturbed lands to the post-mining land use (livestock grazing and wildlife habitat) Based on experience in the West Elk [Inventoried Roadless Area], the decommissioning and subsequent reclamation (revegetation) is well-established two to three years after reclamation
²⁵⁰
....

The Colorado Rule preamble itself goes even farther, claiming that “decommissioning roads by obliteration, along with land reclamation, effectively restores these underground mined areas.”²⁵¹ These statements are hyperbole at best. Reclamation activity, after several years, can and has, reestablished ground cover in some locations. But the areas will not be “restored” to their pre-bulldozed condition for generations, especially where mature aspen or spruce forests are removed. Further, the vast majority of prior road and methane drainage well construction on forest lands at West Elk and Elk Creek mines, and thus lands where reclamation has been attempted, have occurred at elevations of 8,000 feet or less, whereas most of the coal mine exception lands within the Flatirons Roadless Area, and nearly all of it in the Sunset and Pilot Knob Roadless Areas, exceed 8,000 feet in elevation. The Sunset Roadless Area tops out at about 9,800 feet. At higher elevation, growing seasons are shorter, and recovery times longer. Vegetation eliminated by bulldozing will take even longer to recover in these areas.

Photo comparisons of several drill pad sites at higher elevations in or near the Sunset Roadless Area demonstrate the difficulty of recovery. Photos taken at two drill pads – site EEE and FFF – and obtained from the administrative record for the Lease Modifications show areas where aspen stands have been flattened and 4-5 years little recovery has occurred. For example, at site FFF, reclamation began in 2005, but in 2010, five years late, 20%-40% of the “reclaimed” pad was still bare dirt.²⁵² Similarly at site EEE, six years after reclamation in an aspen stand began, 10%-30% of the pad was still bare ground, and the site remained an obvious eyesore.²⁵³

The U.S. Fish and Wildlife Service (FWS) also concluded that “restoring” habitat to its former state will likely not occur on West Elk mine drill pads for 30-40 years, if ever. In assessing the impact of the Lease Modifications, the FWS stated: “lynx habitat may recover to year-round

²⁵⁰ CRR Final EIS at 71

²⁵¹ Colorado Roadless Rule, 77 Fed. Reg. 39,576, 39,586 (July 3, 2012) (emphasis added).

²⁵² Photos, Drill Site EEE, from Forest Service files (2006-2011) attached as Ex. 93.

²⁵³ Photos, Drill Site FFF, from Forest Service files (2006-2011) attached as Ex. 94.

functionality approximately 30-40 years post disturbance.”²⁵⁴ Thus while reclamation may eventually lead to habitat restoration, that process will take a generation or more.

Further, while the Rule preamble claims reclamation “restores” areas, the Forest Service itself found in its 2005 roadless inventory that road and drill pad clearing for exploration that occurred years before within a part of the Flatirons Roadless Area disqualified that area from wilderness consideration:

The area west of Muddy Fork has been altered by temporary road construction [for coal exploration]; even though the roads have been closed, the remnants of those roads are of such a density that the area does not retain its naturalness nor a sense of remoteness.²⁵⁵

Thus, the Forest Service concluded that even the “remnants” of “temporary” roads for exploration, even after the roads were closed, degraded the area’s naturalness.

The Forest Service cannot have it both ways. It cannot proclaim that the coal mine exception will have few impacts because the land can be promptly “restored,” while concluding areas are so degraded by such actions that an area does not retain its “naturalness.” The supplemental EIS thus must honestly disclose the potential impacts of blanketing these roadless areas with 600 drainage pads and 50-90 miles of road, given that reclamation will not “restore” the former habitat for decades, and that former vegetative structure and sense of naturalness that recreationists enjoy may also be eliminated over the medium- to long-term.

VIII. THE FOREST SERVICE MUST PREPARE A NEW BIOLOGICAL ASSESSMENT TO ADDRESS THE IMPACTS OF THE PROPOSED COAL MINE EXCEPTION.

The Endangered Species Act (“ESA”) implements a Congressional policy that “all Federal Departments and agencies shall seek to conserve endangered species and threatened species.” 16 U.S.C. § 1531(c)(1). An “endangered species” is a species of plant or animal that is “in danger of extinction throughout all or a significant portion of its range,” while a “threatened species” is one which is likely to become endangered within the foreseeable future. 16 U.S.C. § 1532(6), (20). The operative core of the ESA is a list maintained by the Secretary of the Interior of threatened and endangered species, and the ESA permits citizens to petition the Secretary to add species to that list. 16 U.S.C. § 1533(b)(3)(A).

