Letter #01

Opposed to this public land development. Wildlife and public access are under greater threat than electricty generation. The land use footprint is enormously large and there wont be any land use for sage grouse, elk, mule deer, etc. I dont even see cattle grazing on existing wind farms. Strongly OPPOSED by a Wyoming resident and outdoorsman.

Letter #02

No keep those out of our state. Look what happened to the very first put in , In medicine bow.. Hell no flipping eyesore any way

Letter #03

December 4, 2022

Subject: Comments Concerning the Two Rivers Wind Project, Carbon County, Wyoming

“Our mission is to sustain the health, diversity, and productivity of America’s public lands for the use and enjoyment of present and future generations”. That is the Bureau of Land Management’s mission statement. “The U.S. Fish and Wildlife Service works with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.” The BLM and the USFWS coordinated in the preparation of the environmental assessment for the Two Rivers Wind Project and, if applicable, will issue a joint Finding of No Significant Impact. There **IS** Significant Impact as discussed in my comments below thus an Environmental Impact Study should be completed, at a minimum. However based on the following information, the No Action alternative should be selected.

The press release dated November 9, 2022 states that Two Rivers Wind Energy Project Phase I-III is to be in Carbon County and includes private, BLM, and State land. BLM and State land belongs to me as a resident of Carbon County and Wyoming. I do not want any more wind projects. Phase IV is on private land. Flying and grounded animals will pass through any and all air/land regardless of owner. The press release states that “the project would result in numerous jobs and significant investments in both the local community and the state of Wyoming through lease payments and tax revenues”. The environmental assessment stated that “construction workers would average approximately 159 workers over a 1-year construction period with a peak of 262”. It went on to say that “to the extent that workers are non-local” (ie bringing their own workers) “there could be an incremental increased demand for community services and facilities, particularly Medicine Bow and Rock River.” It appears that most of the workers will be non-local and year round jobs will be minimal. Yes, the lease and tax revenues would be significant, although no numbers were stated, but at what cost? Further, none of the power produced from any of the wind projects in Wyoming is staying in Wyoming. None of it.

The following paragraphs are based on the Two Rivers Wind Project Environmental Assessment. The concern I have is that the document includes numerous paragraphs on species present in the project area, or adjacent to the project, and yet the analysis of these impacts to these species is very weak.

STUDY AREA

“The study area is characterized by rolling plains punctuated by steep east-west trending ridges and is crossed by the floodplains of larger streams such as Foote Creek, Little Medicine Bow River, The Medicine Bow River, and Rock Creek. Elevations range from 6400 feet along the floodplains to over 7000 feet on the high plains in the south east. The east-west trending ridge in the south include Pine Butte and Flattop Mountain”. The area of this beautiful description is rich with natural resources that must be protected **NOW** and for future generations. “The development of the proposed Project would cause a substantial amount of visual contrast with the predominantly natural character of the existing landscape. The primary change in visual effects would be the addition of wind turbine generators, collection systems, transmission lines, substations, roads, fugitive dust, and earth work. The proposed project also would extend visual effects through the increased human use and activity in the area.” As a resident that drives through this area I do not want these negative visual impacts to be approved.

NEXUS

“EITP is not the only federal nexus; Two Rivers has filed for a right-of-way”... “The project will not result in any unpermitted take of wildlife, fish, plants, or associated critical habitat listed under the Endangered Species Act.” …”The Applicant has worked closely to incorporate agency feedback to avoid impacts to sensitive environmental resources.” The No Action alternative is the only way to protect the area's irreplaceable resources now and for the future and comply with the statements above. I will address Nexus again later.

WILDLIFE GREATEST CONSERVATION CONCERN CRUCIAL TERRESTRIAL HABITAT

“Wildlife is all wild mammals, birds, fish, amphibians, reptiles, crustaceans, mollusks, and wild bison.” A total of 61 Species of Greatest Conservation Concern were identified as potentially occurring within the study area. These designations are based on variables evaluated by the Wyoming Game and Fish Commission and were designated to identify the conservation priority of any given Species of Greatest Conservation Need Species.” Twenty-one bird species are listed as Bird of Conservation Concern, many of which have the potential to occur within the Study Area (bald eagle, Cassin's finch, Golden Eagle, Willet, and Lesser Yellowins).High priority birds of Conservation Concern include Greater Sage Grouse, Ferruginous Hawk, Brewer's Sparrow, and Sage Thrasher. About 10 miles north of the Study Area, 63 species were identified during the 2018 survey found along the predominantly shrubland/grassland landscape. They include Horned Lark, McCown’s, Longspur, Vesper Sparrow and Western Meadowlark.” “The Study Area is located within Crucial Terrestrial Habitat priority areas for big game (Crucial Winter Range) and black-footed ferrets.” “Crucial habitat priority areas are based on significant biological or ecological values. The areas were identified to communicate to the public and other entities that there are areas that need to be protected or managed to maintain viable health populations of terrestrial wildlife for the present and the future.” “ Species of concern include: migratory birds (including eggs, nests and feathers) bald and golden eagles, all migratory, non-game birds that without additional conservation actions are likely to become candidates for listing under the Endangered Species Act.” This environmental impact study did not sufficiently analyze impact to Wildlife, Greatest Conservation Concern, and Crucial Terrestrial Habitat.

BIG GAME

“The Phase I-III area includes yearlong range for elk, mule deer, moose, white-tailed deer, and pronghorn antelope, which indicates that these species make general use of the suitable habitat on a year round basis.” “The WGFD has mapped 15,355 acres of pronghorn crucial winter range across the project area. Crucial ranges for elk, moose, white-tailed deer or mule deer do not overlap with the Project area but exists in the surrounding areas.” “Elk, mule deer, and pronghorn have seasonal ranges, which includes all portions of a species range across all seasons. The majority of the Study Area lies within the seasonal range for all three species.” “Direct effects to big game species include the removal of vegetation associated with Project construction that could potentially eliminate forage for big game species. 698 acres of pronghorn crucial winter range would also be directly affected by surface disturbance on non-federal and federal lands. Other direct effects to big game include an increased potential for mortality and injury associated with vehicular collisions. Increased human presence and noise at Project location during construction also could result in habitat fragmentation and functional habitat loss due to big game avoidance of the Project area.” “...increased human activity would occur in the Project area during operations due to post-construction monitoring, operations and maintenance at turbines, and road plowing and maintenance”. This environmental assessment study did not sufficiently analyze impacts to big game, especially pronghorn crucial winter range, and overall big game habitat.

GREATER SAGE-GROUSE

“Greater sage grouse have been observed around the Project area; however the Project is located entirely outside of the Greater Sage Grouse core population area and the defined connectivity corridors as designated by the State of Wyoming under Wyoming Governor's Executive order 2019-3.” “Greater Sage Grouse are not in the Project area but just south and west and three historically occupied leks are located adjacent to the Study area”. “There were sightings near the northern Project boundary adjacent to an operating wind project. Potential nesting habitat may be present in Project area. Big sagebrush shrubland steppe vegetation communities exist in Project area indicating there is potentially suitable habitat for sage-obligate species. Greater Sage Grouse avoidance of anthropogenic disturbances associated with other types of development suggests that they may respond negatively to wind energy development. There may be increased risk of greater sage grouse nest brood failure closer to the turbines. There are two occupied GRSG leks located within two miles of proposed transmission line route on the western end of the route near the Freezeout Substation.” This environmental assessment study did not sufficiently analyze impacts to GRSG crucial and overall habitat.

EAGLES AND RAPTORS

Eagle and raptor surveys were conducted. “USFWS Region 6 recommends full coverage of the Project area…” …”this study design resulted in 55.5 percent coverage of the surface area within the entire project Area”. “Diurnal (active at day) raptor species may be present during the nesting season, which is generally recognized in Wyoming as March through July. The following species could potentially breed in or near the Project area. Bald eagle, golden eagle, ferruginous hawk, peregrine falcon, swainson's hawk, red-tailed hawk, and northern harrier. Owls (primarily nocturnal) include burrowing owl, great horned owl, and the short horned owl” “Diurnal raptor species that may also occur within Study Area outside of breeding season include the rough-legged hawk and merlin in addition to the species listed above.” “Ridgelines and shore lines are used by raptors for migration and are dispersed throughout Project Area and region.” Cliff features, ridge features, roost sites, migration zones, and prey exist throughout the Project area and region. Habitat, nesting, and migration habitat for a wide range of raptor species exists. “Migratory bird species have potential to occur in the Study Area.” “There are 12 bat species in the study area with nine likely to occur in Project Area mostly during fall migration.” “Passerines, raptors, and waterfowl migrate throughout the study area. Wetlands, grasslands, and wooded areas are dispersed throughout the study area and may provide stayover habitat for migrants or individuals during pre and post breeding movements.” This environmental assessment study did not sufficiently analyze impact to bats, songbirds, eagles, and ferruginous hawks.

“Prairie dogs may be displaced by construction activities, which could fragment habitat, limit dispersal, and increase potential for vehicle collisions and mortality. Also increased mortality due to accidental crushing of burrows.” These species are considered a keystone species for numerous other wildlife and impacts to these species should be analyzed in more detail.

GEOMORPHOLOGICAL MONITORING

“Geomorphological monitoring is to determine the potential for impacting habitats important to fish, macroinvertebrates, reptiles, and amphibians. This is required if wind development is proposed in areas that 1) are not heavily developed, 2) are not in a closed basin, or 3) do not have sediment catch basins.” Rock River had two slight, four moderate, and two severe erosion and deposition findings. Erosion potential for Lower Foote Creek was moderate to high. East Allen-Little Medicine Bow, Bowles Springs-Little Medicine

Bow, and Bluff Ditch-Rock Creek received no site visits. These, and all riparian habitats affected by the proposed Project should have been on-sighted for proper analysis for the Environmental Assessment. This environmental assessment study did not sufficiently analyze water issues.

CULTURAL RESOURCES

"Cultural Resources were identified within the physical and visual areas of potential effect for the proposed Project. These resources include National Register of Historic Places eligible properties, including the historic Lincoln Highway." "Native American Tribes identified a Traditional Cultural Landscape that would be impacted by the Project. Bald and golden eagles are important symbolic and traditional religious resources for Native American cultures. Some Tribes and tribal members consider eagle nests sacred sites (or traditional cultural properties) or historic properties of religious and cultural importance." Of additional importance but not limited to are: burials, petroglyphs/pictographs, stone circles, rock cairns, prehistoric sacred sites, rock alignments, stone hunting blinds, eagle traps, and stone medicine wheels. This environmental impact study did not sufficiently analyze impacts to Native Americans.

WIND TURBINE SITING

"USFWS recommended not siting wind turbine generators (WTGs) within 2 miles of golden eagle nests in Project area." Two Rivers used a one-mile buffer whether the nest is active or inactive with a 0.5-mile buffer minimum and "would conduct post construction monitoring to identify any eagle nesting activity within the project area and has developed a conservative step-wise adaptive management plan that would utilize informed curtailment as necessary." "USFWS recommended that all WTGs located between 0.5-1.0 mile of eagle nests should be diurnally curtailed from January 15 through May 1st of each year." "USFWS recommended all WTGs within 2 miles of a golden eagle nest that becomes occupied should be diurnally curtailed until the young fledge or the nest becomes unoccupied." Two Winds responded that "A 2-mile curtailment buffer would encompass the entire phase I-III project and is not economically practical for this Project." "Two rivers would conduct post-construction monitoring to identify any eagle nesting activity within the Project area and has developed a conservative step-wise adaptive management plan that would utilize informed curtailment or other appropriate measures, as necessary, to reduce risks to eagles." This environmental assessment study did not sufficiently analyze WTG sitings impact to bald and golden eagles according to the area threshold. In addition, the distance buffers seem to change throughout this analysis, The USFWS is required to protect both bald and golden eagles but the document seems to not discuss bald eagles in the majority of this discussion except for "No compensatory mitigation is anticipated for bald eagles as relevant bald eagle populations are healthy enough to sustain the mortality contemplated by the project". This does not comply with the company's commitment to "avoid impacts to sensitive environmental resources".

CUMULATIVE IMPACTS

"The development area boundary is tightly constrained on all sides by a subdivision to the east, the town of Medicine Bow to the south, and two operating wind farms (Ekola Flats to the west and Dunlap Wind to the north)." "...Two Rivers Wind Project would add a 16 percent increase in operating turbines within a 10-mile radius and a 6 percent increase in operating turbines within a 109-mile golden eagle Local Area Population (LAP)". There are already six operating wind projects with 343 WTGs in the 109-mile golden eagle LAP! There are three operating wind projects that have been approved but are not operating and/or been constructed yet (but they can be constructed): 129 WTGs approved for Rock Creek Wind Project; Boswell Springs with no number of WTGs identified and; Chokecherry and Sierra Madre Wind Energy with no number of WTGs identified (1000 by completion date 2026) thus over tripling the number of WTGs in the 109-mile

radius. Maestro Wind Energy Project (German Company) and Lucky Star Wind Energy Project (owned by Two Rivers owner, Canadian Company, BluEarth) have been proposed in the Study Area with the number of turbines not identified. There are two larger Transmission Line Projects, one of which has begun construction while the other is partially constructed. There are two smaller transmission lines that are approved but have not yet been constructed and there is one Repower Project that is partially constructed. There are oil and gas wells around Medicine Bow, the Continental Divide Creston (CDC) north and south of Wamsutter, Desolation Flats south of CDC, Atlantic Rim West which is east of CDC, and Espy Flats south of Rawlins. There are existing transmission lines, the Union Pacific Railroad, State Highways 287 and 487, US Highway 30, and Interstate 80. This environmental assessment study did not sufficiently analyze the cumulative impacts of the present and proposed projects in the Study Area. This is a concern especially due to the area threshold. **The Cumulative impacts threshold has been met. Actually it is way over the threshold**. **The No Action Alternative should be selected.**

NEXUS

Two Rivers Wind Project wants an IETP for Phase I-III to kill 8 bald and 133 golden eagles over a 30 year lease. In 2016 USFWS environmental impact study stated that **5 percent take was significant**. Two Rivers is requesting 28 percent! What? Of the previously mentioned wind projects only two IETPs have been issued and six are operating with no IETPs issued. Eight of the wind projects are on private land so IETPs are not required however they should be established. Eagles/birds fly over private, State, and Federal land regardless of whom the land belongs to. We will never know how many bald and golden eagles, or any flighted animals, wind turbines are killing. Two Rivers has filed for a Right-Of-Way grant. This is for the roads, turbines, and transmission lines, much of which will cross back and forth on private, State, and Federal land. Terms and conditions for the ROW grant must be written out specifically and step by step to protect wildlife species.

ADAPTIVE MANAGEMENT EXPERIMENTAL MITIGATION MITIGATION

The environmental assessment had a lot of information on adaptive management and mitigation. “Many of the avoidance, minimization, and mitigation measures that will be implemented at the Project may need to be reviewed and evaluated for effectiveness”...”Adjustments to the eagle take permit program and to eagle conservation measures associated with the Project will be made over time.” …”adaptive mitigation or conservation measures may be required.” “Adaptive management will include periods of no more than five years and may require prompt action(s) upon reaching specified conditions.” Five years is too long to determine the effectiveness of adaptive management and experimental mitigation is not enough. Mitigation must be specific terms and conditions.

The following is the mitigation Two Rivers and all wind projects should be required to use: monopoles; perch deterrents; guy wire free towers; retrofit power poles; painted windmill blades; shut turbines off under 14.5 mph winds for bats; informed curtailment (implement technology that is designed to curtail turbine rotation as eagle(s)/large raptors approach turbine’s rotor swept area) on all WTGs; deploy approved technology designed to detect and deter large raptors. As a Carbon County and Wyoming resident we need the previously stated mitigation, full transparency, and public meetings to protect our Wyoming.

TWO RIVERS WIND ENERGY PROJECT LUCKY STAR WIND ENERGY PROJECT BLUEARTH

Lucky Star and Two Rivers are on the same Wyoming Industrial Siting Commission permit. They are the same company so they need to be analyzed in the same Environmental Assessment. BluEarth may argue that the required mitigation in the previous paragraph is cost prohibitive. However, Two Rivers and Lucky Star …”has

sufficient financial resources to finance, construct, maintain, operate, decommission, and reclaim the Project…" "BluEarth Renewables as of December 31, 2018 Total Partners Equity exceeded CAD $588 Million." Why are these two projects not in the same Environmental Assessment?

For the previously stated reasons the No Action Alternative should be selected.
Wyoming, let's stop lining the pockets of Canadian and German businessmen by ransoming our skyscapes, landscapes, wildlife and habitat to provide electric power to other states.

Please feel free to contact me at the phone number or e-mail below if you have any questions.

Letter #04

Author: BLM Stakeholder

I appreciate the hard work that went into preparing this informative EA.

I support the development of clean wind energy. The climate crisis is worsening and we need to transition away from harmful fossil fuels and toward renewable energy sources like solar and wind.

I hope this project is implemented in an environmentally responsible manner. To protect migratory birds, radar should be used to stop wind turbines when many birds are approaching. Any temporary roads should be closed to OHVs and fully reclaimed after project completion.

Thank you very much for your consideration.

Letter #05 December 9, 2022

To: Bureau of Land Management
Via: Online Participation Portal
Re: Two Rivers EIA

To Whom It May Concern:

In this response to the EIA I plan to comment on three of the issues brought forward for analysis as mentioned in the EIA and then comment on a couple of the Appendices.

