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U.S. Forest Service,

In light of President Obama's Clean Power Plan seeking to reduce carbon emissions by 32 percent by 2030,
? Obama just announcing plans to halt coal leasing on public lands, at least temporarily, while his
administration rethinks the program,
? more than three dozen U.S. coal operations having gone bankrupt in the past three years and subsequent
concerns of insufficient bonding,[2]
? Arch Coal's bankruptcy risk,[3]
? the heavy long-term debt load carried by major coal operators,[4]
? analysis that the current 12.5 percent royalty rate does nothing to take into account the costs for climate
change and human health associated with burning federally-owned coal, and that it should be 28.7 percent,[5]
? even with an increased royalty rate, damaging externalities are not included, such as emissions of volatile
organic compounds and hazardous air pollutants, water pollution, water use, habitat disruption, and noise, [6]
? coal companies exploit loopholes, including royalty rate deductions and lax oversight, to avoid paying their
fair share of royalties, costing taxpayers up to \$1 billion each year in lost revenue. The fiscal terms of federal
coal leases also fail to account for the many environmental and social externalities imposed on the public by
coal production,[7]
? the gap between acres disturbed by mining and the acres released from reclamation bond continuing to grow--
as well as outstanding bond liabilities of companies,[8]
? the decreasing number of state regulatory employees,[9]
? the extension of tax credits for solar and wind for another five years, giving an unprecedented boost to the
industry and changing the course of deployment in the U.S.,[10]
? reports of the fossil fuel industry receiving \$10 million in subsidies per minute,[11]
? the expanse of coal-mined land that has yet to be fully reclaimed-- due to the challenges of restoring native
habitat in arid regions, no mined area in the West has been able to reclaim to pre-mining habitat conditions,[12]
? the expansion of coal mines in the developing world,[13]
? recently leaving the Peace Corps in Nepal and the "Asian Brown Cloud,"
? extreme weather conditions across the globe, and
? our world having surpassed carbon dioxide levels over 400 ppm,

this letter concerning a change in the Colorado Roadless Coal Exception comes seeped in deep concern. To
me, the majesty of Colorado's Western Slope is unparalleled, and it has the real potential of being a model of
regenerative development as it has been plagued with the boom-and-bust cycle of mining since the 1800s. The
United States desperately needs to find a new form of geopolitical leverage other than energy resources if we
are to continue to inhabit the earth and establish relative peace. [14][15]

A Mining Town Perspective

The history of Crested Butte so closely reflects the history of the development, utilization and exploitation of the
natural resources of the surrounding country that the various ages of the town could easily be codified
according to the dominant supporting resource. It was coal that put Crested Butte on the mining map. Crested

Butte hit on hard times when the last coal mine-- CF&I's Big Mine-- closed in 1952. Three years later, railroad tracks were pulled between Gunnison and Crested Butte. During the 1950's, the population plummeted to 300, and many predicted Crested Butte would become a ghost town. However, in 1960 with the opening of the Crested Butte Ski Area, the town entered into a new era. Crested Butte has been remarkably successful in this new era.

"The local economies of Crested Butte and Gunnison County exemplify the changing economy of the West," said Joe Marlow, resource economist for the Sonoran Institute and author of Crested Butte's Stake in Mining Reform. "People are moving to the rural West to live and work primarily due to quality of life considerations. Given the abundance of protected public lands and recreational activities in the area, it starts with tourism, but quickly evolves into more permanent economic activity including second home building and local entrepreneurship." [16] The study ties almost 40 percent of the jobs in Gunnison County to tourism and travel spending, which makes tourism the single most important industry in the county ".Travel spending is actually more important in the rural counties because it is a much larger proportion of the local economies than it is in the major metropolitan areas," said Marlow. "Our concern is that adequate consideration has not been given to the potential disruption to local economies by a major new mining operation in the Crested Butte area, along with the setback this could pose to progress these communities have made over the years to reinvent and diversify their economic base." [17]

Climate Change in Gunnison County:: A Microcosm of the Global Climate Change Debate