At the heart of Congress’s plan to preserve endangered and threatened species is Section 7 of the ESA, which places affirmative obligations upon federal agencies. Section 7(a)(1) provides that all federal agencies “shall, in consultation with and with the assistance of the Secretary [of Commerce or the Interior], utilize their authorities in furtherance of the purposes of this chapter

²⁵⁴ See Letter of A. Pfister, FWS to C. Richmond, GMUG NF (June 16, 2010) at 3, attached as Ex. 95.

²⁵⁵ GMUG 2005 Roadless Inventory (Ex. 89) at 52.

by carrying out programs for the conservation of endangered species and threatened species.” 16 U.S.C. § 1536(a)(1). The mandate of section 7(a)(2) is even clearer:

Each Federal agency shall, in consultation with and with the assistance of the Secretary [of Commerce or the Interior], insure that any action authorized, funded, or carried out by such agency ... is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined . . . to be critical, unless such agency has been granted an exemption for such action . . . pursuant to subsection (h) of this section.

16 U.S.C. § 1536(a)(2). Thus, section 7(a)(2) imposes two obligations upon federal agencies. The first is procedural and requires that agencies consult with the FWS to determine the effects of their actions on endangered or threatened species and their critical habitat. See 16 U.S.C. § 1536(b). The second is substantive and requires that agencies insure that their actions not jeopardize endangered or threatened species or their critical habitat. See 16 U.S.C. § 1536(a)(2); see also, Florida Key Deer v. Paulison, 522 F.3d 1133, 1138 (11th Cir. 2008).

The ESA’s requirements are triggered by “any ‘agency action’ which may be likely to jeopardize the continued existence of the species or its habitat.” 16 U.S.C. § 1536(a). By this process, each federal agency must review its “actions” at “the earliest possible time” to determine whether any action “may affect” listed species or critical habitat in the “action area.” 50 C.F.R. § 402.14; 50 C.F.R. § 402.02. When there exists a chance that such species “may be present,” the agency must conduct a biological assessment (“BA”) to determine whether or not the species “may be affected” by the action. See 16 U.S.C. § 1536(c). The term “may affect” is broadly construed by FWS to include “[a]ny possible effect, whether beneficial, benign, adverse, or of an undetermined character,” and is thus easily triggered. 51 Fed. Reg. at 19926. If a “may affect” determination is made, “formal consultation” is required and a biological opinion (“BiOp”) must be prepared.

Section 9 of the ESA prohibits the unlawful “take” of an endangered species, 16 U.S.C. § 1538(a)(1)(B), a term that is broadly defined to include harassing, harming, pursuing, wounding, or killing such species. 16 U.S.C. § 1532(19). The term “harm” means “an intentional or negligent omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering.” 50 C.F.R. § 17.3. The ESA’s legislative history supports “the broadest possible” reading of “take.” Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, 515 U.S. 687, 704-05 (1995). “Take” includes direct as well as indirect harm and need not be purposeful. Id. at 704; see also Nat’l Wildlife Fed’n v. Burlington No. R.R., 23 F.3d 1508, 1512 (9th Cir. 1994).

If an action constitutes a take under Section 9 of the ESA, a party must apply for and be granted an “incidental take permit” (“ITP”) from FWS pursuant to Section 10 of the ESA. 16 U.S.C. § 1539(a)(1)(B). If such a party takes a listed species without an ITP, the ESA authorizes civil and criminal penalties against that party. See 16 U.S.C. § 1540.

The meaning of “agency action” under ESA section 7(a)(2) is broad. NRDC v. Houston, 146 F.3d 1118, 1125 (9th Cir. 1998). An agency action is “any action authorized, funded, or carried out” by a federal agency. 16 U.S.C. § 1536(a)(2). The phrase is further defined in ESA regulations as “all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies.” 50 C.F.R. § 402.02. These include: “(b) the promulgation of regulations” and “(d) actions directly or indirectly causing modifications to the land, water or air.” Id.