• Issue 7: What are the potential effects on Bald and Golden Eagle populations of predicted lethal "take" as anticipated to be caused by the proposed Project?
and
• Issue 6: Would ground disturbance and Project infrastructure and operation affect the availability and quality of habitat for wildlife, including migratory birds, raptors, and special status species?

From the EIA itself we are told (bolding is mine)

"...The LAP of Bald Eagles for the Project is approximately 52 Bald Eagles, and the annual 1% and 5% benchmarks for this LAP are about one and three Bald Eagles. Currently, there are six operational projects within this LAP for which take of Bald Eagles is authorized (Seven Mile, Dunlap, Chokecherry and Sierra Madre Phase 1, Pioneer, Glenrock/Rolling Hills, and Top of the World wind projects). Taken together, this Project's take and the overlapping take of the other projects could result in **a total annual take of 14.8 Bald Eagles (or 28.2% of the LAP).** This is above the 5% benchmark; however, the North American Breeding Bird Survey population trend (1966-2019) estimate for Bald Eagles in Wyoming and Project LAP is 9.9% and 18.4%, respectively (Sauer et al. 2017; USGS-PWRC 2020). Analyses conducted by the USFWS showed that over most of the U.S., Bald Eagle populations are growing at a rate of approximately 5% per year (USFWS 2016b)…It is reasonable to assume that the Bald Eagle population in the Project vicinity is increasing and the conservative take estimate at the Project would not contribute to declines in the overall Bald Eagle population in the EMU…."

A very similar story is told for Golden Eagles. I do not claim to any deep expertise on these birds, but I am very disturbed by an admission that this project and others in the respective LAP will result in 28.2% taking of the entire populations of Bald Eagles. Let me emphasize that the LAP for these populations is 23,000 square miles (one-fourth of the area of Wyoming) and 37,000 square miles respectively (p 123 of the EIA). I can't find it reasonable that an annual taking of a population that is five times the average annual growth in the U.S., three times the growth of Wyoming and twice the annual growth in the LAP itself leads to any reasonable conclusion other than populations of the large soaring birds are imperiled. What sort of population of any type could withstand such mortality? Is the LAP a source or sink region for

these populations? Are there sink/source areas within the LAP? Is there a large in or out migration? We aren't told.

Taking just the subregion involving the presently developed WTG plants of the Shirley Basin and the region south and west of Medicine Bow to Elk Mountain and the permitted Boswell Springs, Rock River I and II projects, **we are approaching a very dense concentration of WTGs, transmission lines, and Met towers all of which constitute hazards to birds over something like 500 square miles in area.** This is ten times the area of the notorious Altamont Pass in California. And this developed/developing area sits within a flyway between Pathfinder and wildlife sanctuaries near Laramie. It think caution is warranted.

Very little commentary is made in this EIA regarding impacts to big game animals except to say that "we don't know much about them". This same statement was made in the ISC hearing regarding big game impacts from Rock Creek I and II, along with specious and ridiculous statements of fact that pronghorn shelter behind wind turbine towers during hail storms. **Industrial development is not a blessing for big game animals.** At best it might be neutral. Yet, despite widespread admission that we don't know much about impacts on big game animals, we suspect more than this statement implies. There is research done with collared pronghorn demonstrating that some subset of animals in the Shirley basin tend to avoid WTGs out to distances of 10 miles for many years after operations commence. I admit that some pronghorn are very tolerant of development such as the small number of animals at the Laramie Golf course. Yet, we don't know if the majority are actually bothered by WTGs. Ungulates are highly vigilant prey species, and their vigilance could interact badly with the persistent motion and noise of WTGs, especially in winter when the temperature structure of the atmosphere carries noise farther afield.

• Issue 9: What would the socioeconomic impacts be to the local communities and how would the Project remain viable and feasible meeting the requirements of the Applicant's interconnection agreement and renewable energy production goals?

The Applicant makes the following points in the EIA.

1. They have finalized negotiations with PacifiCorp for a long-term power purchase agreement (PPA). PPAs contain performance guarantees against which a project is required to meet, or otherwise trigger contract penalties. In other words, they say, "the Project could potentially be paying more penalties than generating revenue, making the Project no longer viable."
2. Local tax revenue and Impact Assistance Funds will more than offset expenditures on additional community services in the long and short terms respectively. Implementation of the Project will create both primary and secondary employment opportunities, and contribute to growth in the local economy—including the service sectors. The additional tax revenue during both the construction and the operation stages will provide a very large and significant beneficial source of revenue for local governments through the

collection of significant ad valorem taxes, while sales and use taxes will increase substantially over the construction phase. The State, Albany and Carbon counties will also benefit from wind production tax receipts.

The first point isn't a matter of the EIA, or an EIS or any other submission. If the applicant has gotten itself into guaranteeing delivery of a specified amount of energy from a non-dispatchable energy plant, which is fundamentally incapable of such, then that is their problem alone. It should have no bearing on decisions made by any permitting agency nor should it burden citizens with unacceptable environmental or social costs.

With regard to point number 2, it can't be disputed that this project will bring ad valorem tax revenues and wind energy production revenues to Albany county. The broader claims about potential employment opportunities both direct and indirect are disputable. The local economy in this part of Wyoming is not well positioned to take advantage of this wind energy industry. Parts are not likely to be inventoried here; technicians aren't likely to be based here. These can all come out of Colorado which does have wind energy manufacturing, warehousing, and technical support in place. Lease payments to land owners might or might not benefit the local area. The bulk of landowners involved in the Two Rivers project are apparently two private land owners, State of Wyoming, and the Federal government. Where will the lease monies paid to these entities go? In the case of the nearby Rock Creek I and II projects, for example, the dominant private landowner lives in Colorado and there is no indication at all of lease payments being spent in any new way in Albany or Carbon Counties. In the short term these projects are boom/bust sorts of ventures and in the long term benefits are overstated.

Finally, I should mention that this wind energy will enter the Rocky Mountain Power service area of which much of Wyoming is a customer. It has been apply demonstrated in Germany, the UK, Australia and California that the more penetration there is of a grid with non-dispatchable sources like wind and solar the more expensive energy becomes. This is a socioeconomic hazard for residents and businesses alike.

Issue 10: How would greenhouse gas emissions and air quality be changed from the construction, decommissioning and operation and maintenance of the Two Rivers Wind Project compared with traditional carbon-based energy development?

The applicant makes a number of statements about climate change that amount to seeing this project as a substantial benefit. Among statements they make in support of this are the following:

1. Global warming is expected to affect land and sea surface temperatures, precipitation rates, weather patterns, average sea level, polar ice levels, ocean acidification, and other climatic variables, effects collectively referred to as climate change. The temperatures involved are predicted by the IPCC to be as great as 4.8°C (8.6°F) by 2100.

2. If this project is not approved an estimated annual avoided emissions of 294,888 to 658,468 metric tons of CO2 will not be realized.

In regard to the first point above there are at present no statistics showing a trend of worsening weather, and the temperature rise estimate, known as the RCP 8.5 pathway is now considered widely to be implausible. I think it should all be disregarded. **There is no way that speculative benefits based on computer modeling allegedly to occur far in the future should ever be counted as benefits having some net present value.**
Regarding the second point, there is a general belief that projects of this sort are vital to reducing emission of carbon dioxide. While it is true that the electrical energy generated by wind turbines has reduced emissions of carbon dioxide during operation, **so called renewable energy infrastructure requires around ten times more material processing during mining, manufacture, transportation and construction than a gas- or coal-fired plant of comparable capacity.**

Far larger amounts of material processing will be needed if energy storage schemes are contemplated to counteract the disadvantages of non-dispatchable energy sources such as wind and solar energy plants. All of these activities connected with so-called renewable energy are made possible through use of fossil-fuels. As carbon dioxide is well-mixed throughout the atmosphere it matters not one iota where the emissions for all of these pre-operation activities occur.

Moreover, the cumulative savings of carbon dioxide made possible through this project may seem large to a casual observer, but are in fact minuscule and will have no measurable or calculable effect on atmospheric temperature.

Finally, these savings are gained through self-injury as what benefits they may have come with costs to the local area, and are completely offset by a coal-fired power plant commissioned somewhere in Asia each week at the present time.

Financial (Appendix B)

The applicant represents they have owner equity capable of financing this project. However, a reading of the applicant's website suggests they are involved in 5GW of renewable energy projects. This is some ten times their involvement on Two Rivers. Do any of their other projects impair any of this available equity? Is any of it dedicated more than once?

Reclamation (Appendix C)

A typical issue in the reclamation plan is whether removal of foundation to a depth required by the ISC (four feet) can be waived in favor of a shallower depth of three feet. If any of this reclamation is meant to re-establish sage which is winter feed for browsers such as pronghorn, then the four foot depth is more compatible with this effort.

A serious concern with this reclamation plan is what to do with the towers, nacelles, blades and hubs upon decommissioning. In the text of Appendix C we find this explanation.

“The hub with blades will be removed and placed in a laydown area for disassembly. Blades will be processed to such a size as to allow for standard haul trucks to cart these materials off-site. The hub will be removed in whole or part, whichever the contractor sees as being the most efficient process for removal. Next the generator with nacelle will be disengaged from the tower, removed, and place in the laydown area for disassembly. All hazardous fluids and materials associated with the generator and gear box will be properly drained and collected in approved containers for off-site transport. Per the Waste Management Plan, all hazardous waste will be transported to a licensed hazardous waste facility for proper disposal. Tower sections will be removed and placed in the laydown area. Each section will be processed to a size where standard hauling equipment can be used to haul off-site.”

In other words the whole structure will be disassembled. But in the detailed cost estimation it suggests something very different. It suggests that the towers will be put down using controlled blast demolition. Specifically the applicant’s line item estimate for demolition and disposal, which is a mere $55,544 per WTG, states this:

“WTG Demolition & Disposal (**using blast demolition to raze towers** after removal of all fluids, including: Nacelle, Housing, Blades and other components)”

Does the word “including” mean the nacelle and blades are to be brought down with blast demolition, or does it somehow connect the nacelle and blades to the removal of fluids. I would interpret that the cost estimate, being so low, suggests blast demolition to deal with all components after removal of contaminant fluids. This needs to be cleared up now because the reclamation is probably the subject of project bonding, and the bond amount is very likely to be too low. I have observed blast demolition of wind energy plants before and it is likely to scatter fiberglass shards and fibers.

Yet, even if the intent is to lay down components before processing to be hauled to a waste facility how will fiberglass components be handled to eliminate fugitive fibers and small shards?

Viewshed analysis (Appendix L)

I have looked at these viewshed analyses in other applications and in common with those this analysis does a very poor job of explaining what the impacts to viewshed are likely to be. The key observation points in this particular effort show only very close horizons or horizons over very flat ground. Not a single photo shows the impact on anything like a distant vista even though the Shirley Basin is ringed with mountain ranges and has inspiring vistas. **In short, distant scenic views will be spoiled with 600 foot tall objects in the foreground but one would never recognize this from the KOPs chosen.**

One reason for permitting this development according to the applicant is that it makes little impact on the scenic quality of the area because the scenic quality is so poor. The PA is comprised of VRI Class IV landscapes, the least valued rating. It is downgraded according to the applicant "...Due to the flat, gently rolling, and steep topography, limited surface water, homogenous color of the vegetation, homogenous adjacent scenery, and limited cultural modifications, the scenic quality of the PA is determined to be both Class B and Class C."

Furthermore the applicant states, "...Scenic integrity is expressed as high, moderate, or low, with high representing those places of intact natural landscape and no surface-disturbing activities. Due to the presence of existing WTG structures in the foreground-middleground and background views…"

One has to smile at the circular, self-serving argumentation here. In effect the argument is that because the scenery is already spoiled by WTGs, it makes sense to put more in the viewshed. I have heard this same argument made by other applicants for these wind energy plants at the ISC and at Albany County Commissioner meetings. As I commented to the County Commissioners a year ago, one has to wonder how or what will ever limit the number and density of wind energy plants in southeastern Wyoming other than they become so numerous that they interfere with one another.

Thank you for your consideration of and attention to these concerns.

Letter #06

This EA is very well written and comprehensive. My thanks to those professionals who prepared it.

I strongly support wind energy and I greatly appreciate the applicant and BLM for their positive measures to protect eagles, bats, prairie dogs, and other wildlife.

The combination of wind energy and these positive conservation measures is commendable and should help advance solution to the climate and extinction crises.

Thank you very much for your consideration.

Wyoming
DEPARTMENT OF Agriculture

Mark Gordon, *Governor*
Doug Miyamoto, *Director*
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The Wyoming Department of Agriculture is dedicated to the promotion and enhancement of Wyoming's agriculture, natural resources and quality of life.

Letter #07 December 8, 2022

Brandon Snyder
Bureau of Land Management
Rawlins Field Office
1300 N. 3rd Street
P.O. Box 2407
Rawlins, WY 82301
bwsnyder@blm.gov

Dear Mr. Snyder,

Following are the Wyoming Department of Agriculture (WDA) comments regarding the Environmental Assessment (EA) for the Two Rivers Wind Project with the Bureau of Land Management (BLM) and U.S. Fish and Wildlife Service (USFWS).

Our comments are specific to our mission: dedication to the promotion and enhancement of Wyoming's agriculture, natural resources and quality of life. As the proposed project could affect our industry, citizens, and natural resources it is important that you continue to inform us of proposed actions and decisions and continue to provide the opportunity to communicate pertinent issues and concerns.

WDA appreciates the continued efforts of the BLM and USFWS to address our comments regarding the negative impacts of this project to rangeland health and livestock grazing permittees. While we have seen a considerable shift in addressing our previous comments, we offer the following additional comments to consider in the analysis and potential Finding of No Significant Impact and subsequent Decision Record.

The Applicant Commitments on page 14 proposes the following: "Implementing dust control measures including speed limits, graveled roads, and dust abatement as well as emission checks on equipment. Dust abatement techniques would be incorporated during construction activities to minimize fugitive dust **during** construction activities to minimize fugitive dust (emphasis added)." We are concerned the applicant will not address the negative impacts of dust on forage and indirect impacts to livestock after the project is implemented. Truck traffic for wind turbine maintenance will undoubtedly continue as will issues with dust. The applicant must commit to mitigate for dust throughout the life of the project, not just during construction.

Page 17 indicates a Step IV mitigation effort to "install alternative technologies in high-risk areas during high risk periods not to exceed $200,000 per year for curtailment mitigation." WDA believes the potential of eagle mortality is already likely high, and these mitigation efforts should be included in the proposed action to reduce bald and golden eagle take. Additionally, given the project is proposed to last 30 years, it's concerning to limit the mitigation in 2022 dollars when the same $200,000 will not provide nearly as much mitigation to address mortality in 30 years.

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The applicant indicates efforts to monitor for eagle mortalities due to collision with wind turbines. We would like to see more information on how scavengers such as coyotes may pick up eagle, bat, or other bird carcasses from under the turbines and accurately convey the negative impacts on these species.

The proposed action indicated on page 44, the "Applicant will be financially responsible for any impacts to rangeland improvement, i.e. , the Tom Carlson Stockwater Pipeline and Tanks Project and fences or cattle guards, that cannot be avoided." This simply conveys the applicant will financially pay the permittee or the agency for the impact. Instead, WDA recommends the applicant ensure the affected range improvement is fixed to the original status before the project was implemented. The financial payment may not be enough to actually fix the range improvement project.

Further down on page 44 the EA states "All disturbed areas associated with the Project would be reclaimed according to BLM standards following the 30-year life of the Project." We appreciate this, but the statement assumes the project will end and wind turbines will be removed. However, we urge the EA provide information of how the agency will address the applicant simply replacing the turbines and not simply assuming the project area will be reclaimed to 2022 status.

Page 45 states "Project personnel would be required to drive at posted speed limits and trained to be alert o livestock to reduce the risk of vehicle collisions. The risk of livestock injury or death in the Project area would be minimal." WDA insists the EA provide more information of how the livestock grazing permittees will receive financial reimbursement for the death of any livestock on roads by project personnel.

Finally, on page 51, the EA provides information regarding the removal of vegetation for big game species. Under the assumption the same forage or areas are disturbed and negatively impact both big game habitat and also livestock grazing areas, we request the EA provide an equitable analysis of forage removed throughout the alternatives.

Appendix B, Tables, page B-5 states the invasive plants and noxious weeds was not brought forward for analysis but could be found for review in "drafts in POD Appendix C and D." However, the weed management plan is located in Appendix O not C as stated in the EA. The Weed Management Plan was not available on Department of Environmental Quality Industrial Siting Website and should be provided for review.

We appreciate the opportunity to serve as a Cooperating Agency throughout the development of this project and look forward to working with your staff on this project. If you have questions, please contact Justin Williams, Senior Policy Analyst at 307-777-7067.

Sincerely,

for Doug Miyamoto
Director

DM/jw

CC: Governor's Policy Office
Wyoming Board of Agriculture
Wyoming Stock Growers Association
Wyoming Wool Growers Association
Wyoming Farm Bureau Federation
Wyoming State Grazing Board
Wyoming Association of Conservation Districts
Wyoming Game and Fish Department
Wyoming County Commissioners Association
Public Lands Council

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 8
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December 9, 2022

Letter #08 Ref: 8ORA-N

John Elliot, Acting Field Manager
Bureau of Land Management
Rawlins Field Office
1300 North Third
Rawlins, Wyoming 82301-2407

Dear Field Manager Elliot:

The EPA has reviewed the U.S. Department of the Interior Bureau of Land Management and U.S. Fish and Wildlife Service November 2022 Draft Environmental Assessment (EA) for the Two Rivers Wind Project (Project). The Project is located on BLM, state, and private lands in Carbon and Albany Counties, Wyoming. Two Rivers Wind has requested a 30-year right-of-way (ROW) grant from BLM for the Project components proposed on BLM land, and two 30-year incidental eagle take permits (IETPs) for Bald and Golden Eagles from the U.S. Fish and Wildlife Service. BLM and USFWS have agreed to be joint lead agencies in the preparation of this Draft EA. In accordance with our responsibilities under Section 102(2)(C) of the National Environmental Policy Act (NEPA) we are providing comments on the Draft EA. These comments convey important questions or concerns that we recommend addressing during the NEPA process.