Alongside coal, natural gas, uranium, and other precious metals, Gunnison is also home to pioneering research scientists at the Rocky Mountain Biological Laboratory who have been documenting the kaleidoscope of impacts we are just beginning to understand of climate change. As climate change is already changing ecosystems and affecting people in the southwestern United States with rising temperatures contributing to large-scale ecological impacts, affecting plants, animals, as well as ecosystem services, e.g., water supply, their research contributes to the backbone of our community. I'd like to share some of RMBL's research findings as the impacts of the proposed coal mines will greatly contribute to our carbon footprint; I'm concerned that:

? The proposal provides for 350 million tons of coal to be mined and subsequently burned, resulting in millions of tons of carbon pollution;

? Arch Coal will drill wells above the mine to vent the methane gas into the air, a potent greenhouse gas with 21 times more heat trapping ability than carbon dioxide. Both the Bureau of Land Management and the U.S. Forest Service have refused to require Arch to capture, burn, or reduce any of the mine's methane pollution, or to simply say enough to the wasteful practice. According to the EPA, Mountain Coal's West Elk Mine is one of only 12 in the country that does not capture for use methane vented from drill holes; and

? the Forest Service estimated that the climate change impacts of the methane released during Mountain Coal's expansion is equal to more than one percent of all the emissions from every car and truck, and from every coal and natural gas power plant in Colorado.

RMBL research includes:

? Impacts of earlier snowmelt/ didymo: Dr. Taylor is leading research on the brown algae-- *Didymosphenia geminata* or "didymo"--in 30 rivers. Didymo is a freshwater microscopic diatom thought to be a response to low nutrients caused by the rush of nutrients from early snowmelt (water bodies are then void of nutrients for the rest of the flow). Didymo increasingly poses a threat to aquatic ecosystems because it forms extensive mats on stream beds, which alter aquatic insect and native algae populations and breed earthworm whirling disease.

Dr. Taylor has noted an increase in whirling disease in didymo-affected water; three fourths of fish have whirling disease. One clear sign of whirling disease is that the gills no longer cover the gill plates. This affects how much oxygen fish can absorb and makes them more susceptible to infection. Whirling disease is a parasite that infiltrates the head and spinal column of fish where it causes the fish to "whirl" forward in an awkward, corkscrew-like pattern instead of swimming normally, find feeding difficult, and are more vulnerable to predators. Dr. Taylor also studies the diets of fish in didymo-affected water as didymo can alter aquatic insect and native algae populations. Fish are 40 percent smaller in didymo affected locations as they eat what is connected to didymo mats. The mortality rate is high for fingerlings, up to 90 percent of infected populations, and those that do survive are deformed by the parasites residing in their cartilage and bone. They act as a reservoir for the parasite, which is released into water following the fish's death.

? Invasive Weeds: Yellow toadflax, absinth wormwood, scentless chamomile-- these aggressive, non-native plants are rapidly changing the face of Colorado landscapes by interfering with natural processes, native

species and management of our lands. Dr. Irwin of Dartmouth is leading a 10-year study on the seed mortality of Yellow Toadflax. Yellow Toadflax, and invasive weeds in general, compete with natives for pollinators. Bees preferentially visit toadflax because its nectar is 10x sweeter and its pollen 2x more protein-dense than natives. This is having a negative impact on natives' ability to reproduce and could devastate native flowers.

? Soil Moisture/ Nutrient Cycling: Dr. Harte has been heating a Rocky Mountain meadow to measure the effects of long-term warming on soil moisture, nutrient cycling, and plant communities. He and students monitor changes in soil microclimate, vegetation phenology and community composition, arthropod diversity, carbon dioxide and methane exchange with the atmosphere, nitrogen cycling, and nutrient status of the soils and plants. Results to date indicate that a level of warming comparable to that expected from a doubling of atmospheric carbon dioxide exerts profound effects on soils and vegetation, and that these ecosystem effects will ultimately feed back on the climate. For example, the rate of carbon dioxide released from the system under the warming suggests that a significant positive feedback exists between montane ecosystems and the climate, with warming triggering an increase in this greenhouse gas. Observed warming-induced shifts in dominant vegetation from forbs to shrubs will likely also alter surface albedo and therefore the climate.[18]

Further, to reduce the adverse effects of climate change on nature and people, the Nature Conservancy is working with the Gunnison Climate Working Group, a public-private partnership in the Upper Gunnison Basin to increase understanding and awareness of threats posed by climate change to species, ecosystems and the benefits they provide to people of the Gunnison Valley. The findings Gunnison Climate Change Working Group's Vulnerability study include:

? The average annual temperature of the Upper Gunnison Basin is projected to increase by approximately 3°C (5.4°F) from the late 20th century to the middle 21st century. Average summer temperatures are projected to increase by approximately 4°C (7°F).