The proposed re-adoption of the North Fork Coal Mining Area exception to the Colorado Roadless Rule is plainly an agency action requiring consultation under ESA § 7. Lockyer v. U.S. Dep’t of Agric., 575 F.3d 999, 1018-19 (9th Cir. 2009) (finding nationwide Roadless Rule was agency action for purposes of consultation because it designated areas where logging and road-building can and cannot occur). The Forest Service has previously acknowledged that the Colorado Roadless Rule, including its coal mining provisions is an agency action requiring consultation.²⁵⁶

Consultation on the effects of the proposed rule must consider the direct, indirect, and cumulative effects of both the rule itself and federal and non-federal actions that “are caused by or result from the proposed action, are later in time, and are reasonably certain to occur.”²⁵⁷ For this proposed rulemaking, these effects include both direct habitat loss for Canada lynx, reasonably foreseeable water depletions affecting four endangered Colorado River fish that will not occur but for the additional coal mining enabled by the proposed rule, and pollution to be emitted by the reasonably foreseeable combustion of that coal.²⁵⁸

The Fish and Wildlife Service and the courts have confirmed any water depletions within the Colorado River system jeopardize the continued existence of the endangered humpback chub, Colorado pikeminnow, razorback sucker, and bonytail (the “Four Endangered Fish”).²⁵⁹ All four of these fish are critically endangered due chiefly to alterations in the historical flow regime of the Upper Colorado River and its tributaries. Beginning in the 1970s, the Fish and Wildlife Service determined that any water depletions would jeopardize the continued existence of the Four Endangered Fish and adversely modify their critical habitat, and, as a result, adopted in

²⁵⁶ Forest Service, Rulemaking for Colorado Roadless Areas: Biological Assessment (Revised) 3, 27 (February 2012) (“CRR BA”), attached as Ex. 96.

²⁵⁷ Fish and Wildlife Service, Endangered Species Consultation Handbook 4-27 (1998).

²⁵⁸ Diné Citizens Against Ruining Our Environment v. U.S. Office of Surface Mining Reclamation and Enforcement, No. 12-cv-01275, slip op. at 13 (D. Colo. March 2, 2015) (citing 40 U.S.C. § 1508.8, Utahns for Better Transp. v. U.S. Dep’t of Transp., 305 F.3d 1152, 1176 (10th Cir. 2002)) (Agencies must analyze coal combustion impacts from mine expansion decisions when “(1) ‘but for’ the proposed expansion, the coal-combustion impacts would not occur and (2) the coal-combustion impacts are reasonably foreseeable.”).

²⁵⁹ See Rocky Mountain Wild v. Kornze, No. 13-01988, Mem. Op. at 16, 20 (D. Colo. Feb. 10, 2015).

1988 a Recovery Implementation Program (since amended) it identified as the reasonable and prudent alternative for avoiding jeopardy.²⁶⁰

Prior ESA consultation for the coal mine expansion that would be made possible by the proposed rule has identified that the mine expansion is likely to adversely affect the Four Endangered Fish through mining-related water withdrawals.²⁶¹ The Forest Service contended, and the Fish and Wildlife Service concurred, that these withdrawals would be covered under the Recovery Implementation Program and, specifically, the 2007 Programmatic Biological Opinion for small water depletions for mineral development projects on the GMUG NF (the “GMUG PBO”).²⁶²

The GMUG PBO, by its terms, covers only total water depletions of less than 100 acre-feet per year for the three forests, and no individual project exceeding 50 acre-feet.²⁶³ It also requires re-initiation of consultation under a number of conditions, including failure of the Recovery Program to meet its expected population goals.²⁶⁴ Specifically, it requires a review following 50,000 total acre-feet of withdrawals, or in 2015 (this year), whichever comes first, of fish populations and the effectiveness of recovery actions.²⁶⁵

The Service concluded that projects meeting these limits could avoid jeopardy under the 1999 Programmatic Biological Opinion for Recovery Program Actions in the Upper Colorado if project proponents sign the Recovery Agreement, make a monetary payment towards recovery actions, and that the Forest Service retain discretionary authority for reinitiation of consultation, if required.²⁶⁶ The Service in 2010 concurred that the mine expansion lease modifications were covered by the GMUG PBO based on Forest Service representations that water withdrawals would be limited to approximately 1 acre-foot per year associated with the drilling of methane drainage wells.²⁶⁷

²⁶⁰ See Fish and Wildlife Service, Reinitiation of Consultation for GMUG NF, No. ES/GJ-6-CO-99-F-033-CP602 (April 27, 2007) (“GMUG BO”), attached as Ex. 97.