The proposed action includes the installation of up to 79 wind turbine generators (WTGs), an operations and maintenance building, two substations, a concrete batch plant, 10 meteorological towers, 75.8 miles of access roads, 70.6 miles of electrical collection and communication system lines, 18.6 miles of an electrical transmission trunk line and 10.6 miles of a Gen-tie transmission line connecting the Project to PacifiCorp's Freezeout substation, as well as a possible worker camp on private land. Surface disturbance associated with the entire Project on all jurisdictions includes a total of 810.7 acres of temporary disturbance during construction, of which 192.4 acres of permanent disturbance would remain during Project operations. Project components proposed on BLM land for the wind development areas and the associated transmission lines include the installation of up to 37 WTGs, 25.1 miles of roads, 27 miles of electrical collection lines and communication cables, one operations and maintenance building, one substation, and 7.6 miles of transmission lines. The Project involves development of two wind development phases that are geographically separate (Phase I-III and Phase IV) and associated transmission to connect both wind development phases to PacifiCorp's Freezeout substation. Phase I-III would be located in Carbon County on approximately 15,657 acres of private, BLM, and state lands; and Phase IV would be located in Albany County on approximately 4,500 acres of private lands.

The EPA supports increasing the development of renewable energy resources in an expeditious and well-planned manner. Using renewable energy resources such as wind power can help the nation meet its energy requirements while reducing greenhouse gas emissions. We encourage BLM to apply its

regulatory authorities in a manner that will promote a long-term sustainable balance between available energy supplies, energy demand, and protection of ecosystems and human health. Based upon our review of the Draft EA and associated documents, EPA has identified the following topics that we recommend analyzing and discussing in the NEPA document prior to the decision so that potential impacts can be fully understood and disclosed: (1) water resources, including surface water, groundwater, and wetlands; (2) air resources; (3) climate change; (4) tribal consultation; and (5) Greater sage-grouse.

We appreciate the opportunity to provide recommendations for this NEPA planning document and enclosed are our detailed comments for your consideration. These comments are intended to facilitate the decision-making process. If we may provide further explanation of our comments, please contact me at (303) 312-6155, or Shannon Snyder of my staff at (303) 312-6335 or snyder.shannon@epa.gov.

Sincerely,

Melissa W. McCoy, Ph.D.
Manager, NEPA Branch
Office of the Regional Administrator

Enclosure

Enclosure - EPA Comments on the Two Rivers Wind Project Draft Environmental Assessment

Water Resources and Soil Erosion

The EA contains a general description of the existing conditions of soils and surface water resources (pp. 26-29) and a general description of potential outputs (pp. 47-50), and it relies on different permits and best management practices (BMPs) to minimize impacts. The EA indicates there are no waterbodies within or downstream of the Project area on the 2020 Wyoming Clean Water Act (CWA) Section 303(d) impaired waterbody list; however, there is a segment of the Little Medicine Bow River upstream of the northern Project area (Phase I-III site) impaired and not supporting cold-water fishery and aquatic life beneficial uses due to sedimentation. We note waterbodies within and downstream of the Project area have not been assessed, and therefore, it is unknown if waterbodies within and downstream of the Project area are impaired. Additionally, the Draft EA does not identify what riparian areas within and downstream of the Project area are in proper functioning condition (PFC), functioning at risk, and/or not functional. We also note the analysis in the Draft EA does not address impacts to groundwater, groundwater dependent ecosystems, and wetlands. Other than the Reconnaissance Level Assessment completed by the applicant (discussed below), there does not appear to be other site-specific analysis that may support a Finding of No Significant Impact (FONSI) for the proposed action. Given the significant amount of surface disturbance associated with the Project, including the miles of roads, and the potential magnitude of impacts, we recommend addressing the following issues in the NEPA document prior to the decision.

Surface Water

The Draft EA does not include available water quality data for waterbodies within, upstream and downstream of the Project area. Water quality data for the streams and lakes provide important information for evaluation of the influence of the Project on downstream water quality. Including such information can provide baseline data for Project management and monitoring impacts. We recommend the NEPA document provide a summary of available information and monitoring data on water quality for the Project area, upstream and downstream waters affected by activities in the Project area, including parameters such as total phosphorus, total nitrogen, total dissolved solids, total suspended solids, turbidity, temperature, and pollutants related to fuel and fluid lubricant spills. To assist with this effort, we suggest BLM utilize EPA's How's My Waterway tool to evaluate monitoring locations and collected data from relevant waterbodies.[1]

The Draft EA states clearing, excavation, and fill placement for the construction of wind turbines, access roads, and collector lines could degrade water quality through the erosion and transport of sediment to surface waters. Surface waters that would be crossed by collector lines as well as downstream receiving surface waters would be the most directly affected. Sediment deposition into surface waters can affect water quality by increasing turbidity, which can directly affect aquatic ecosystems and limit the beneficial use of surface waters. Table 4 (p. 27) indicates saline soils are in the Project area, but the Draft EA does not analyze the potential water quality impacts related to disturbance of saline soils. Additionally, it does not address potential nutrient loading. Sedimentation, turbidity, increases in salinity and nutrients, and the subsequent impacts to aquatic habitats and species are factors that we recommend analyzing in site-specific detail in the NEPA document. These analyses will help determine whether there may be Project impacts to water quality, stream morphology and aquatic habitat and to what degree.

[1] *See* https://mywaterway.epa.gov/state-and-tribal

In addition to impacting water quality, construction of linear facilities and/or roads that cross streams or dislodge erosive soils can have impacts on stream hydrologic, geomorphic, and biological functions such as sediment transport, nutrient cycling, floodplain interspersion and connectivity, fish spawning, and overall aquatic habitat quality. Construction, increased road use, and introduction of heavy construction equipment can compact soil and disturb or eliminate vegetative cover, decreasing water infiltration and increasing surface runoff and erosion. These effects are magnified on steep slopes or in erosive, unstable soils and would have detrimental effects on stream function. We recommend the NEPA document include functional or condition assessments for the streams in the Project area to establish a baseline to use for the impacts analysis, and assist with development of a final Project layout, road design and mitigation measures that have the least impacts to stream functions.

The Draft EA states surface water features in the Project area include the Medicine Bow River and Little Medicine Bow River (both perennial rivers), intermittent streams and drainages, riparian areas, Cooper Lake, and multiple ponds and ditches (p. 28 and Appendix A). It does not include ephemeral streams in its analysis even though other information in the Draft EA indicates there are ephemeral streams in the Project area. Proposed Project construction associated with turbine pads, access roads and transmission line development could directly (e.g., erosion from crossings and temporary or permanent fill) and indirectly impact drainages and ephemeral washes within the proposed Project area. Ephemeral washes provide diverse hydrologic, biochemical, and geochemical functions that directly affect the integrity and functional condition of higher-order waters downstream.[2] Healthy ephemeral waters with characteristic plant communities control rates of sediment deposition and dissipate the energy associated with flood flows. Ephemeral washes also provide habitat for breeding, shelter, foraging, and movement of wildlife. Many plant populations are dependent on these aquatic ecosystems and have adapted to their unique conditions. The potential damage that could result from disturbance of flat-bottomed washes includes alterations to the hydrological functions that natural channels provide in arid ecosystems, such as adequate capacity for flood control, energy dissipation, and sediment movement, as well as impacts to valuable habitat for species. The Draft EA provides minimal information on the direct and indirect impacts to ephemeral surface waters that could result from the proposed Project and does not consider the up- and downstream reaches and extent of ephemeral waters or their importance in this landscape. We recommend the NEPA document:

- Characterize the functions of aquatic features such as ephemeral washes located on the proposed Project site and discuss how the Project would protect and maintain those functions.
- Describe how the proposed Project layout, including roads and drainage channels, have been configured to avoid ephemeral washes to the maximum extent practicable.
- Demonstrate that downstream flows would not be significantly adversely impacted due to proposed changes to, and crossings of, natural washes.
- Include the finalized Plan of Development (POD) and site layout to facilitate assessment of impacts and effectiveness of mitigation measures.

Maps in the Draft EA and the Applicant's POD in Appendix A include temporary and permanent roads, and the POD denotes where road crossings are; however, the Draft EA does not quantify the number of road crossings of water resources and what resources the roads would cross (e.g., type and ecosystem function). We also note the maps are difficult to read due to image resolution and we were unable to use this information to understand potential impacts to water resources. We recommend the NEPA document quantify the number of road crossings of water resources, what specific water resources

[2] *See* https://www.epa.gov/sites/default/files/2015-03/documents/ephemeral_streams_report_final_508-kepner.pdf

would be crossed (name, type, and function), and include maps that are detailed enough to understand where these crossings would occur in relation to water resources. Water resources in this analysis should include streams, drainages, lakes, riparian areas, wetlands, and springs.

The Draft EA indicates surface disturbance associated with the entire Project on all jurisdictions includes a total of 810.7 acres of temporary disturbance during construction, of which 192.4 acres of will be permanent disturbance. As part of the baseline analysis, we recommend the NEPA document identify the existing percentage of disturbed land area in the Project area, including disturbance from roads and livestock grazing. We also recommend the NEPA document include what percentage of new disturbance would occur under the proposed action. This would help put in context the incremental impact of new disturbance associated with the Project. The amount of new disturbance, combined with the effects of Project stream crossings, will increase runoff and is likely to increase sediment and nutrient loading. Determining whether this amount of change and number of stream crossings is significant requires analysis and could identify if the Project could create significant impacts to water resources.

We recommend estimating whether placement of roads, turbine pads and associated soil compaction could, in total, reduce the storm buffering capacity of project area watersheds, and whether this could lead to alteration in the timing and magnitude of runoff with respect to peak flows and rate of delivery to the stream channel. The existence of shallow aquifers in the area could also exacerbate any increased runoff that could occur due to decreased infiltration capacity. If changes are not expected to occur, then we recommend providing documentation that supports the conclusion that Project activities along with BMPs will not result in any significant changes in surface water runoff from the watershed. If significant changes in runoff are expected to occur, we recommend evaluating the potential impacts of these changes, including associated stream channel erosion downstream of areas of increased runoff and changes to channel pattern, morphology and aquatic habitat, and commit to BMPs, monitoring and maintenance measures to keep these impacts below significant levels. The EPA National Pollutant Discharge Elimination System website contains a National Menu of BMPs for Stormwater Management and includes specific BMPs for construction and post-construction.[3] For example, depending on site-specific needs, a grassed swale could be utilized to slow storm water flows and improve water quality.[4]

Riparian Areas and Wetlands

We recommend the NEPA document identify, discuss, and include maps of riparian areas within Project area watersheds, and those upstream and downstream, that are in PFC, functioning at risk, and nonfunctional. We recommend including what percentage of the analysis area that has been assessed and when the assessments took place for each area.

The Draft EA indicates wetlands and riparian areas were not brought forward into the analysis, even though it states there are National Wetland Inventory mapped wetlands that occur in the Project area (p. B-9). The reasoning provided is WTGs would not be located in wetlands, and transmission lines would span wetlands per the resource protection measures. However, it notes unavoidable actions such as linear crossings (e.g., roads) would cross wetlands and may be permitted through a CWA Section 404 permit. There are approximately 75.8 miles of access roads proposed, including 25.1 miles of Project roads proposed on BLM lands. Additionally, the POD on p. 119 states mapped wetland types on BLM lands within the Phase I-III Project area include approximately 120 acres of freshwater emergent wetland, 5 acres of freshwater pond, 22 acres of lake, and 159 acres of riverine (NWI 2019). We note it

[3] Available at https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater-post-construction
[4] *See* https://www.epa.gov/system/files/documents/2021-11/bmp-grassed-swales.pdf

does not discuss wetlands in the Phase IV Project area. The Draft EA does not include how many acres of wetlands are in the Project area (jurisdictional and non-jurisdictional), wetland types and functions, and how many acres of unavoidable impacts to wetlands would occur from the proposed Project activities. We recommend including this information in the NEPA document along with an analysis of potential impacts to these important resources. If impacts are anticipated, please discuss in the NEPA document how unavoidable impacts would be minimized and mitigated in accordance with Executive Order 11990, *Protection of Wetlands*. To ensure that wetlands are protected to the greatest extent possible, it may be necessary to consider exclusion of roads in areas where wetlands or riparian areas would be adversely impacted.

The Draft EA refers to CWA Section 404 Nationwide Permit 12 in several places. If avoidance of the discharge of dredged or fill materials to no more than 0.5 acre of wetlands is not anticipated, we recommend coordinating with the U.S. Army Corps of Engineers (Corps) prior to publishing the decision to determine if the proposed Project will require an individual Section 404 permit under the CWA. This is advisable to ensure that the proposed action is the least environmentally damaging practicable alternative consistent with requirements under the CWA Section 404(b)(1) Guidelines. We also recommend including a verified jurisdictional delineation for the Project area from the Corps in the NEPA document, as well as providing a table identifying the acreage of jurisdictional waters impacted by each project feature (e.g., acres of jurisdictional waters impacted by temporary roads and permanent roads). This table should describe each type of water and include the acreages of direct/indirect permanent and temporary impacts to those waters. Since issuance of an individual permit requires analysis under NEPA, it would be most efficient to do the analysis during the current NEPA process. For wetlands and other special aquatic sites, the Section 404(b)(1) Guidelines establish a presumption that upland alternatives are available for non-water dependent activities. The Guidelines require that impacts to aquatic resources be (1) avoided, (2) minimized, and (3) mitigated, in that sequence. Therefore, we recommend that, if possible, the NEPA document demonstrate that impacts to wetlands and other special aquatic sites will be avoided to the maximum extent practicable.

Groundwater

The Draft EA indicates groundwater was not brought forward into the analysis (p. B-9). It states construction of the Project will require approximately 65 acre-feet of water for dust control and for mixing concrete for structure foundations from landowners holding existing water rights. The Draft EA notes impacts to groundwater resources will be addressed through BLM RMP terms and conditions, construction BMPs outlined in the POD, and adherence to permit conditions. It is unclear where in the POD the referenced construction BMPs are located. We recommend incorporating those requirements into the NEPA document.

The POD indicates construction dewatering for trenching or construction of turbine foundations is not anticipated (p. 119). It states once the final agency-approved WTG and transmission line structure locations are known, field geological and geotechnical studies would be performed to evaluate potential geologic and geotechnical hazards and to determine specific requirements for foundation design and construction, based on factors such as soil/rock types, depth to rock, depth to groundwater, and soil strength properties (p. 72). It is unclear how the determination was made that dewatering is not anticipated when the hydrogeological analysis has yet to be conducted. Information on the Wyoming State Geological Survey website indicates alluvial and shallow bedrock aquifers produce most of Wyoming's groundwater, and their map indicates alluvial and shallow aquifers may be underlying the

Project area.[5] We recommend evaluating any interactions between sub-surface disturbance/construction and shallow groundwater, including potential effects to the shallow subsurface flows, alluvial flows, springs and/or groundwater-dependent ecosystems (and supporting hydrology) in the Project area. For example, turbines not placed directly in wetlands could still affect wetland hydrology by interrupting the flow of shallow groundwater. Due to the depth of turbine foundations and the potential shallowness and sensitivity of the aquifers in the Project area, fragmentation of the shallow aquifer by the foundations could also cause preferential chemical enrichment in aquifers resulting from the soluble materials introduced during construction (e.g., salts, nitrates, metals).

Soil Erosion

The applicant's contractor performed a RLA for the Project to identify potential erosion sources that could impact aquatic resources (*See* POD Appendix I). The assessment was conducted in the five hydrologic unit code 12 sub-watersheds in the Project area including: Pete's Gap, East Allen Lake-Medicine Bow River, Boles Springs-Little Medicine Bow River, Lower Foote Creek, and Bluff Ditch-Rock Creek. The RLA indicates the contractor reviewed topographic maps, aerial photography, watershed surface hydrology, soils, vegetation, and wetland data, and conducted site visits in the fall of 2018. The RLA notes less than two percent of the northern site (Phases I-III) has publicly available soil data mapped by the National Resources Conservation Service (NRCS) and all soil units in the southern site (Phase IV) have been previously mapped by NRCS. For the northern site, the RLA denoted only one small area of severe erosion potential and one small area of moderate erosion potential due to the limited amount of NRCS soil data (p. 17 and Figure 8a). However, the RLA did not conclude that any of the sub-watersheds in the northern site have a moderate to high-risk of erosion. It concluded there is a moderate to high-risk potential for erosion and sediment transport only for the Lower Foote Creek sub-watershed, which encompasses about 900 acres in the northwestern portion of the southern site. We recommend the NEPA document explain how the conclusions for the northern site were made. The northern site encompasses Phases I-III of the Project, 15,657 acres, and most of the Project activities and disturbance; therefore, it is important to understand what the erosion risk is across this part of the Project area and the limitations of the analysis.