? Climate projections show no distinct trends in average annual or seasonal precipitation, but they reveal several ecologically important changes, including a 10-25 percent decrease in average annual runoff, more precipitation falling as rain rather than snow, earlier snowmelt and spring runoff peaks, and changes in the seasonality of flooding. Rising temperatures are projected to bring about these hydrologic changes no matter how precipitation patterns change in the basin (precipitation projections are considerably less certain than temperature projections).

o In the future, warmer temperatures will increase the severity of drought impacts, which would hit earlier during the spring and summer, with greater depletion of soil moisture, and therefore more stress on ecosystems. Warmer temperatures could also lead to more severe declines in summer and fall stream flow. This relationship between temperature and the severity of drought impacts has already been observed in the West.

o Current hydrologic models based on climate models do not account for dust factors, and therefore are likely conservative estimates of the hydrologic impacts of climate change.

? Five terrestrial ecosystems-mesic alpine, xeric alpine, bristlecone pine, Douglas-fir, and low-elevation riparian-were rated highly vulnerable to climate change. The alpine ecosystem is likely to be highly susceptible to rising temperatures and a shorter duration of snow cover. Warmer temperatures and a longer growing season in the alpine may allow shrubs and trees to encroach. For many species, a range shift in response to warmer temperatures is expected, but with no higher areas available for alpine species, a range shift may not be possible.

? Of the seven freshwater ecosystems assessed, one - montane groundwater-dependent wetlands - was rated highly vulnerable. These wetlands are already adversely affected by water development, grazing, and invasive species, and these stresses are expected to be exacerbated by climate change.

? Seventy-four percent (54 out of 73) of the species of conservation concern analyzed were rated vulnerable to projected climate change in the Gunnison Basin: 43 (of 50) plants and 11 (of 23) animals. The most vulnerable mammals are lynx, snowshoe hare, and American pika - all high elevation species with vulnerability scores driven by their limited capacity to adapt to warmer temperatures.

? An upsurge in the frequency of large fires began in the mid-1980s and is expected to continue. The predicted trend of higher fire frequency and severity has the potential to exasperate or accelerate changes to ecosystems. For warming levels of 1 to 2°C, the annual area burned by wildfire in parts of western North America is expected to increase by 200-400% for each degree (°C) of warming. The potential for large, severe fire increases as snowpack melts earlier in the spring, leading to longer fire seasons.

? Vulnerability to increased damage from invasive species is expected. Increased temperatures and hydrologic changes that result from these increases may make freshwater and riparian ecosystems more susceptible to invasion by non-native species. Of particular concern are quagga mussel, New Zealand mudsnail, rusty crayfish, and Eurasian milfoil, but unforeseen invasives are also possible. Didymo, a native alga that can

have highly adverse impacts when its population explodes, could experience climate-change induced spread and increase if streams experience longer periods without floods.

? Vulnerability to pathogens is also expected to increase. Negative impacts resulting from whirling disease, giardia, cryptosporidium, and possibly other pathogens could increase. Indirectly, the loss of conifer forest from mountain pine beetle can alter how much water reaches the stream and when.

? Vulnerability to extreme events is also expected to increase. Changes in the frequency of floods and drought could affect geomorphic processes (affecting the structure of instream and riparian habitats, sedimentation, water quality, and the ability of small populations to persist). Narrowleaf cottonwood asexual reproduction could be greater with more frequent large floods. Sediment flows after major fires can severely impact instream habitat availability and quality, but sediment can also be moved out quickly with additional high flows. Without flushing, excessive sediment can be expected to adversely impact individual streams, but this effect may not be widespread. An increase in intense isolated monsoon storms can result in debris flow and mudslides, impacting aquatic habitat in smaller streams. [19]

The safe level of carbon dioxide in the atmosphere is 350 parts per million. The only way to get there is to immediately transition the global economy away from fossil fuels and into renewable energy, energy efficiency, and sustainable farming practices. The last time CO₂ levels were this high, humans did not exist. As listed above, projected climate change impacts to the Gunnison are already immense.