²⁶¹ See Forest Service, Record of Decision for Federal Coal Lease Modifications COC-1362 and COC-67232 at 17 (2012) (“Lease Modification ROD”), attached as Ex. 98; Fish and Wildlife Service, Letter to Charles Richmond 1-2, No. ES/CO:FS/GMUG/Paonia RD (June 16, 2010) (“Lease Modification Concurrence”), attached as Ex. 99.

²⁶² Lease Modification ROD (Ex. 98)17, 29; Lease Modification Concurrence 1-2. The Biological Assessment for the lease modifications addresses only Canada lynx impacts, contending that “[f]ish species are being analyzed separately.” Forest Service, Biological Assessment for Federal Coal Lease Modifications COC-1362 & COC-67232 at 7 (Apr. 2010), attached as Ex. 100.

²⁶³ GMUG BO (Ex. 97) at 1.

²⁶⁴ Id. 4-7.

²⁶⁵ Id. 607.

²⁶⁶ Id. at 2-3.

²⁶⁷ Lease Modification Concurrence (Ex. 99) at 2; see also Lease Modification FEIS (Ex. 19) at 110.

In consulting with the Fish and Wildlife Service on the impacts of the proposed roadless mining exception, the Forest Service cannot rely either on conclusory statements that water withdrawals will be de minimis, nor, given newly-available information, can it rely on the 2007 GMUG PBO to cover water withdrawals. First, because mine-related water use is a readily foreseeable indirect effect of allowing mine expansion, the Forest Service must furnish detailed and substantiated information regarding current and foreseeable water usage by mining and methane drilling operations. This is particularly so because the coal mine exception will significantly extend the life of the West Elk mine, so that all of its operations that require water off of Forest Service lands and on private lands at the mine portal and load out facilities – mining, reclamation, coal washing, etc. – will continue for decades longer than they otherwise would, as will those uses on Forest Service lands that require additional water (methane drainage well and pad construction, reclamation, etc.). Colorado water court filings make clear that the West Elk mine utilizes water from the Gunnison River and its tributary waters for purposes beyond merely methane drainage well drilling.²⁶⁸ The Forest Service cannot ignore those direct and indirect impacts of its action off of Forest lands. Thus, a conclusory statement that “[w]ater usage from the National Forest for mining would be relatively minor”²⁶⁹ is insufficient, absent reliable information regarding the water demands and sources for existing and future mining operations.

Second, the most recent information available from the Recovery Program indicates that, due to a lack of sufficient progress in recovery, continued reliance on the GMUG PBO as a reasonable and prudent is no longer viable. Although the 2015 review required by the Recovery Program and GMUG PBO has not yet been completed, the Recovery Program’s 2014 “Assessment of Sufficient Progress” indicates that populations of Colorado pikeminnow and in the Upper Basin of the Colorado are below desired levels and below the minimum requirements of the GMUG PBO.²⁷⁰ Specifically, the GMUG PBO requires reinitiation of consultation if monitoring does not show that a population of 1,100 (within one confidence interval) adult Colorado pikeminnow is being maintained.²⁷¹ “If it is not maintained, this would be considered new information and section 7 would have to be reinitiated.”²⁷² The average of the five most recent population estimates for Colorado pikeminnow, however, is only 658 – below both the 1,100 threshold of

²⁶⁸ See State of Colorado, D. Ct. Water Div. 4, Resume of Applications for August 2009, Case No. 2009CW107 (Ex. 101) (describing West Elk Mine use of Gunnison River water for “Mine land reclamation, sedimentation, and pollution control, mining, industrial, commercial, manufacturing, domestic and municipal purposes, and irrigation (pursuant to land reclamation)”); State of Colorado, D. Ct. Water Div. 4, Resume of Applications for December 2012, Case No. 2012CW151 (Ex. 102) (describing West Elk Mine use of Gunnison River water for mining and mine reclamation, including but not limited to irrigation for mine reclamation, dust suppression, fire protection, and other mine operation uses.”

²⁶⁹ Lease Modification FEIS (Ex. 19) at 110.

²⁷⁰ Fish and Wildlife Service, 2013-2014 Assessment of Sufficient Progress Under the Upper Colorado Endangered Fish Recovery Program at 4, 34 (Sept. 10, 2014) attached as Ex. 103 (“Sufficient Progress Memo”).

²⁷¹ GMUG BO (Ex. 97) at 6.