Within the southern portion of the Project area (Phase IV), it appears the soil ratings for most acres indicate moderate to severe erosion hazard from road and trail activities (Table 4 and Figures 6a through 7b). It also appears for many sites that water was not present, or it was low due to the time of year the site visits were conducted (pp. 31-35). We recommend the analysis discuss how the survey data collected during site visits in the fall of 2018 influenced the conclusions of the assessment. For instance, identify if (and if so, how) observational information collected during the site visits was weighted against NRCS soil data. Identify the site selection process in sub-watersheds and how they are representative of the northern and southern sites. We also recommend discussing how the time of year the survey data was collected may have influenced the results of this assessment (i.e., a dry time of year versus a wet time of year). Additionally, we recommend discussing how the NRCS soil data for the southern site may or may not be representative of the northern site.

The RLA indicates moderate and severe erosion risks characterize soil types that are at risk of erosion due to livestock grazing, which is the predominant use of the land. It also identifies that moderate and severe erosion risks with slopes greater than 5 percent grade characterize soil types that are at risk of erosion as a result of road use and will likely experience high soil loss. Further, the RLA notes roads developed in these areas may require special design and extra maintenance to prevent soil loss. The

[5]https://www.wsgs.wyo.gov/water/groundwater.aspx#:~:text=Alluvial%20and%20shallow%20bedrock%20aquifers,resources%20under%20the%20earth's%20surface.

RLA concluded further analysis is not needed as mitigation measures can be implemented to reduce erosion and sediment transport. The observations made during the site visits may have been made under lower-traffic conditions (i.e., traffic related to ranching and livestock use). We recommend the NEPA document discuss how increased traffic and impacts related to heavy machinery and equipment, in addition to ongoing livestock grazing, may influence the conclusions in the analysis. It notes the applicant will engage with the Wyoming Game and Fish Department and BLM to discuss the results of the RLA to determine if additional Project modifications and mitigation measures are warranted to minimize the erosion risk potential in the Lower Foot Creek sub-watershed (p. 36). We recommend including the results of these conversations in the NEPA document. We also recommend that if NRCS soil data are limited in the northern portion of the Project area, and site visit survey data are not representative of wetter times of year or heavy traffic conditions, then the applicant consider a more conservative Project design and conservative mitigation measures, including avoiding surface disturbance and roads in areas with severe erosion hazard.

The Draft EA states "access roads would not cross perennial streams, and no impacts to fish or aquatic species are anticipated (B-10). A Reconnaissance Level Assessment was done for the Project to identify potential erosion sources that could impact aquatic resources (see POD Appendix I)." The RLA does not contain maps of roads and water crossings in relation to the sub-watersheds, NRCS mapped soils, and water resources, including wetlands. Roads crossing intermittent and ephemeral streams and drainages also have the potential to impact water quality, fish, and aquatic species. We recommend the analysis include these maps and discuss how the data collected and results of the RLA were used to determine no impacts to fish or aquatic species.

Best Management Practices

The Draft EA refers to BMPs located in the POD and it's appendices and states the Project would comply with the Rawlins Resource Management Plan BMP requirements, storm water pollution prevention measures, Wyoming Pollution Detection and Elimination System Large Construction General Permit conditions, and CWA Section 404 permit conditions (e.g., NWP 12) and would avoid and minimize water quality impacts, including the potential for increased sedimentation to segments of the Little Medicine Bow River within the Project area that are not currently listed by the Wyoming Department of Environmental Quality as impaired (p. 50). To understand how these BMPs and permit measures would apply to the Project and their potential for minimizing impacts below significance thresholds, we recommend consolidating all these BMPs from the various documents and permits into a table in an appendix in the NEPA document, so they are easily referenced, and indicate whether the measures will be required. We also recommend the NEPA document include the permits in its appendices. Additionally, including information on the effectiveness of BMPs in other similar projects and/or nearby areas could help support the conclusions in the analysis.

Road Design and Maintenance

The Draft EA states that erosion and sediment control measures under consideration include, but are not limited to, construction of wing ditches along access roads to contain runoff, installation of cross culverts at strategic locations to prevent excessive water accumulation in the upslope wing ditch, installation of rock check dams to reduce water velocity and encourage sediment settling, and installation of erosion control fencing where required. Other mitigation measures we recommend considering include the following:

- Minimize motorized route construction and reduce density to minimize potential adverse effects to watersheds.

- Locate routes away from streams and riparian areas, steep slopes, landslide prone areas, and erosive soils.
- Minimize the number of road stream crossings.
- Construct unavoidable road stream crossings during periods of low flow to avoid fish spawning and incubation periods or dewater relevant stream segments prior to construction.
- Design routes to allow for natural drainage patterns.
- Preserve existing vegetation to the extent possible during clearing and grading.
- Divert upland runoff around exposed soils.
- Use sediment barriers to trap soil runoff where sheet flows occur.
- Protect slopes and channels from gullying.
- Install sediment traps and settling basins to reduce the velocity of channeled runoff.
- Preserve vegetation near all waterways.
- Design and construct road-stream crossings (culverts, bridges, fords) to minimize disruption of natural stream channel characteristics and allow for passage of high flows, fish and macroinvertebrates. Use bottomless or textured bottom culverts where appropriate.
- Consider road decommissioning or rehabilitation at an equal or greater rate than new road construction to prevent increases in overall watershed impacts.
- Monitor revegetation efforts on closed routes for five years to ensure success.
- Require special protections, such as buffer zones or exclusion of motorized use, for areas with high quality riparian and wetland resources such as springs and wet meadows and other sensitive water resources including impaired waterbodies or high resource value waterbodies.

Establishing and maintaining protective road design features is critical to preventing significant impacts to streams and aquatic life. Maintenance backlogs can result in progressive degradation of road drainage structures, significant road-drainage problems, and increased erosion and stream sedimentation with accompanying adverse impacts on aquatic habitat and ecosystem health. Given the environmental importance of road maintenance, the substantial associated costs, and the potential for a maintenance backlog, we recommend the NEPA document include the following information for each mitigation measure:

- A description of what mitigation will be required and its expected effectiveness.
- Designation of the entity responsible for implementing the mitigation.
- Identification of how BLM would ensure that the mitigation would be monitored to ensure timely and correct implementation as well as timely maintenance.
- Identification of funding sources.

Should resources prove insufficient to maintain the system, we recommend specifying in the NEPA document the actions that will be taken to modify or reduce the road system to meet water quality standards and land health standards.

Air Quality

The Draft EA does not contain sufficient information to establish existing air quality and impacts to air quality and air quality related values (AQRVs). The current proposal to develop Phase I-III (60 WTGs) within approximately one year will result in a large increase in emitting activity, in the near-term, that has not been captured by the Draft EA. The following are recommendations to assist BLM with the analysis in support of a FONSI, and for ensuring that impacts are evaluated, disclosed, and the decision

is informed by the best available scientific information.

Existing Conditions

The current approach in the Draft EA discusses the regulation of ambient air through the National Ambient Air Quality Standards (NAAQS) and discusses the process for approval of state ambient air quality standards. In doing so, the Draft EA discloses that the area attains all ambient standards. We recommend the NEPA document provide further insight into existing air quality in and near the Project area by including representative design values for the NAAQS based on the most current and representative monitoring data. We also recommend working with the Wyoming Department of Environmental Quality (WDEQ) to generate design values. Additionally, data are available from our design values webpage.[6] Monitoring locations and data can also be accessed by the public through our outdoor air monitor webpage,[7] as well as through the Air Quality System (AQS) for AQS users.[8]

Existing AQRVs are not discussed in the Draft EA. AQRVs include resources such as visibility and areas sensitive to pollutant deposition. We recommend characterizing trends in visibility near the Project area and in adjacent sensitive areas. Data are available through the IMPROVE monitoring network as well as information prepared by the Federal Land Managers (FLMs). We suggest working with the relevant FLMs regarding existing AQRVs in the areas they manage. Information is also available online at:

- https://www.epa.gov/outdoor-air-quality-data/interactive-map-air-quality-monitors;
- http://vista.cira.colostate.edu/Improve/;
- https://www.nps.gov/subjects/air/park-conditions-trends.htm; and
- https://www.fs.usda.gov/air/technical/class_1/alpha.php

Existing deposition may be characterized by utilizing the National Atmospheric Deposition Program (NADP) monitoring network in conjunction with total deposition (TDEP)[9] estimates and information available from the FLMs and websites identified above. Due to the Project's location in relation to AQRV monitoring data, it may be appropriate to summarize AQRVs at several areas in Colorado and Wyoming. For example, nitrogen deposition information available for Rocky Mountain National Park is provided below:

> "Wet nitrogen deposition levels create poor condition for ecosystem health at Rocky Mountain NP. This is based on the 5-year average (2016–2020) estimated 1.1 to 4.1 kilograms per hectare per year (kg/ha/yr) range of wet nitrogen deposition compared to NPS nitrogen deposition benchmarks. To maintain the highest level of protection, the maximum of this range (4.1 kg/ha/yr) is used. Ecosystems in the park were rated as having very high sensitivity to nitrogen-enrichment effects relative to all Inventory & Monitoring parks (Sullivan et al. 2016a; Sullivan et al. 2016b). The combined wet and dry nitrogen deposition at Rocky Mountain NP is estimated between 2.7 and 6.5 kg/ha/yr (see data). This amount of deposition exceeds one or more critical loads for ecosystem health. Nitrogen-enrichment effects may include disruption of soil nutrient cycling and

[6] https://www.epa.gov/air-trends/air-quality-design-values#:~:text=Design%20Value%20Reports-,What%20is%20a%20Design%20Value%3F,in%2040%20CFR%20Part%2050%20.
[7] https://www.epa.gov/outdoor-air-quality-data/interactive-map-air-quality-monitors
[8] https://www.epa.gov/aqs
[9] http://nadp2.slh.wisc.edu/committees/tdep/tdepmaps/

reduced biodiversity of some plant communities, including alpine, arid, and grassland plants at the park."[10]

We recommend the NEPA document discuss any existing emissions in and near the Project area. This may include emissions from existing wind development projects, main highways and thoroughfares, any oil and gas operations, or industrial facilities.

Impacts to Air Quality and AQRVs

We recommend the NEPA document provide additional information to qualify or quantify impacts to air quality from construction and operation of the Project. While the POD provides some information, the details have not been correlated to emitting activities. The POD and Draft EA indicate that construction of all 60 WTGs for Phase I-III would begin in 2023 and be complete in 2024. This schedule for construction of the Project may result in substantial emissions that could affect air quality and AQRVs near the Project and town of Medicine Bow. Therefore, the following recommendations are to assist BLM with documenting what emitting activities will occur, the magnitude of those emissions, and whether any considerations are necessary to support a FONSI.

We recommend the NEPA document use information from the POD to generate a narrative of the process necessary to construct one WTG. This would include the activity and equipment needed to create site access, prepare the site, construct the WTG foundation, and erect and commission the turbine and electrical equipment. Based on these descriptions we recommend presenting an equipment roster organized by activity type and/or phase of development. Based on the equipment roster, we recommend estimating the equipment and hours of operation (or vehicle trips/miles traveled) for construction of a single wind turbine. We recommend that the estimates of emitting activity for one WTG be multiplied and presented for all sixty WTGs.

To understand the potential impacts from the Project, we recommend using the equipment roster for a single WTG to generate emission estimates and use that to scale emissions upward to account for the construction of all sixty WTGs, using the best available information (such as the latest version of EPA's MOVES program for on-road and non-road equipment). Other available and appropriate emission factors include EPA's non-road compression ignition engine standards.[11] If the applicant can commit to the use of newer, higher Tier equipment, emissions may be lower than if Tier 0-2 equipment would be used.

Emissions during operation of the Project are expected to be low. However, to substantiate that conclusion, we recommend explaining the emission activities that will occur during a regular year. Based on the narrative explanation of emitting activities, we recommend developing an emission inventory for operations and maintenance. Examples of activities noted in the Draft EA and POD that would be expected to generate emissions during operation and maintenance include, but are not limited to: vehicle miles travelled on paved and unpaved roads, testing and maintenance on reciprocating internal combustion engines (RICE) at WTG (noted as being 50 hours or less, or 3,000 hours/year of

[10] https://www.nps.gov/subjects/air/park-conditions-trends.htm?tabName=summary&parkCode=ROMO&paramCode=Nitrogen%20Deposition&startYr=2009&endYr=2020&monitoringSite=CO98%20(NADP-NTN)&timePeriod=Summary; available from the home page provided by National Parks Service and noted above at: https://www.nps.gov/subjects/air/park-conditions-trends.htm; for Great Basin National Park.

[11] https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100OA05.pdf; available from: https://www.epa.gov/emission-standards-reference-guide/epa-emission-standards-nonroad-engines-and-vehicles

emergency diesel RICE operation for 60 WTGs), and transformer maintenance (we note it is unclear whether sulfur hexafluoride (SF_6) equipment will be used, a strong greenhouse gas (GHG)).

Based on emissions estimated for the construction and operation and maintenance of the Project, we recommend that BLM work with EPA, FLMs, and state agencies to address the following analysis components:

- Impacts from each of the criteria pollutants (ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide, and lead) with respect to their appropriate NAAQS;
- Impacts to AQRVs in potentially impacted Class I areas and any other relevant areas identified in collaboration with Cooperating Agencies and FLMs; and
- Impacts that could result from exposure to Hazardous Air Pollutants (HAPs) based on relevant health-based risk thresholds for HAPs. We are available to assist with methods of analysis, and appropriate characterization of available thresholds.

Climate Change

We appreciate the information in the Draft EA generated from the EPA Avoided Emissions and Generation Tool. It determined that once the Project is operational, the proposed action would result in annual avoided emissions of 294,888 to 658,468 metric tons of CO_2 depending on the number of turbines installed. The Draft EA notes that GHG emissions from construction-related activities would by themselves have a negligible impact on global climate change but would add incrementally to global GHG emissions. Despite this information, we still encourage BLM to assess the impacts from Project related GHG emissions and the impacts from climate change on the Project. Overarching guidance can be found in Executive Order 13990 *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis* (E.O. 13990, 86 FR 7037; January 20, 2021), which in turn urges agencies to "consider all available tools and resources in assessing GHG emissions and climate change effects of their proposed actions." These tools include the Council on Environmental Quality *Final Guidance for Federal Departments and Agencies on the Consideration of Greenhouse Gas (GHG) Emissions and the Effects of Climate Change in NEPA Reviews* (August 1, 2016). This guidance provides a reasonable approach for analysis of GHG emissions, opportunities to reduce those emissions, climate impacts on the planning area, and climate change adaptation strategies. We also recommend utilizing more recent resources on the impacts of climate change, including the Fourth National Climate Assessment,[12] EPA's Climate Change Indicators,[13] and the Fifth Assessment Report of the Intergovernmental Panel on Climate Change,[14] to analyze and discuss the direct, indirect, and cumulative climate-related impacts associated with the proposed action. The NEPA.gov website[15] includes a non-exhaustive list of GHG accounting tools available to agencies.

Consistent with Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad* (January 27, 2021), we encourage BLM to include management actions to provide for diverse, healthy ecosystems that are resilient to climate stressors; require effective mitigation and encourage voluntary mitigation to offset the adverse impacts of projects or actions; reduce greenhouse gas emissions from authorized activities to the lowest practical levels; identify and protect areas of potential climate refugia; reduce barriers to plant migration; use pollinator-friendly plant species in restoration and revegetation projects;

[12] https://nca2018.globalchange.gov/
[13] https://www.epa.gov/climate-indicators
[14] https://archive.ipcc.ch/report/ar5/syr/
[15] https://ceq.doe.gov/guidance/ceq_guidance_nepa-ghg.html

and design facilities to mitigate potential structural impacts associated with extreme weather events. We also recommend discussing actions to improve the Project area's ability to adapt to changing environmental conditions, such as selecting resilient native species for reclamation and replanting. This should anticipate the effects rising temperatures may have on soil moisture levels, seeds/seedlings growth, the vulnerability of specific species under projected climate conditions in the short and longer term. EPA also recommends that revegetation success be monitored and enforced for at least five years following revegetation efforts post-reclamation.

We recommend describing the affected environment under climate change over the time period of Project impacts. Please consider bracketing climate scenarios in describing the affected environment to explain the reasonably foreseeable effects of climate change in the area. BLM can use the National Climate Assessment as an initial resource for identifying potential risks.[16] EPA's EnviroAtlas can also aid in identifying local climate change effects.[17] We recommend assessing and disclosing whether the proposal, its purpose and need, or alternatives may be affected by those changes. Climate change can make the environment more susceptible to many types of impacts, which can exacerbate the impacts from the proposed Project or alternatives. We recommend incorporating practicable measures to address risks in the proposal's design or alternatives. We also recommend considering and incorporating project design elements to make the Project resilient to climate change effects on the Project. We also recommend utilizing this information to develop BMPs, monitoring, and mitigation.

Tribal Consultation

The Draft EA indicates BLM and USFWS are coordinating with tribal governments to ensure tribes are given the opportunity to consult with the lead federal agencies on matters related to potential issuance of a BLM ROW grant and an IETP and to ensure the Project facilities do not infringe on sacred sites or other significant tribal interests. It also states ongoing Tribal Consultation will allow the joint lead agencies to understand and address any potential impacts and mitigation requirements. We recommend in the NEPA document identifying the tribes that were contacted for consultation and describe the outcome of government-to-government consultation between the lead agencies and each of the tribal governments contacted. We also recommend discussing the issues that were raised, how those issues were addressed in relation to the proposed action, and how impacts to tribal or cultural resources will be avoided or mitigated consistent with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, Section 106 of the National Historic Preservation Act, Executive Order 13007, *Indian Sacred Sites*, and *Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships*.[18] Finally, we recommend updating the Cultural Resources and Native American Religious Concerns sections to reflect the above recommendations related to tribal resources and concerns.