As Earthjustice attorney Ted Zukoski has noted, "Colorado has pledged to reduce greenhouse gas emissions here 20 percent by 2020. Getting one of the state's worst greenhouse polluters to use off-the-shelf technology on a single project would be just about the easiest, most cost effective step toward achieving that goal[20]." It is known that montane regions are amongst the most vulnerable to climate change; we should be moving forward, focusing on adaptation strategies-- from our didymo-affected watersheds to the changing vegetation of our fields-- rather than introducing toxins that our community has known for over 100 years.

Moving Forward

1. The Forest Service needs to honestly account for the climate pollution impacts resurrecting the coal carve-out would have on ecosystems, tourism, recreation, and local economies.
2. The Forest Service needs to conduct direct, indirect, and cumulative impacts analysis so the public and the decision makers know what the impacts will be on a host of other resources and values should the carve-out be re-resurrected. This is especially important given that the Colorado Roadless Rule itself is an overly broad document that does not provide thorough analysis on these issues and in light of recent developments, such as being at over 400 ppm of carbon in the atmosphere and the drastic increase in proposed natural gas in this area since the final public comment period closed in 2012.
3. OSM should raise bond amounts to a level that would be sufficient to motivate companies to reclaim mined land and apply for bond release. The new levels should be sufficient to pay for restoration of the hydrologic balance, including groundwater, if that has not been achieved with initial reclamation efforts. OSM has acknowledged on a number of occasions that current bond levels are too low to provide incentive to mining companies to complete reclamation and apply for bond release.[21]
4. Regulatory authorities must conduct thorough due diligence on the financial positions of present and future self-bond guarantors, particularly with respect to prior or duplicate encumbrance of their assets. If surface mine reclamation self-bonds are found to be secured by assets that will not be available in the event of a reclamation claim, state regulatory authorities must require alternative, collateralized financial assurance. Most states already permit letters of credit, collateral bonds, etc. The danger of effectively unsecured reclamation bonds is especially acute in a time of significant debt loads and shrinking coal markets.[22]
5. The Department of Interior (DOI) should not lease new public lands for mining operations until at least 50 percent of currently occupied lands are released from final bond obligations, and the Department should not approve any new federal mine plan for a mine to expand onto additional federal public lands until final bond obligations of the existing mining operations have been met.[23]
6. The DOI should increase royalty rates for federal coal to account for the environmental costs of coal production, which are imposed on the public. It should also consider increasing coal royalty rates even higher, to account for transportation externalities. Transporting coal long distances by rail generates air pollution and additional greenhouse gas emissions, and contributes to public fatalities, congestion, and noise pollution. If the DOI were to change the point of valuation for coal royalties to the final delivery point (market price) or another point remote from the mine, as the Office of Natural Resources Revenue is considering, transportation costs will become relevant to royalty payments. In such a scenario, the transportation deduction would translate into an allowance for the full cost of transporting coal from the mine to a remote point of sale, reducing incentives for companies to find the most efficient and lowest-cost mode of transportation, and subsidizing coal production

and transportation over other energy sources.[24]

7. Finally, it should revise its royalty rate reduction and transportation allowance regulations, to provide better incentives to coal companies. Interior should eliminate inefficient and market-distorting subsidies and royalty rate deductions, and instead use its discretion to provide incentives for coal companies to capture more pollution.[25]

8. On Earth Day, president Obama gave an address from the everglades noting the significant threat climate changes poses and that we need to take action. The Forest Service's proposal, is thus not only entirely inconsistent with the Administration's position on climate change, but entirely inconsistent with the leadership we need to make our nation and world secure and resilient to climate change.

Thank you for the opportunity to submit comments and for taking the time to read through them,
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