²⁷² Id.

the GMUG PBO, and the recovery criterion of at least 700 adults.²⁷³ The Service concludes that “Despite good cooperation among Program partners and a comprehensive suite of recovery actions, the Service remains concerned with recent reports of low densities of Colorado pikeminnow in the Green and Colorado River sub-basins.”²⁷⁴ Five years of pikeminnow populations more than 40% below the minimum level assumed by the GMUG PBO makes continued reliance on its provisions untenable, and, under the PBO’s own terms, requires re-initiation of consultation. Thus, the Forest Service must engage in independent Section 7 consultation on the effects of mining-related water withdrawals on the Four Endangered Fish, and cannot rely on the GMUG PBO as a reasonable and prudent alternative.

IX. THE FOREST SERVICE MUST PREPARE A NEW REGULATORY IMPACT ANALYSIS AND COST-BENEFIT ANALYSIS.

New information requires the Forest Service to prepare a new regulatory impact analysis to address the coal mine exception’s benefits and costs – including the social cost of carbon.

Executive Order 12866 directs federal agencies to assess the potential costs and benefits of their significant regulatory actions, consisting of several categories of regulatory actions, including those likely to result in a rule that may have an annual effect on the economy of \$100 million or more or that have a material adverse effect on the economy; a sector of the economy; productivity; competition; jobs; the environment; public health or safety; or state, local, or tribal governments or communities.²⁷⁵ For regulatory actions that meet the threshold, agencies must also assess costs and benefits of reasonably feasible alternatives and explain why the planned regulatory action is preferable to the identified alternatives. For each significant regulatory action, the agency must develop the proposed regulation and associated regulatory impact analysis (RIA) and submit them to OMB for formal review before the agency publishes the final rule.²⁷⁶ After a Ninth Circuit decision in 2008, agencies began including an evaluation of the social cost of carbon as part of the RIA in order to properly assess the costs and benefits attributable to GHG pollution, and, since 2010, agencies have had a standard tool by which to measure these costs—the social cost of carbon protocol.²⁷⁷

²⁷³ Sufficient Progress Memo (Ex. 103) at 4.

²⁷⁴ Id. 34.

²⁷⁵ Exec. Order No. 12866, 58 Fed. Reg. 51,735 (Sept. 30, 1993). Other significant regulatory actions include those that are likely to result in a rule that may create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or raise novel legal or policy issues arising out of legal mandates, the President’s priorities, or the principles set forth in Executive Order 12866.

²⁷⁶ Id.

²⁷⁷ See Ctr. For Biological Diversity v. Nat’l Highway Traffic Safety Admin., 538 F.3d 1172, 1200, 1203 (9th Cir. 2008). See also General Accounting Office, “Regulatory Impact Analysis, Development of Social Cost of Carbon Estimates” (Ex. 32).

In April of 2012, the Forest Service released a cost-benefit analysis of the CRR and proposed alternative courses of action. See USDA Forest Service, Roadless Area Conservation: National Forest System Lands in Colorado, Final Rule, Regulatory Impact Analysis and Cost-Benefit Analysis, April 11, 2012, p. 17 (“CRR RIA”). The CRR RIA was designed to help the agency choose the best action that maximizes “potential economic, environmental, public health and safety effects, distributive impacts, and equity.” CRR RIA at 1. The Forest Service used criteria developed by the Office of Management and Budget (“OMB”), which agency reviewed the CRR. See RIA at 1, 58. Although the CRR differed from the 2001 Rule by \$65 million, which is less than the \$100 million threshold, the OMB reviewed the CRR because the rule was deemed “a significant regulatory action” under section 3(f) of Executive Order 12866. Id. at 1. The RIA is also based upon Executive Order 13563, which encourages agencies to “tailor . . . regulations to impose the least burden on society,” and directs them to “use the best available techniques to quantify anticipated present and future benefits and costs as accurately as possible.” Executive Order 13563 of January 18, 2011, Improving Regulation and Regulatory Review, 76 Fed. Reg. 14, Section 1(b)(1) (Jan. 21, 2011).

Because the CRR RIA was based on one inaccurate (and legally invalid) assumption, and because significant new information has become available since 2012, the Forest Service must prepare a new RIA.