Greater Sage-Grouse (GrSG)

The Draft EA states the proposed action conforms to, and is subject to, the BLM's Wyoming Greater Sage-Grouse Approved RMP Amendment, approved on September 15, 2015, as amended (p. 6). The GrSG RMP amendments are currently being revised because BLM has determined they are potentially inconsistent with new science and rapid changes affecting BLM's management of the public lands.

[16] *See* https://nca2018.globalchange.gov/
[17] *See* https://enviroatlas.epa.gov/enviroatlas/interactivemap/
[18] Available at https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/26/memorandum-on-tribal-consultation-and-strengthening-nation-to-nation-relationships/

These rapid changes include the effects of climate change (e.g., drought, loss of habitat, more frequent wildland fires, less riparian areas). To ensure the NEPA document is consistent with the best available science and BLM's current GrSG planning process, we recommend BLM and USFWS coordinate with your respective GrSG colleagues in the development of the final Project layout, impact analysis, design features, mitigation measures and monitoring.

The Draft EA states the Project area is not located within Priority Habitat Management Areas (PHMA), or by the State of Wyoming Core Population Areas or Connectivity Corridors (p. 36). It does not mention General Habitat Management Areas (GHMAs). The 2015 GrSG Plan emphasizes the importance of GHMAs to maintaining the integrity of the PHMA and connectivity to other populations. We recommend the NEPA document include maps showing the relation of the Project area and related development to the PHMAs, GHMAs, Core Population Areas, Connectivity Corridors, leks, seasonal habitat and brooding areas.

The Draft EA states on p. 46 the nearest occupied leks are approximately 4.61 miles from the Phase I-III wind development area, and 3.93 miles from the Phase IV wind development area. However, on p. 57 it states there are two occupied GRSG leks located within 2 miles of the proposed transmission line route on the western end of the route near the Freezeout Substation. We recommend clarifying the NEPA document and addressing this apparent inconsistency.

The Draft EA states "there are no known occupied leks in the Project area, but there were some incidental GrSG sightings near the northeastern Project boundary adjacent to an operating wind project. Potential nesting habitat may be present in the Project area, although no GrSG were detected in the Project area during the brood rearing season during Project-specific surveys" (p. 57). The list on page 2 in the Applicant's Committed Measures (POD Appendix N) includes no turbine development within 0.25 miles of GrSG leks. Further down on the list, it states surface disturbing and/or disruptive activities will be prohibited from March 15–June 30 to protect sage-grouse nesting and early brood rearing habitats within 4 miles (inside PHMA) and within 2 miles (outside PHMA) of the lek or lek perimeter of any occupied lek (p. 22-23). Wyoming Game and Fish recently said the latest data indicate an "alarming" likelihood of GrSG populations regressing to 1996 levels.[19] The data indicate the ratio of chicks to hens is too low to stabilize the population, and the lower count on leks in 2022 would extend the trend of declining numbers in Wyoming from five to six years. The State Biologist also said this is outside cyclical trends. We recommend discussing in the NEPA document how the 0.25-mile buffer is consistent with the 2015 GrSG Plan. We also recommend BLM and USFWS consider new science and local data, and coordinate with Wyoming Game and Fish, to determine if the GrSG protective measures in the Draft EA are appropriate for conservation of the species and its habitat.

The cumulative effects section in the Draft EA does not include the GrSG in its analysis. The list of past, present and reasonably foreseeable future actions includes 17 wind and electricity transmission related projects, highways, a railroad and the Town of Medicine Bow in the cumulative effects study area, indicating a significant amount of development in the area (p. 75). It states the Project would add a 16 percent increase to operating turbines within a 10-mile radius. We note livestock grazing has the potential to negatively impact the GrSG as well, and the RLA indicates that it is the predominant use of the Project area. As the Draft EA indicates, "GrSG avoidance of anthropogenic disturbance associated with other types of development suggests that they may respond negatively to wind energy development. There may be an increased risk of GrSG nest or brood failure closer to wind turbines

[19] *See* https://wyofile.com/new-sage-grouse-data-alarming-state-biologist-says/

(LeBeau et al. 2014). Project facilities may also increase risk of GrSG predation by creating perch structures for corvids and raptors" (p. 57). In addition, the U.S. Geological Survey *2020 Sagebrush Conservation Strategy* states GrSG in southeastern Wyoming decreased their summer and brood-rearing habitat selection as the percentage of surface disturbance associated with a new wind-energy facility increased (LeBeau and others, 2017a) (p. 173).[20] We recommend the NEPA document analyze the potential cumulative impacts to GrSG to determine if Project design and mitigation measures prevent significant impacts to the species and its habitat.

BLM Instruction Memorandum No. 2021-046 reinstates MS-1794 and H-1794-1 and instructs the agency to "follow the mitigation hierarchy by first avoiding damage to the public lands and resources; second, minimizing damage that cannot be avoided; and third, compensating for any residual impacts to important, scarce, or sensitive resources or resources protected by law."[21] We recommend BLM apply compensatory mitigation, if appropriate, for conservation of the species and its habitat.

[20] *See* https://pubs.er.usgs.gov/publication/ofr20201125
[21] Available at https://www.blm.gov/policy/im-2021-046

Letter #09

As a lifetime resident of Wyoming, I am writing to express concerns regarding Two Rivers Wind Project. These concerns boil down to 1.) The agencies failure to account for the long-term effects that this project will have on the communities and landscapes involved, 2.) An acute lack of stakeholder engagement in the project's planning process.

Nowhere in the arduous draft environment analysis did the agency address how the concentration of wind projects in this particular area (Choke Cherry, potentially Rail Tie, etc.) will impact wildlife migration patterns and mortality rates. Existing mortality rates for bald and golden eagles being one of the most alarming impacts. Because of this, common sense would lead me to search for an environmental impact analysis in accordance with NEPA standards. However, none exists. The fact that environmental impacts have not been fully addressed to the mandated extent is a huge red flag.

Additionally, implanting a commercial project of this scale in rural communities will most certainly have a "boom and bust" effect on their respective economies. While initially there will be a great deal of work to construct the wind farm... I do not believe the following two elements were adequately addressed in the draft EA: 1.) Will workers be hired directly from the impacted communities, or brought in from outside the state? 2.) Exactly how many long-term jobs will exist once the project is completed? I think it is also worth mentioning that overall morale of residents has the vast potential to be negatively impacted due to: the "boom and bust" nature of this project, and the sinking reality that they will be surrounded by foreign objects with ominous red blinking lights for the foreseeable future.

And how can the agency be certain that all communities involved possess the infrastructure necessary to support a relatively short-term building project like Two Rivers? While it is nice that the towns and Albany County are supposedly going to be compensated... how can the public be certain that the funds will be invested into the correct places? I have not been informed of any planning meetings or overall information sharing with anyone directly involved by this project.

Further down the road, I am also concerned about what the company's plans are for disposal of wind turbine blades. Historically, companies have buried them in a landfill outside of Casper. Wind turbine blades typically last a maximum of 20 years. This means that approximately 8,000 blades need to be disposed of and replaced every single year. I am curious as to what these company’s plans are to sustainably dispose of the exhausted blades. Burying them in our landscape does not seem very renewable nor sustainable.

Thank you for taking the time to hear my concerns on the Two Rivers Wind Project. I hope that the Bureau of Land Management and the corporations involved take into account the long-term effects that this project will have and chose to involve ALL relevant stakeholders if this project is permitted to proceed.

WYOMING GAME AND FISH DEPARTMENT

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Letter #10 December 15, 2022

WER 13937.07c
Bureau of Land Management
Environmental Assessment for the Two Rivers Wind Project
Carbon and Albany County

Brandon Snyder
Bureau of Land Management
Rawlins Field Office
1300 N. 3rd Street
P.O. Box 2407
Rawlins, WY 82301

Dear Mr. Snyder,

The staff of the Wyoming Game and Fish Department (Department) has reviewed the Environmental Assessment (EA) for the Two Rivers Wind Project. The Department is statutorily charged with managing and protecting all Wyoming wildlife (W.S. 23-1-103). Pursuant to our mission and as a cooperating agency in the National Environmental Policy Act review process for Two Rivers, we offer the following comments for your consideration.

The Two Rivers Wind Project is a utility-scale facility proposed near Medicine Bow and Rock River, Wyoming. The project is divided into two phases, Phases I-III located on ~15,500 acres north of Medicine Bow, and Phase IV located on ~4,500 acres west of Rock River. Surface land ownership includes private, BLM, and State. Seventy-nine wind turbine generators are proposed, for a total generating capacity of up to 420 megawatts (MW). The project proponent has a signed Monitoring Plan with the landowner and the Department that summarizes the conservation and mitigation measures that the proponent has committed to for construction, operations, and decommissioning/reclamation periods.

The project area is characterized by rolling sagebrush shrubland and sagebrush steppe, with two large perennial drainages intersecting the southern and central portions of Phase I-III (Medicine Bow River and Little Medicine Bow River, respectively). A number of raptor nests, including occupied bald eagle, golden eagle, and ferruginous hawk nests, are located within or adjacent to the project area. A substantial portion of the project area is considered a high-use area for eagles based on avian use surveys, including the topographic relief of Slate Ridge, Fossil Ridge, and the rim along the Little Medicine Bow River. During avian use surveys, ferruginous hawks as well as prairie falcon were the most commonly observed species in the project area.

The Department has previously provided comments on wildlife and habitat resources associated with this proposed project and we continue to support those recommendations (WER letters 13937.00a and 13937.00b). The comments provided herein are specific to the EA Alternative 1 and occupied ferruginous hawk nest buffers.

Alternative 1 – Agency Curtailment Alternative

New to the current version 5 of the Two Rivers Wind Project EA is "Section 2.2.2 Alternative 1 – Agency Curtailment Alternative", which describes the agreements by which the U.S. Fish and Wildlife Service (Service) would issue two Incidental Eagle Take Permits (IETPs) to the proponent for Phases I-III and Phase IV of the project. The Service would also approve the proponent's siting of turbines within 2 miles of occupied golden eagle nests. This is a significant departure from standard Region 6 Service guidance stating a 2-mile No Surface Occupancy buffer should be placed around all occupied eagle nests. Alternative 1 describes a process by which turbines sited within 2 miles of occupied golden eagle nests would be either:

1. Seasonally curtailed (e.g., manually locked) from sunrise to sunset between January 15 and August 31, or until a) May 1 if the nest is determined to be unoccupied that year, b) when the young fledge the nest, or c) the nest fails. Additionally, all turbines located between 1 mile of any unoccupied golden eagle nests would also be curtailed between January 15 and May 1, unless surveys demonstrate that the nest is unoccupied. If the nest is determined to be occupied, the turbine will continue to be curtailed as described above.
2. Or, have informed curtailment between January 15 and August 31 for all turbines within 2 miles of occupied golden eagle nests, with 100% coverage from either biological observers or autonomous curtailment. Additionally, all turbines located within 1 mile of any unoccupied golden eagle nests would also be curtailed between January 15 and May 1, unless surveys demonstrate that the nest is unoccupied. If the nest is determined to be occupied, the turbine will continue to be curtailed as described above.

Alternative 1 also specifies all turbines to be idled at night during fall and spring bat migration periods when wind speed is below 14.5 mph, in order to reduce bat collision and mortality.

Alternative 1 is the alternative agreed upon by the Service, BLM, and the proponent in order to site turbines within 2 miles of occupied eagle nests. The standard recommendation of a 2-mile buffer is based on strong empirical evidence showing that territorial, breeding golden eagles spend a vast majority of their time within 2 miles of home range centers, often represented by occupied nests. Post-construction mortality monitoring data from facilities in Wyoming and across the Intermountain West show that golden eagles, a Wyoming Species of Greatest Conservation Need (SGCN), are at risk of lethal collision with turbine blades. Reducing the protective buffer around occupied nest sites from 2 miles to 1 mile, a 4-fold reduction in protected area, knowingly and quantifiably increases eagle collision risk and lacks biological support.

The Department generally supports the inclusion of curtailment measures as proposed in Alternative 1. We recommend the following changes be considered for incorporation into Alternative 1 prior to its adoption:

Adopt informed, year-round curtailment within 2 miles of occupied eagle nests – In Wyoming, golden eagles are well-documented to generally be year-round residents that stay in and near their home ranges all year. Extensive GPS data collected across the state, including from pairs breeding within the project area, show that adult breeding golden eagles maintain year-round, confined, non-overlapping home ranges that are consistent with their breeding territories. As such, seasonal curtailment that ends in August and does not begin again until mid-January does not sufficiently reduce the collision risk to resident golden eagles.

Additionally, the project area serves as important wintering habitat for golden eagles that do not breed in the area, per non-breeding season habitat use modeling from eBird and communication with eagle researchers analyzing golden eagle GPS data collected via the Service (eBird 2022). While curtailment strategies that apply only to turbines located within 2 miles of occupied eagle nests would not protect wintering eagles that use other portions of the project area as foraging habitat, year-round curtailment of those turbines would somewhat reduce the overall wintertime collision risk posed by the facility.

Maintain curtailment near unoccupied nests through May 15 – The proposed strategy to curtail turbines located within 1 mile of unoccupied nests is an important method to which prohibits any activity that disturbs an eagle to the degree that there is an impact on normal breeding and feeding behavior. Because eagles, like other raptors, can switch between nest sites in successive years, eliminating potential breeding deterrents at alternate nest sites is essential. Alternative 1 eliminates curtailment of turbines prior May 1 if surveys indicate a lack of breeding activity at the unoccupied nest. Based on data on the species' breeding phenology in southeastern Wyoming, the Rawlins Field Office (RFO) of the BLM uses May 22 for the cutoff at which golden eagle nests can sufficiently be determined to be inactive. The Department recommends May 15 as the cutoff date. Shifting this date forward prior to May 15, and especially prior to May 1, creates the potential for occupied nests to be incorrectly classified as unoccupied. While most eagle pairs will demonstrate breeding behavior earlier than May 15, it is important to maintain that date due to, for example, the documented potential for eagle pairs with a failed nesting attempt to attempt re-nesting at alternate nest sites. As such, the Department recommends all turbines within 0.5 and 1 mile of unoccupied golden eagle nests be curtailed until at least May 15, as is consistent with Department guidelines.

Define bat migration period dates – The Department supports the Alternative 1 proposal to idle turbines at night during spring and fall bat migration periods when wind speeds are under 14.5 mph, in order to reduce bat mortality from collisions with turbine blades. We recommend that those migration period dates be determined via consultation with the Service and the Department,

and that they be defined in the EA. Dates should reflect known bat migration phenology specific to southeastern Wyoming.

Occupied ferruginous hawk nest buffers

Ferruginous hawks are a Wyoming SGCN and a BLM Sensitive Species. Several occupied ferruginous nests, as well as alternate nest sites, are located within the project area. Avian use surveys found ferruginous hawks to be the most commonly observed raptor species within the project area. Extensive raptor nest survey data maintained in the RFO raptor nest database has demonstrated a high density of breeding ferruginous hawk pairs in the Shirley Basin and elsewhere in the RFO. Research has shown that Wyoming contains the most important breeding habitat for the species across its range (Squires et al. 2020). The project area and elsewhere in the Shirley Basin are also known to be important migratory stopover locations for large concentrations of ferruginous hawks (eBird 2022).

Based on research from within the RFO as well as other areas in Wyoming and the Intermountain West, the Service's Region 6 recommends a 1-mile buffer around all occupied ferruginous hawk nests for wind energy development. This buffer size creates a protected area of approximately 3.14 square miles around the nest, consistent with the research on ferruginous hawk home range size in Wyoming and the Intermountain West (Olendorff 1993, Kocina and Aagard 2021). The Service's recommended 1-mile buffer around occupied nests is regularly adopted at Wyoming wind facilities currently being permitted and constructed, both on federal and private lands.

The proposed Two River Wind Project EA and Plan of Development place a 0.25-mile buffer around occupied ferruginous hawk nests, resulting in a protected area covering only 6 percent of the recommended Region 6 Service 1-mile buffer area. The justification for this buffer was derived from the RFO Resource Management Plan (RMP; 2008), which stated: *Well locations, roads, ancillary facilities, and other surface structures requiring a repeated human presence will not be allowed within 825 feet of active raptor nests (ferruginous hawks, 1,200 feet). Distance may vary depending on factors such as nest activity, species, natural topographic barriers, and line-of-sight distances.* The EA contains no analysis of impacts to the local and regional ferruginous hawk populations from the adoption of this buffer distance.

The Department recommends the following in regards to occupied ferruginous hawk nests in the project area:

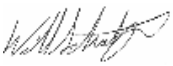
Analyze impacts to ferruginous hawks in EA - No sufficient justification or analysis of impacts of a 0.25-mile buffer around occupied ferruginous nests are provided in the EA. The language in the RMP listed above, indicates, 1) the no surface occupancy guidance is specific to risks to occupied nests and breeding pairs from structures that require "*repeated human presence*", and not from structures which present constant, lethal collision risk to birds for the lifespan of the project. Additionally, the language in the RMP implies the recommended buffer is based on the

height of the structure and the line-of-sight from nest to the structure. Deviations in the range of heights of the structures discussed in the RMP should therefore inform the recommended buffer distance. The 1200-foot buffer is specific to the "*surface structures*" listed in that except of the RMP ("*well locations, roads, ancillary facilities, and other surface structures*") which range from 0 to 15 meters tall, whereas a 5.3-MW wind turbine is approximately 160 to 165 meters tall and cannot reasonably be considered as a comparable surface structure to those described in the RMP.

Adopt recommended 1-mile buffers around occupied ferruginous hawk nests - Based on the rationales described in the preceding paragraphs, the Department recommends the standard Region 6 Service buffer distance of 1 mile is placed around all occupied ferruginous hawk nests in the project area.

Thank you for the opportunity to comment. If you have any questions or concerns, please contact Lauren Throop, Habitat Protection Biologist, at (307) 777-4509 (office), (307) 349-2301 (cell), or lauren.throop@wyo.gov.

Sincerely,



Will Schultz
Habitat Protection Supervisor

WS/lt/ct

cc: U.S. Fish and Wildlife Service
Kristy R. Rowan, Carbon County Planning and Development Department
Chris Keefe, Bureau of Land Management
Travis Bargsten, Bureau of Land Management
Mary Read, Bureau of Land Management
Heath Cline, Bureau of Land Management
Lee Knox, Wyoming Game and Fish Department
Teal Cufaude, Wyoming Game and Fish Department
Martin Hicks, Wyoming Game and Fish Department
Tomas Kamienski, U.S. Fish and Wildlife Service
Chris Wichmann, Wyoming Department of Agriculture

Literature cited:

eBird. 2022. eBird: an online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Available at http://www.ebird.org.

Kocina, M. and K. Aagaard. 2021. A review of home range sizes of four raptor species of regional conservation concern. Western North American Naturalist 81(1), 87-89.

Olendorff, R. R. Status, biology, and management of ferruginous hawks: a review. Boise: Raptor Research and Technical Assistance Center, Bureau of Land Management.

Squires, J. R., L. E. Olson, Z. P. Wallace, R. J. Oakleaf, and P. L. Kennedy. 2020. Resource selection of apex raptors: implications for siting energy development in sagebrush and prairie ecosystems. Ecosphere 11(8):e03204.

Letter #11

I am opposed to the proposed Two Rivers Wind Project for the following reasons: 1) the disruption and desctruction of big game migration and habitat; 2) the 28 percent eagle kill when in 2016 the USFWS considered 5 percent significant; 3) intrusion and disregard of Native American culture, history, and religious heritage/beliefs; 4) non of the electricity being produced will stay in Wyoming and; 5) most of the construction employees will not be from Wyoming.

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Letter #12 December 19, 2022

Re: Two Rivers Wind Energy Project – Public Comment

On November 8, 2022 the Bureau of Land Management ("BLM") and U.S. Fish and Wildlife Service ("USFWS") requested public comment on an Environmental Assessment ("EA") of the proposed Two Rivers Wind Energy Project ("Project"), which would be located near the Towns of Medicine Bow and Rock River in Carbon and Albany counties, Wyoming. Two Rivers Wind LLC ("Two Rivers") appreciates that the Draft EA has recognized the steps Two Rivers has taken in coordination with the agencies to avoid, minimize, and mitigate for the proposed project's impacts to environmental resources. These mitigation efforts include:

- Establishing a 1,200-foot no surface use setback on private lands from ferruginous hawk nests;
- Establishing a No-Build corridor of approximately 1,520 acres along Highway 287 to protect existing ferruginous hawk use areas;
- Developing a reclamation plan and weed control plan in accordance with the Project's Wyoming Industrial Siting Department Section 109 permit in order to limit surface disturbance to the extent practicable. These plans will also minimize habitat loss and habitat fragmentation;
- Developing a Monitoring Plan consistent with the USFWS Eagle Conservation Plan Guidance (2013), the USFWS Land-Based Wind Energy Guidelines (2012) and Wyoming Game and Fish Wildlife Protection Recommendations for Wind Energy Development (2010) that has already been approved by Wyoming Game and Fish Department and private landowners, and includes commitments to post-construction monitoring on private lands; and
- Developing a Bird and Bat Conservation Strategy consistent with the 2012 USFWS Land-Based Wind Energy Guidelines that includes commitments to monitor and adaptive avian and bat management to ensure that impacts to raptors and bat species are evaluated throughout the life of the project. The BBCS commitments are in addition to technological commitments made in the EA and adaptive management measures contained in the Eagle Conservation Plan.

The Project will play an important role in our nation's efforts to revitalize our energy infrastructure and increase the nation's energy independence, and will help meet federal renewable energy mandates and goals by generating up to 420MW of clean, renewable energy, consistent with the policy objectives of Executive Order 14008[1] that was signed by President Biden on January 27, 2021. Two Rivers would like to provide comments and clarifications on the following aspects of the EA.

1. Alternative 1 (Section 2.2.2; Page 17) – Agency Curtailment Alternative:

[1] Executive Order 14008, Tacking the Climate Crisis at Home and Abroad, signed on January 27, 2021 and available at: EO 14008: Tackling the Climate Crisis at Home and Abroad (2021) | Department of Energy

PLEASE FORWARD A COPY OF ALL CORRESPONDENCE TO
BLUEARTH RENEWABLES
214 11TH AVENUE SW STE 400
CALGARY AB T2R 0K1
CANADA

a. Eagle Curtailment – The proposed Agency Curtailment Alternative is based upon the USFWS Mountain Prairie Region "Recommendations for Avoidance and Minimization of Impacts to Golden Eagles at Wind Energy Facilities" (Region 6 Guidance).[2] This guidance has not been published for public notice and comment, and therefore can have no regulatory effect and cannot be relied upon as the basis for eagle incidental take permit conditions.[3] The proposed turbine layout maintains a one-mile nest buffer from all nests, regardless of status, with the exception of one dilapidated nest site, from which a half-mile buffer would be established. The proposed alternative also incorporates informed curtailment to reduce impacts to eagles and mitigation to offset impacts that do occur. USFWS has not demonstrated that adding an additional mile of buffer distance would materially change eagle risk.

b. Guidance versus Regulatory Language - USFWS regulations require the USFWS to evaluate whether "the applicant has proposed all avoidance and minimization measures to reduce the take to the maximum degree practicable relative to the magnitude of the impacts to eagles."[4] "Practicable" is further defined by regulation to mean "means available and capable of being done after taking into consideration existing technology, logistics, and cost in light of a mitigation measure's beneficial value to eagles and the activity's overall purpose, scope, and scale."[5] The Region 6 Guidance fails to consider the USFWS regulatory language that specifies minimization measures should be practicable relative to the magnitude of impacts to eagles. There is no regulatory requirement for nest setbacks or curtailment, the anticipated magnitude of impacts to eagles does not warrant seasonal curtailment,[6] nor is the seasonal curtailment prescribed in the Region 6 Guidance practicable (*see* "Economic Impact of Alternative 1" below for additional detail). Alternative 1 inappropriately applies Region 6 Guidance in contravention of USFWS regulations.

c. Bat Curtailment – The BLM has not provided sufficient justification for including bat-related turbine curtailment as a component of proposed Agency Curtailment Alternative, given that there are no bat species listed under the Endangered Species Act with the potential to occur in the Project area and that the Project largely avoids habitat for BLM sensitive bat species. Further, the BLM does not have authority to require bat-related curtailment of turbines located on private lands and therefore, if included in the Final EA the alternative should be revised to reflect bat curtailment for turbines approved under the BLM's ROW grant only. The EA also fails to justify why the

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[2] Dated March 31, 2021, *available at* https://www.fws.gov/sites/default/files/documents/R6_Buffer%20Recommendations%20for%20Wind%20Facilities.pdf

[3] *See, e.g.*, *Nat'l Mining Ass'n v. McCarthy*, 758 F.3d 243 (D.C. Cir. 2014); *CropLife Am. v. EPA*, 329 F.3d 876 (D.C. Cir. 2003); *Gen. Elec. Co. v. EPA*, 290 F.3d 377 (D.C. Cir. 2002); *Appalachian Power Co. v. EPA*, 208 F.3d 1015 (D.C. Cir. 2000); *Iowa League of Cities v. EPA*, 711 F.3d 844, 863-65 (8th Cir. 2013); *Texas v. United States*, 809 F.3d 134 (5th Cir. 2015), *aff'd*, 136 S. Ct. 2271 (2016).

[3] *See, e.g.*, 87 Fed. Reg. 59598, 59603.

[4] 50 CFR 22.80(e)(5).

[5] 50 CFR 22.6.

[6] USFWS Mountain Prairie Region has issued eagle incidental take permits to comparably sized wind energy projects with golden eagle take predictions and active and inactive nests in comparable proximity to turbines, and the permittee is not required to implement seasonal curtailment. *See e.g.* Glenrock/Rolling Hills, Seven Mile Hill I&II, Dunlap, Top of the World permits.

proposed 14 mile per hour cut-in speed is appropriate mitigation versus a lower cut-in speed or no curtailment at all, and if included in the Final EA, the EA needs to disclose what the effect of bat-related curtailment would be on the Project's energy generation, which would be substantial.

d. Economic Impact of Alternative 1 – The EA fails to disclose the economic impact of eagle and bat curtailment proposed as part of the Agency Curtailment Alternative. Under this Alternative, turbines that are located within the above-described nest buffers would not operate at any time because it is assumed that an eagle will always be present in the rotor swept zone; annually between January 15 through July 31, with the potential extension of the curtailment period into August if young eagles fledge and remain at the nest location into August. The addition of bat curtailment will further reduce the potential generation in the overnight periods during spring, summer and fall when bats are active. The curtailment loss associated with proposed Agency Curtailment Alternative on an annual basis is equivalent to greater than 50% of the expected gross production of the Project. Under this Alternative, the Project is no longer viable or financeable. Implementation of this Alternative would result in Two Rivers inability to meet the requirements of its Purchase Power Agreement ("PPA") with PacifiCorp, and specifically the Project would fail to meet the required performance guarantee (i.e. generated energy) and therefore be in default of the PPA; Two Rivers would be required to pay excessive damages to PacifiCorp for failure in performance.

2. Alternative 2 (Section 2.2.3; Pages 15-16) - Original Layout

In describing the proposed action outlined for Alternative 2 (at pp. 15-16), the EA notes that the applicant changed the turbine layout in response to USFWS concerns, but does not describe the changes. In describing Alternative 2, the original layout, the EA mentions (at p. 21) the nest buffers used in setting the original layout, but again does not describe the changes from that original layout to the proposed action.

The Project has been proactively working through the eagle permitting process with USFWS since early 2019. As a result of this early coordination, between 2019 and April 2021, Two Rivers has produced 4 discrete layout changes, eliminating twelve (12) of the originally proposed seventy-five (75) turbines and moving more than thirty-six (36) turbines in response to USFWS comments. To produce the proposed layout, Two Rivers further adjusted forty-one (41) turbines in response to USFWS comments regarding setbacks to inactive golden eagle nests across the Project.

3. Section 4.6.1; Page 55 – Effects of the proposed action on eagles

At p. 55, the EA again recites the distances between turbines and active and inactive nests. It then states how many turbines would be within two miles of an active or inactive nest, lumping them together as if a two mile buffer were warranted from any golden eagle nest, regardless of whether it is in use. The two-mile buffer only appears in guidance and only applies to active nests. The same guidance calls only for a half-mile buffer from inactive nests. Since the EA has incorporated the USFWS Region 6 guidance on nest buffers, that guidance should at least be applied consistently throughout the document.

Two Rivers thanks BLM and USFWS staff for their time and thorough assessment of the Project. We believe that through these efforts, Two Rivers will meet or exceed the expected standards required for the protection of the environment in the area associated with the Project. We thank you for your consideration and evaluation of our comments and look forward to working with the BLM and USFWS to complete the permitting process of the Two Rivers Wind Project and commencing construction in spring 2023.

Two Rivers Wind LLC

Glenn Isaac
Director, Regulatory and Environment

Ricky Davis
Director, Development

BOARD OF CARBON COUNTY COMMISSIONERS

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December 20, 2022

Brandon Snyder
Bureau of Land Management, Rawlins Field Office
United States Department of the Interior
1300 North Third
Rawlins, WY 82301-2407
Email: bwsnyder@blm.gov

RE: Public Comment: Draft Environmental Assessment for the Two Rivers Wind Project – DOI-BLM-WY-D030-2021-0005-EA

Dear Mr. Snyder:

Please accept these comments on behalf of the Carbon County Board of County Commissioners (BOCC) pertaining to the Draft Environmental Assessment (Draft EA) for the Two Rivers Wind Project. Additionally, the assessment analyzes the environmental consequences of the U.S. Fish and Wildlife Service issuing an incidental eagle take permit for the project (USWFS IETP).

Carbon County Natural Resource Management Plan

The BOCC adopted the Carbon County Natural Resource Management Plan (NRMP) on July 6, 2021. The NRMP is a document prepared and adopted by our local government that federal agencies are required to review and consider when making decisions that affect the local area. The following are the NRMP objectives and priorities for renewable energy and transmission.

4.5.4.3 Resource Management Objectives (Renewable Energy):

A. Renewable energy, including, wind, solar, hydroelectric, etc. is developed within Carbon County while striving for a sustainable balance with other resources to achieve quality of life for County residents.
B. All wind projects, regardless of when they were permitted, follow the current Carbon County and Wyoming State guidelines for decommissioning and abandoning wind turbines.
C. All renewable energy projects minimize habitat fragmentation, collocate disturbances with existing projects, following existing energy corridors, and conduct successful reclamation.

4.5.4.4 Priorities (Renewable Energy):

1. Federal and state agencies should give notice to Carbon County of any decisions or actions that could limit, impede, or increase the cost of renewable energy being brought into the County and allow the County to participate as a cooperating agency early in the process for all such proposals and decisions.
2. Federal agencies should evaluate the development of renewable energy in coordination with stakeholders.
3. Federal agencies should support renewable energy (i.e., wind, solar, hydroelectricity) as a means of economic diversification and to further develop energy infrastructure and energy independence without encumbering the underlying mineral estate.
4. Absent a conflict with federal law or federal agencies' written reclamation requirements, reclamation requirements should be permitted at the higher of the two standards (Carbon County or federal agency) if there are discrepancies before projects are approved.
5. Federal agencies should develop and determine reclamation standards for proposed actions in coordination with stakeholders.
6. When conflicting with other uses, renewable energy should be a lower priority than other multiple uses in Carbon County.
7. Wind and solar farms should be located on lands with high energy potential and low-value habitats such as previously disturbed lands or areas where impacts on native plant or wildlife species are minimal.
8. Federal agencies should discourage locating wind energy projects within bird, bat, pronghorn, and mule deer migration areas.
9. Federal agencies should encourage renewable energy reclamation to use best management practices instead of requiring restoration to as near the same condition as the site was originally. Consider nonnative seeding where appropriate and beneficial for soil stability and conservation.
10. Federal agencies should be consistent with the Carbon County Zoning Regulations.
11. Federal agencies should follow Carbon County Zoning Resolution Chapter 6.1.C limiting the location of commercial-scale wind or solar energy systems within sage-grouse core areas.

4.5.5.3 Resource Management Objectives (Transmission):

A. Energy corridors, development of pipelines, and development of transmission lines from all energy sources are created within Carbon County while a sustainable balance is maintained with other resources to achieve a high quality of life for County residents.
B. Reclamation is conducted in an efficient way that protects existing uses, utilizes best management practices, and should consider the use of nonnative seeding where appropriate and beneficial for soil stability and conservation.
C. Pipelines use the most efficient route and avoid the use of eminent domain within Carbon County.
D. Pipeline and transmission line development within Carbon County primarily utilize existing utility corridors and areas previously disturbed regardless of land ownership, while sensitive habitats and conflicting existing uses are avoided.

4.5.5.4 Priorities (Transmission):

1. Carbon County supports the collocation of transmission lines, pipelines, etc. to reduce fragmentation across the landscape.
2. Future and existing energy corridor, pipeline, and transmission line infrastructure for the transmission of energy and/or materials in and through Carbon County should be developed and improved when it will not affect pre-existing uses or rights.
3. Carbon County supports efficient and timely decisions regarding energy corridors, transmission lines, and/or pipelines so long as it does not harm pre-existing uses or rights.
4. Carbon County encourages pipeline and transmission line development to be in the most appropriate route, avoiding sensitive habitats, the use of eminent domain, and conflicting existing and future planned uses, regardless of land ownership, with a preference to placement on federal lands or consenting landowners.
5. Federal agencies should encourage reclamation to use best management practices instead of requiring restoration to as near the same condition as the site was originally. Consider nonnative seeding where appropriate and beneficial for soil stability and conservation.
6. Pipelines should avoid water crossings and placement in river systems. Should a pipeline cross water bodies, boring and other methods that would reduce disturbance to the water body or riverbed should be required.
7. All potentially hazardous materials best management practices shall be required to prevent water quality impairments from occurring from the development of pipelines.
8. Carbon County discourages the use of eminent domain for all pipeline and powerline projects.
9. Federal agencies should work with local agricultural producers, Conservation Districts, and Carbon County to ensure mitigation is done properly and locally for all pipelines and transmission lines.

Draft EA- Two Rivers Wind Energy Project

4.6.1 Proposed Action – Applicant's Mitigated Proposal

"Should any in-use eagle nests be found before construction or during construction, an appropriately sized buffer shall be established around the nests to prevent disturbance to nesting eagles from construction activities. The nest buffers would remain in place until the nests are no longer active." (Pg. 55)

- **Comment #1** – Establish the buffer size within the EA.