First, the 2012 RIA was based on a mistake of law. The RIA failed to discuss the climate impacts of the CRR, stating that “[a]ny future potential emission inventories for GHGs associated with project activities under the final rule . . . are too speculative for estimation.” See RIA at 17. However, as the High Country court ruled, the Forest Service not only can, but must quantify greenhouse-gas emissions from coal mining and coal combustion. In order to fully address the impacts of reasonably foreseeable greenhouse gas pollution, the Forest Service must consider costs to the human and natural environment using the Interagency Working Group social cost of carbon protocol, which was specifically created in response to the need to disclose such impacts in the rulemaking process. See supra at 23-27. Climate considerations should factor heavily into a new RIA’s cost-benefit analysis, since the purpose of an RIA is to evaluate the costs and benefits, including the environmental and social costs, of the proposed action, and impacts to climate change could present a heavy burden to humans and the environment.

Second, the coal market internationally, nationally, and in the North Fork Valley has changed since 2012, rendering the economic bases of the RIA out of date and inaccurate. The 2012 RIA estimated total economic output from leasable minerals as \$760 million per year, with 200 more supported jobs and \$17 million more in labor compared with the 2001 Rule.²⁷⁸ CRR RIA at 36. These figures are based on inaccurate and/or outdated data. As noted above, employment and coal production figures for the North Fork Valley mines have fallen since 2009 (and 2012). See supra at 41. Revenues and royalties at the mines are also down. See supra at 43. Elk Creek, one

²⁷⁸ Presumably, all of the increased revenue comes from coal mining, oil and gas leasing numbers would be unchanged between the two rules. See CRR RIA at 6 (“The total number of oil and gas wells and recoverable reserves (*i.e.*, 732 wells; 1,276 billion cubic feet of gas (bcfg)) are projected to be the same for the final rule, the 2001 rule and Alternative 4 for the analysis area in the foreseeable future.”).

of the two mines predicted to take advantage of the coal mine exception in 2012 has been idle since December 2013, and does not seem poised to re-open in the near term. See supra at 7. First, the 2009-dollar-based figures must be updated to reflect the passage of time. There are also questions about the consistency of the methodology employed by BLM in estimating the volume of coal available. See supra at 18-19. The baseline analysis has changed too. The RIA appears to assume a royalty rate of 8% despite the fact that actual royalties paid by coal companies have been lower, and are likely to remain low. See supra at 62-63.

Further, the current RIA's analysis of proposed road construction is also questionable. The report projects 52 miles of road construction, 50 within the three roadless areas. CRR RIA at 8. However, this number is likely low given the assumption that 3 miles of road per square mile will be built for methane drainage. See supra at 5. New information also suggests that the Elk Creek mine has failed to comply with permit limitations on ground disturbance, a factor the RIA should consider when evaluating potential surface impacts. See supra at 62-63.

A supplemental RIA is warranted in this case since the proposed coal-mining exemption is a significant regulatory action within the meaning of Executive Order 12866. The Forest Service already deemed the Colorado Roadless Rule a significant action and accordingly prepared the CRR RIA, and the coal-mining exemption factored heavily in the CRR RIA's overall environmental and economic assessment. For example, the exemption had the most important economic impact of the activities in the Colorado Roadless Rule as it was the sole contributor to the \$65 million projected net increase in revenue from the 2001 Roadless Rule. See CRR RIA at 36. Importantly, the exemption was the major factor in the CRR that could adversely affect the environment, since the exemption would allow roads, drill pads, and other structures to be built in otherwise-protected roadless areas, shearing through these pristine wilderness landscapes, disrupting the habitats of native species (including endangered species), and negatively impacting water sources in the area. Further, mining for and burning millions of tons of coal will negatively impact the environment, contribute to climate change, and have societal and economic costs. As the agencies did after the Center for Biological Diversity ruling, agencies typically update RIA analysis when, as here, the data on which the previous analysis was based has substantially changed or the agency has been ordered to consider other data, such as the social cost of carbon.²⁷⁹

Therefore, the Forest Service should prepare a RIA for the coal mine exception rulemaking and base that analysis on updated, accurate data, including the social cost of foreseeable GHG emissions from coal mining and combustion.

²⁷⁹ See, e.g., Office of Transportation and Air Quality, U.S. Environmental Protection Agency, National Highway Traffic Safety Administration U.S. Department of Transportation, Final Rulemaking to Establish Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles, Regulatory Impact Analysis, 76 Fed. Reg. 57,106 (Sep. 15, 2011) (prepared subsequent to 2009 decision requiring the agencies to consider climate impacts).

CONCLUSION

Thank you again for this opportunity to comment. If you have any questions about this letter, please call Ted Zukoski or Katie Dittelberger at Earthjustice (303 623 9466).

Sincerely,



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