"The Project would not remove any in-use or alternate nests, or remove any other potential nesting substrate as a turbine setback buffer has been applied along the extent of the Little Medicine Bow River through the Project area and 1-mile from all eagle nests falling within that area (Pg. 55-56)*."*

- **Comment #2** – State the setback buffer size that has been applied along the extent of the Little Medicine Bow River.

4.7.1 Proposed Action – Applicant's Mitigated Proposal (USWFS IETP Decision)

According to the Draft EA, there are six operational projects within this LAP for which take of Bald and Golden Eagles is authorized. Those six projects are Seven Mile, Dunlap, Chokecherry and Sierra Madre Phase 1, Pioneer, Glenrock/Rolling Hills and Top of the World Wind Projects (Pg. 61).

The Phase I-III Bald Eagle annual take is under the EMU take limit (Pg. 61). The Phase I-III Golden Eagle annual take exceeds the EMU take limit of zero (Pg. 63).

- **Comment #3** – State the EMU take limit for Bald Eagles.
- **Comment #4** – The BOCC is concerned that the Two Rivers Phase I-III annual take of Golden Eagles exceeds the EMU take limit. The USFWS should further demonstrate why allowing take to exceed the EMU limit is still compatible with the preservation of eagles.

The benchmarks are 1% and 5% for the permitted take of Bald Eagles within the LAP (Pg. 61). The threshold level for the unpermitted take of Bald Eagles is 10% within the LAP (Pg. 62). The benchmarks are 1% and 5% for the permitted take of Golden Eagles within the LAP (Pg. 62). The threshold level for the unpermitted take of Golden Eagles is 10% within the LAP (Pg. 63).

- **Comment #5** – Further explain how the "benchmarks" and "threshold level" is established for Bald and Golden Eagle permitted and unpermitted takes. Additionally, further explain the significance of exceeding the "benchmarks" and "threshold level" for both permitted and unpermitted takes.

The Draft EA states the following of the Two Rivers Phase I-III Bald Eagle Take:

"Thus, despite the fact that take at the LAP level of 28.2% exceeds the 5% benchmark for the LAP associated with the Project, this level of Bald Eagle take from the local area is consistent with the management objective established in the PEIS and codified in regulation. It is reasonable to assume that the Bald Eagle population in the Project vicinity is increasing and the conservative take estimate at the Project would not contribute to declines in the overall Bald Eagle population in the EMU." (Pg. 62)

- **Comment #6** – The BOCC is concerned that the LAP level of 28.2% is significantly over the 5% benchmark and that the report assumes that the Bald Eagle population in the vicinity is increasing. The USFWS should further demonstrate why allowing take to exceed the LAP limit is still compatible with the preservation of eagles.

The Draft EA states the following pertaining to Golden Eagle Take:

"Taken together, take from Phase I-III and the overlapping take of the other projects could result in a total annual take of 35 Golden Eagles (or 3.4% of the LAP). Based on the USFWS's eagle mortality database, there were 449 reported Golden Eagle mortalities within the LAP between 1995 and 2021, for an average of 17.3 per year. These mortalities are all considered to be unpermitted

take. Of the 35 Golden Eagles mortalities, 19 deaths resulted from undetermined causes, one resulted from non-anthropogenic causes, and the remaining 15 resulted from anthropogenic (electrocution, shooting, poisoning, collision with wind turbines, etc.) causes. On an annual basis, 17.3 unpermitted Golden Eagle takes equals about 1.69% of the total Golden Eagle population in the LAP associated with the Project. This amount of unpermitted take is well below the 10% threshold level for unpermitted take within the LAP." (Pg. 62-63)

- **Comment #7** – Is Phase IV of Two Rivers being considered in the total annual take and is Phase I-III being considered for the Phase IV analysis for both Bald and Golden Eagles? Additionally, does "the overlapping take of the other projects" only include projects that have a permitted take permit? We suggest that both phases be accounted for in the total annual take analysis for both Bald and Golden Eagles.
- **Comment #8** – We would encourage the agencies review the above excerpt from the Draft EA (Pg. 62-63). Specifically, confirming that the description of the unpermitted 35 Golden Eagle mortalities and the numerical breakdown of eagle mortality is accurate.
- **Comment #9** – We request that the number of unpermitted take mortalities from wind turbine collisions be stated within the take estimates for both Bald and Golden Eagles.

6.0 CUMULATIVE EFFECTS

Cumulative effects under NEPA are defined by the CEQ as:
"effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. (40 CFR 1508.1)" (Pg. 74)

6.2.6 Wildlife

"The effects of wind energy development on large ungulates are largely unknown at this time; however, ongoing monitoring and research in Wyoming is expected to provide information in the near future. Multiple wind projects are being developed in the area and studies are currently ongoing to assess the effects of wind development on pronghorn over the long-term in the Shirley basin, which is being funded by wind developers in the area including Two Rivers Wind LLC. Construction of the Project and other wind facilities in the CESA have the potential to displace big game species from important seasonal habitats, especially crucial winter ranges. It is possible that increased industrialization and construction within the CESA could also lead to loss of connectivity between required seasonal habitats, including summer range, calving areas, and migration corridors, all of which are necessary to maintain big game populations. Increased habitat fragmentation may also result in a decrease in available habitat quality and attractiveness of habitat patches adjacent to infrastructure (Berger et al. 2006)." (Pg. 78)

- **Comment #10** – The BOCC believes that cumulative effects on wildlife cannot be adequately addressed within the CESA at this time. There has been incremental and cumulatively significant

industrial development activity within the CESA in the past decade and there is insufficient information to determine the overall impact of said development on wildlife.

- **Comment #11** – Especially when there is limited information on cumulative impacts to wildlife, projects should avoid sensitive areas such as wildlife migration routes and crucial winter range.

6.2.7 Eagles

- **Comment #12** – Unpermitted Bald and Golden Eagle mortalities due to collisions with wind turbines should be further considered when analyzing cumulative effects of wind developments within the CESA.

According to the cumulative effect analysis of eagles, "The existing and proposed wind developments within the CESA are likely to have the greatest impacts on the local eagle population" (Pg. 79). In addition, "Existing data on the effects of these wind developments on the local eagle population is currently unavailable, but they have likely resulted in the encroachment of breeding and foraging habitats use by eagles and have potentially led to the displacement of eagles from historically occupied territories" (Pg. 79).

- **Comment #13** – The BOCC is concerned the USFWS Region 6 recommendation that no wind turbines should be constructed within 2-miles of in-use Golden Eagle nests cannot be achieved by the applicant. The BOCC would like to be kept updated on the Incidental Eagle Take Permit conditioned compensatory mitigation plan as developed and implemented and be provided with a copy of the annual monitoring report.

On behalf of Carbon County, I would like to thank you for the opportunity to submit comments for the Draft Environmental Assessment for the Two Rivers Wind Project. Please feel free to contact me at your convenience with any questions or concerns. I will look forward to hearing from you as this matter progresses.

Very truly yours,

Willing John Johnson, Chairman
On behalf of Carbon County Commissioners

cc: Brandon Snyder, Bureau of Land Management Rawlins Field Office
Carbon County Board of County Commissioners
Gwynn Bartlett, Carbon County Clerk
Sarah Brugger, Planning Director
Ashley Mayfield Davis, Carbon County Attorney

Eubanks & Associates, PLLC
LAW FOR THE PUBLIC INTEREST

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By appointment only

Letter #14 December 20, 2022

Via Online Participation Portal
Bureau of Land Management
Online Participation Portal
https://eplanning.blm.gov/eplanning-ui/project/2003881/570

Re: Comments on the Draft Environmental Assessment for the Proposed Two Rivers Wind Project in Carbon and Albany Counties, Wyoming

To whom it may concern:

We are submitting these comments on behalf of our client, the Albany County Conservancy ("the Conservancy"), in connection with the Draft Environmental Assessment ("Draft EA") prepared jointly by the Bureau of Land Management ("BLM") and U.S. Fish and Wildlife Service ("FWS") (collectively, "the Agencies") for their respective decisions related to the proposed Two Rivers Wind Project in Carbon and Albany Counties in Wyoming.

Although the Conservancy appreciates the opportunity to submit these comments, it has grave concerns about the Agencies' compliance with various federal laws that apply to their respective decisions. As explained below, because the Conservancy only learned about this comment period on November 30, 2022, the Conservancy will briefly summarize its concerns to preserve them as part of the Agencies' administrative records, but will not be able to provide the detail, depth, and citations that would otherwise accompany these comments if more time were provided during a less hectic time of the year.

Summary of Serious Comments and Concerns

The Agencies should not construe the concerns raised below as exhaustive. Rather, they are the best attempt the Conservancy could make under extremely tight time constraints once it learned about this comment period during the busy holiday season. As such, the concerns identified below are merely representative in nature of what we view as a fatally flawed, highly defective Draft EA. If the Agencies refuse to cure the violations identified below, the Conservancy will seriously consider litigation to ensure that this project proceeds, if at all, only once the Agencies have complied with all applicable laws.

- ***Lack of Stakeholder Engagement***

Although it is an explicit purpose of the National Environmental Policy Act ("NEPA"), 42 U.S.C. §§ 4321-4347, the Agencies have *not* fulfilled their duties to ensure meaningful public participation in this process that involves not one—but at least two—distinct federal agency decisions for a massive, commercial-scale industrial wind project that will be injected into an otherwise relatively rural setting and thus will fundamentally alter the character and feel

of this area for decades to come. In fact, despite being the *only* conservation group specifically dedicated to protecting Albany County's ecosystem, neither BLM nor FWS has ever contacted the Conservancy about this project, nor did the Agencies notify the Conservancy of this public comment opportunity. The failure to notify the Conservancy of a project that indisputably affects the organization's core mission and its members' interests is particularly egregious because the Conservancy previously notified BLM—i.e., the Rawlins Field Office responsible for issuing and accepting comments on the Draft EA—and explicitly "request[ed] to be notified of all NEPA and/or NHPA processes occurring in Albany County and surrounding counties." Letter from the Conservancy to BLM's Rawlins Field Office (April 5, 2022) (Attachment 1).

Instead, the Conservancy only learned about the Draft EA comment period by mere happenstance when its outside counsel saw the notice on November 30, 2022 while searching BLM's website for another client in a different matter. As a result, the Conservancy has had to rush these comments after reviewing nearly one thousand pages in the Draft EA package before preparing these comments. This is unacceptable and not in keeping with the spirit or letter of NEPA and its implementing regulations. This is precisely the type of uninformed agency action that Congress sought to prohibit when it enacted NEPA.

At best, the failure to notify the Conservancy of the Draft EA was a major oversight that likely means many other important project stakeholders are unaware of the public comment period and will be deprived of their lawful right to have input into whether and how this project proceeds. At worst, this public comment period was never intended by the Agencies to do anything other than serve the Agencies' interest in steamrolling ahead towards a preordained outcome in which BLM and FWS will approve their respective decisions (irrespective of public input) to pave the way for a massive wind energy project built and operated to advance the Administration's ambitious renewable energy goals for our nation's public lands.

Whatever the reason for this enormous misstep, it has harmed the Conservancy's ability to meaningfully comment on, and participate in, the Agencies' decisionmaking process. Therefore, the Conservancy hereby requests that the Agencies extend the public comment deadline for a minimum of thirty additional days and ensure that before any extension, *all* interested project stakeholders have been identified and directly notified (rather than through indirect means such as a newspaper or library posting that few people would ever see).

- ***The Agencies Must Prepare an EIS Due to the Project's Significance***

After reviewing the Draft EA package, it is abundantly clear that this project will cause highly significant impacts to many important resources. For many independent reasons, this project warrants preparation of an Environmental Impact Statement ("EIS") to be compliant with NEPA and its regulations.

First, the fact that there are two separate agency decisions at issue (or three if FWS's two eagle permit decisions are counted separately)—each with major consequences that standing alone would warrant an EIS—reinforces the overall significance of the "action" before the Agencies. In fact, BLM's own NEPA manual clarifies that "[t]he following types of BLM actions will normally require the preparation of an EIS": "industrial facilities" and "[r]ights-of-

way for . . . transmission lines." DOI Manual 516 DM 11, at 11.8(B). Here, of course, BLM is doing both. BLM is authorizing what can only be characterized as a large "industrial facilit[y]" to generate wind energy *and also* the "transmission lines" that are necessary to successfully transfer power from industrial wind turbines to the electric grid. Thus, there are *two* separate grounds for an EIS under BLM's own stated EIS criteria, without even accounting for the fact that this project threatens to "take" a large number of federally protected eagles.

Second, the sheer size of the Draft EA package makes clear that an EIS is necessary under the circumstances. EAs are supposed to be short, concise documents containing no more than roughly 10-15 pages, and yet the Draft EA package here is a whopping ***909 pages***. *See* CEQ, *Forty Most Asked Questions Concerning CEQ's NEPA Regulations* ("*Forty Questions*"), 46 Fed. Reg. 18,026 (March 23, 1981) (explaining that agencies are advised "to keep the length of EAs to not more than approximately 10-15 pages"). As the Council on Environmental Quality ("CEQ")—the agency charged by Congress with interpreting and applying NEPA—has explained, "[i]n most cases . . . a lengthy EA indicates that an EIS is needed." *Id.* Here, the Draft EA package is nearly ***100 times*** the volume of the recommended length for an EA, underscoring the complexity of the decisionmaking process and the significance of impacts resulting from it. Yet, the Agencies have provided no reason—let alone a compelling one—for why this is a particularly unique situation, in which a complex multi-agency decisionmaking process regarding a commercial-scale energy project that requires 909 pages to analyze, does not fall into the category of "most cases" in which an EA of this length warrants an EIS. *Id.*[1]

Third, other federal agencies have determined that comparable projects in the same geographic vicinity require an EIS to comply with NEPA. The Draft EA notes that this project will introduce 79 commercial-scale wind turbines in Carbon and Albany Counties. Similarly, the Western Area Power Administration ("WAPA")—a component of the Department of Energy—recently authorized interconnection to its existing transmission line for the Rail Tie Wind project in Albany County, which will affect many of the same wildlife, historic, cultural, socioeconomic, and other resources as the Two Rivers project. Although WAPA concluded that it had extremely limited jurisdiction over the Rail Tie project—i.e., it must either approve or deny the interconnection request—it still prepared an EIS for the project, rather than an EA. Here, in contrast, the Agencies purport to have far *more* authority and discretion because, among other reasons, the Two Rivers project cannot be constructed or operated in the manner proposed by the developer without BLM's grant of a right-of-way on federal public land—and yet the Agencies only prepared an EA. Because the federal government has determined that other nearby wind energy projects with impacts of comparable nature and magnitude require an EIS, the Agencies

[1] The 909 pages in the Draft EA package is not even a full picture of the project's complexity and significance. For example, there are numerous project-related documents left out of the Draft EA package that are relevant to a determination of significance. These include, for example, the FWS Biological Opinion under the Endangered Species Act ("ESA") referenced in the Draft EA, the impacts to jurisdictional waters and wetlands being evaluated by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act ("CWA"), and effects determinations and related documentation required by Section 106 of the National Historic Preservation Act ("NHPA"). Accordingly, the Draft EA package—which is already immense—is not complete.

must prepare an EIS for this project (or at least coherently explain the substantial differences that can minimize and mitigate harm below the "significance" threshold here).

Fourth, by any measure, the impacts of this project will be highly "significant." Among other significant impacts, the Agencies acknowledge that there will be substantial impacts to federally protected eagles, endangered and threatened species protected by the ESA (including the highly imperiled Whooping crane), many birds protected by the Migratory Bird Treaty Act ("MBTA"), historic and cultural resources protected by the NHPA, and wetlands and other waters protected by Section 404 of the CWA.

The project's effects on federally protected bald eagles are also highly uncertain, involve unknown or unique risks, and are controversial (as that term is applied under NEPA) because FWS is proposing to authorize eagle take for this project at a level that far exceeds the authorized amount of take for the bald eagle Local Area Population ("LAP"). There is also a very dense concentration of cumulative impacts to these same localized resources due to the rapid expansion of wind energy, among other anthropogenic factors. And, as explained below, the proposed actions by the Agencies threaten to violate other federal laws, including, but not limited to, the MBTA and the NHPA.

In addition, the Agencies acknowledge what they view as "significant" benefits to the local community, which can themselves be a basis for the preparation of an EIS because a significant effect may exist even where an agency believes that on balance the effect will be beneficial. *See* Draft EA at 67 ("Should the agencies authorize the Proposed Action, the Project would be constructed and would result in *significant investments* in the local community and the State of Wyoming." (emphasis added)); *see also id.* at 81 ("The additional tax revenue during both the construction and the operation stages *will provide a very large and significant beneficial source of revenue for local governments*." (emphasis added)). For all of these reasons, the context and intensity of anticipated impacts require the Agencies to prepare an EIS to ensure a fully-informed decisionmaking process.

We also remind the Agencies that the volume of the EA package (as described above) cannot cure the failure to prepare an EIS. As courts have held, "[n]o matter how thorough, an EA can never substitute for preparation of an EIS, if the proposed action could significantly affect the environment." *Anderson v. Evans*, 371 F.3d 475, 494 (9th Cir. 2002). If the Agencies want to comply with NEPA and avoid having their decisions vulnerable to subsequent invalidation in court, they must prepare an EIS or better explain why one is not required under these facts.

- ***The Draft EA Violates NEPA in Various Ways***

Even if an EA were appropriate for this project, there are serious defects with the Draft EA itself that the Agencies must address before issuing any final decision.

To begin with, several of the core assumptions the Agencies built into their alternatives analysis—which is the heart of the NEPA process—are fatally flawed. For example, FWS inexplicably bases its No Action Alternative on the assumption that if FWS does not issue Bald and Golden Eagle Protection Act ("BGEPA") permits to the project proponent, the developer

will nevertheless construct and operate this project on these BLM lands. *See* Draft EA at 22, 67. However, the fact that BLM theoretically *could* issue a right-of-way in the absence of BGEPA permits does not answer the relevant question for purposes of determining the proper scope of the No Action Alternative. Rather, that question turns on whether it is *likely* that the project proponent would actually proceed with construction and operation of a project that FWS estimates will kill 141 federally protected eagles (8 bald eagles and 133 golden eagles) during its lifespan. Given that the developer cannot avoid committing repeated violations of federal law in the absence of BGEPA permits, we would argue that it is likely (indeed, virtually certain) that the developer would *not* proceed with constructing a project that will be routinely mired in enforcement proceedings and subject to millions of dollars in civil and/or criminal penalties.

Accordingly, FWS must revise its No Action Alternative to contemplate the most likely scenario to occur in the absence of FWS issuing the proposed BGEPA permits—i.e., no project construction or operation. *See, e.g.*, CEQ, *Forty Questions*, 46 Fed. Reg. at (explaining that "no action" in this context "mean[s] the proposed activity would not take place, and the resulting environmental effects from taking no action would be compared with the effects of permitting the proposed activity or an alternative activity to go forward"; agencies should only assume as part of the No Action Alternative that a third party will take a particular course of action if it is in fact likely or "predictable" that the third party would actually take such action in the absence of the proposed federal authorization). For this reason, the No Action Alternative—and the evaluation of baseline conditions that flows from the No Action Alternative as part of the Agencies' broader alternatives analysis—is analytically skewed and substantially downplays the actual change in baseline effects from no action (i.e., no project) compared to the action proposed by the Agencies. This, too, further supports the notion that an EIS is required here.

Yet another arbitrary and defective assumption the Agencies baked into the Draft EA is the self-serving assertion of the project proponent that "[a] reduction in the projected energy generation, *however small*, could have significant consequences . . . . *making the Project no longer viable*." Draft EA at 42 (emphases added). This assumption is arbitrary and unlawful for several reasons:

First, the Agencies have not *independently* determined (let alone provided evidence) that even small modifications to the project's design or configuration would actually jeopardize project viability—it is the Agencies, not the project proponent, that have the legal duty under NEPA to ensure that all feasible alternatives are considered and, in the first instance, to determine which alternatives would actually be feasible under the circumstances. Deferring to the developer's questionable assertion about project viability cannot pass muster under NEPA or basic administrative law principles, especially where the developer has a major financial incentive to push through its preferred course of action with the imposition of few to no modifications or measures to reduce or mitigate harmful effects to affected resources.

Second, the Agencies compound their threshold problem of failing to independently analyze the accuracy of the project proponent's assertion, by eliminating—without *any* discussion whatsoever—various alternatives that would undoubtedly reduce impacts to affected resources (e.g., alternative project locations or boundaries, alternative transmission line routes, no-turbine buffers within two miles of active eagle nests, and a full mitigation alternative). *See*

Draft EA at 22-23. In essence, by allowing the project proponent to set the terms of the action and what it self-servingly deems economically feasible and infeasible (without any independent verification by a neutral party), the Agencies have arbitrarily skewed the range of alternatives. In so doing, they took off the table many reasonable options and measures that have proven effective for other wind projects (including on federal public lands) to avoid, minimize, and mitigate impacts to eagles, other wildlife, and habitat. This is not the full and fair analysis NEPA requires of reasonable alternatives to reduce harm to affected resources.

Third, because the Agencies skewed the alternatives analysis in favor of the project proponent's self-serving assertions of project (in)feasibility, they significantly constrained their own ability to recommend and ultimately impose meaningful terms and conditions of federal authorization to reduce impacts to eagles and other resources. Although the Agencies pay lip service to the fact that "BLM will determine whether to approve the ROW grant as proposed, *approve with modifications*, or deny the application," Draft EA at 5 (emphasis added), BLM evidently believes that it lacks the authority and discretion even to consider—let alone impose—restrictions and conditions if the developer asserts that they would affect project feasibility in any material way. As a result, there are serious questions as to whether the project proponent (with the Agencies' acquiescence) has already narrowed the available options so much that the final outcome of this decisionmaking process is a predetermined *fait accompli* in violation of NEPA. *See, e.g.*, *Metcalf v. Daley*, 214 F.3d 1135, 1141-45 (9th Cir. 2000) (finding that agency unlawfully predetermined the outcome of its NEPA process by "work[ing] together [with the permittee] toward obtaining [an increased] gray whale quota" long before starting the public EA process to analyze that action and its alternatives).

In addition to the flawed assumptions outlined above, the Draft EA also violates NEPA with respect to its consideration of cumulative impacts. Although the Agencies list several other wind projects in the area, it leaves out others such as Rail Tie Wind that will be also be built in Albany County, Wyoming (and which has already been approved by WAPA through a Record of Decision). To assist the Agencies, we are attaching a letter the Conservancy sent WAPA regarding cumulative impacts in this region. *See* Letter from the Conservancy to WAPA (Dec. 13, 2021) (Attachment 2). The Agencies must update their list of projects contributing cumulative effects to local resources and then ensure that any future EA for this project captures the full array of foreseeable effects to eagles and other resources.

- ***FWS's Proposed BGEPA Permits Are Arbitrary and Capricious***

Separate from the major NEPA deficiencies discussed above, the Conservancy has serious concerns about FWS's proposal to issue two BGEPA permits to the project proponent—an action that is arbitrary and inconsistent with BGEPA and its implementing regulations.

As a threshold matter, it is unclear why FWS is analyzing the LAP exceedances that will be caused by these permits *separately*. In other words, it appears from the Draft EA that FWS has deliberately chosen to review each permit—i.e., the permit for Phase I-III and the permit for Phase IV—in isolation when evaluating the impact to the LAP, which in each case FWS acknowledges will still greatly exceed the amount of take contemplated by FWS's 2016 Programmatic EIS ("PEIS") for BGEPA permits. But because FWS is considering the issuance

of *both* permits, it must include a *combined* evaluation of the amount of authorized eagle take in the event that both permits are issued (i.e., the action proposed by FWS in the Draft EA). Otherwise, FWS is arbitrarily downplaying the impacts to eagles by making the risks to the LAP appear lower than they actually will be when FWS issues these permits.

Further, as mentioned above, even when viewed (unlawfully) in isolation, FWS concedes that these permits will *greatly exceed* the LAP's 5% take authorization benchmark contemplated by FWS's 2016 PEIS. With respect to the Phase I-III permit, issuance would mean that FWS has authorized ***28.2%*** of the LAP (i.e., 14.8 bald eagles per year) to be killed, which does not include many sources of unpermitted eagle take. *See* Draft EA at 61. With respect to the Phase IV permit—once again which FWS analyzed *without* adding the anticipated take from the Phase I-III permit—issuance would mean that FWS has authorized ***26.2%*** of the entire LAP (i.e., 13.4 bald eagles per year) to be killed, which again does not account for all unpermitted eagle take. *See* Draft EA at 64. Despite these mind-boggling exceedances—***nearly 6 times what FWS contemplated for a LAP when it promulgated these regulations to implement BGEPA***—FWS cavalierly, with barely any explanation, dismisses this concern by stating that bald eagle populations generally are increasing, thus assuming without any site-specific substantiation for *this* LAP that "this level of Bald Eagle take from the local area is consistent with the management objective established in the PEIS and codified in regulation" and "would not contribute to declines in the overall Bald Eagle population in the EMU." Draft EA at 62. This unsubstantiated and conclusory statement is highly suspect in light of the goals and purposes of BGEPA, and in any event reinforces the controversial and uncertain effects here that require a more rigorous examination in an EIS under NEPA.

It is also very troubling that FWS acknowledges the existence of 55 turbines within two miles of known golden eagle nests, and four turbines within one mile of known golden eagle nests. *See* Draft EA at 63-65. Yet, despite the well-established fact that imposing a two-mile buffer between wind turbines and golden eagle nests dramatically reduces the risk of collision, death, and injury, the Agencies summarily eliminated the alternative of considering this reasonable, well-proven strategy to significantly reduce threats to eagles. *See id.* at 22-23. This violates both NEPA and BGEPA.

Moreover, it appears that FWS has focused exclusively, or at least primarily, on *lethal* take. But BGEPA prohibits far more activities than those that cause lethal take. *See* 16 U.S.C. § 668c (defining take very broadly to include actions that "pursue, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" eagles). As a result, FWS must consider, analyze, and quantify the expected level of sub-lethal take that will result from this project and that would be prohibited in the absence of FWS's authorization through BGEPA permits.

For all of these reasons, FWS's evaluation of issuing two BGEPA permits for this project is arbitrary, capricious, and in violation of BGEPA, NEPA, and their implementing regulations.

- ***The Agencies' Proposal Threatens Violations of Law***

Although it is clear that the Agencies have failed to comply with NEPA and BGEPA in various ways, we have additional concerns that implicate questions of compliance with other laws that apply to this project. We briefly outline those concerns below.

As FWS is surely aware, the 79 wind turbines and their associated infrastructure such as transmission lines will kill many migratory birds protected by the MBTA. *Cf.* Bird & Bat Conservation Strategy at 46 ("Birds protected under the MBTA do migrate through the Project area."). Yet, there is no discussion in the Draft EA or the developer-prepared Bird and Bat Conservation Strategy that attempts to actually quantify how many migratory birds are likely to be killed or otherwise taken by the project, nor is there any requirement by the Agencies (let alone a commitment by the project proponent) to obtain MBTA authorization from FWS to take migratory birds prior to project construction and operation. In the absence of such a requirement, the Agencies are proposing to authorize a project that they know would be in violation of federal law—indeed, a law administered by FWS, one of the lead agencies making a decision here. That is arbitrary and capricious, especially on the part of FWS.

With respect to the NHPA, the Draft EA suggests that the Agencies conducted a Section 106 consultation for effects to historic and cultural resources. If true, the Agencies failed to involve important stakeholders, including the Conservancy (which has served as a consulting party in similar federal decisionmaking processes in Albany County). In any event, until a proper and lawful Section 106 process is conducted in a transparent manner with all stakeholders, the Agencies are violating their obligations under the NHPA and its implementing regulations.

Pursuant to the ESA, the Draft EA suggests that FWS has already completed a Biological Opinion for the proposed action for seven endangered and threatened species, including the highly endangered Whooping crane. *See* Draft EA at 82. Yet, we did not see a copy of that document included as an appendix to the Draft EA as part of the publicly available Draft EA package. At any rate, if true that FWS has *already* completed a Biological Opinion—before the Agencies even issued a Draft EA, accepted public comment, and acted in response to comments—this would only further bolster the preordained nature of this process in which the Agencies appear determined to avoid consideration or adoption of any meaningful alternatives or measures that could actually avoid or reduce impacts to affected resources.

Finally, although the Draft EA mentions that the Army Corps will later determine the scope and breadth of impacts to jurisdictional waters and wetlands under Section 404 of the CWA, *see* Draft EA at B-9, it is impossible for the Agencies to make a proper determination about the "significance" of this action without knowing whether, how many acres, and the condition of jurisdictional waters and wetlands will be impacted (in addition to all other resource impacts identified above). Accordingly, by pressing forward with the Draft EA towards what appears to be a foregone conclusion that the Agencies will issue a finding of no significant impact—without even knowing the full array of project impacts necessary to make that determination, such as those under the CWA described here—the Agencies have violated NEPA in this way as well.

Conclusion

We appreciate the opportunity (albeit under very truncated time constraints) to provide these comments. We hope that the Agencies fundamentally reconsider their approach under NEPA, BGEPA, and other federal laws to ensure compliance before any action is taken by BLM or FWS. Please let us know if you would like to discuss our comments in more detail by phone.

Respectfully,

William S. Eubanks II

William S. Eubanks II
Owner & Managing Attorney
EUBANKS & ASSOCIATES, PLLC

THE ALBANY COUNTY CONSERVANCY
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United States
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April 5,2022

Via E-Mail

Mr. Dennis Carpenter, Manager
U.S. Bureau of Land Management
Rawlins Field Office
1300 North Third
P.O. Box 2407
Rawlins, WY 82301-2407

Dear Mr. Carpenter,

I am writing on behalf of the non-profit conservation organization the Albany County Conservancy ("the conservancy") in regards to the Rock Creek power line. *Please include this letter in the Bureau of Land Management's formal administrative record for the agency's decision-making process in regards to the Rock Creek power line and any future industrial projects in Albany County and surrounding counties.* A power line constructed to provide power to an industrial wind energy site involving in any way Federal lands under the Bureau of Land Management is a major Federal Action. BLM must conduct an Environmental Assessment for this project, evaluating environmental impacts including all cumulative impacts and connected actions.

Under NEPA the Bureau of Land Management is required to evaluate all impacts of the Rock Creek power line including cumulative impacts and impacts from connected actions involving all other industrial wind energy sites in the area either individually or cumulatively which will have significant impact on golden eagle populations; this must therefore require a full scale Environmental Impact Statement.

At this time the Conservancy would like to request to be notified of all NEPA and/or NHPA processes occurring in Albany County and surrounding counties.

Respectfully Submitted,

Anne C. Brande,
Executive Director
Albany County Conservancy

Anne Brande

Eubanks & Associates, PLLC
LAW FOR THE PUBLIC INTEREST

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(202) 556-1243

December 13, 2021

Via E-Mail
Mark Wieringa
NEPA Document Manager
Western Area Power Administration, Headquarters
PO Box 281213
Lakewood, CO, 80228-8213
RailTieWind@wapa.gov

RE: WAPA's Consideration of Cumulative Impacts for the Rail Tie Wind Project in Wyoming

Mr. Wieringa,

I am writing on behalf of our firm's client—the non-profit conservation organization Albany County Conservancy—to formally request that the Western Area Power Administration ("WAPA") consider and evaluate all reasonably foreseeable cumulative impacts to wildlife, historic, cultural, and other affected resources prior to issuing a Record of Decision for the proposed Rail Tie Wind Project in Wyoming. ***Please include this letter in WAPA's formal administrative record for the agency's decision-making process for this action.***

Before turning to our concerns regarding WAPA's lacking cumulative impact analysis to date, we note that on November 23, 2021 we sent a letter explaining that our clients' formal comments had not been explicitly or implicitly addressed in the Final Environmental Impact Statement ("FEIS") that WAPA prepared for the Project, nor did the agency's response to comments even identify that our clients had, in fact, submitted comments prior to the issuance of the FEIS. We still have not obtained any response from the agency as to this serious omission that flouts the public participation purposes underlying NEPA and its implementing regulations.

As to cumulative impacts, it is beyond dispute that NEPA and the NHPA require WAPA to evaluate all reasonably foreseeable cumulative impacts that are likely to affect the same resources as WAPA's action. Indeed, WAPA specifically analyzed *some* cumulative impacts in its FEIS, including four operating or proposed wind energy facilities. *See* FEIS at 4-1 - 4-3 (listing as actions resulting in cumulative impacts the Roundhouse, Corriedale, High Plains and McFadden, and Two Rivers and Lucky Star wind energy projects).

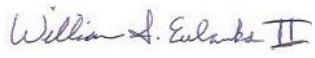
While we agree that these wind energy facilities are appropriately considered as cumulative effects because they are likely to result in impacts to resources that will also be affected by the Rail Tie Wind Project, WAPA has omitted several other reasonably foreseeable wind energy facilities in the cumulative impact area presumably due to WAPA's August 17, 2020 cut-off date for ascertaining actions with cumulative impacts. *See* FEIS 4-2 (stating that an August 17, 2020 memo defined the actions for cumulative impact analysis). For example, more

recently proposed—but nevertheless reasonably foreseeable to be constructed in the cumulative impact area for the Rail Tie Wind Project—are the Rock Creek Wind Project, *see* Attachment 1 (listing potential effects of the project as identified by Wyoming Game and Fish Department), and the Boswell Springs Wind Project, *see* Attachment 2 (listing potential effects of the project as identified by the U.S. Fish and Wildlife Service). There may well be other wind energy facilities in the cumulative impact area that are reasonably foreseeable to be constructed, but which were not yet known or identified in WAPA's August 17, 2020 memo—dated almost 1.5 years ago—that delineated the actions that would be considered as cumulative impacts as part of WAPA's NEPA and NHPA processes.

It is our view that NEPA and the NHPA require WAPA to ensure *as of the date of the agency's final decision* that all reasonably foreseeable cumulative impacts existing at that time have been properly considered, evaluated, and addressed as mandated by NEPA and the NHPA. To the extent that WAPA refuses to incorporate cumulative impacts for actions that have only crystallized to the point of becoming reasonably foreseeable after August 17, 2020, artificially skewing the NEPA and NHPA analyses in this manner would be inconsistent with both the spirit and the letter of these laws.

Please let me know if you have any questions about this letter. Thank you for your consideration of the matters contained herein.

Respectfully submitted,



William S. Eubanks II
Owner & Managing Attorney
Eubanks & Associates, PLLC

Counsel for Albany County Conservancy

Letter #15

Subject: Comments on the Two Rivers Wind project EA

1) 4.7.2 Alternative 1 Agency Curtailment
   Diurnal seasonal curtailment under this alternative is not enough protection for eagles. Year-round autonomous curtailment should be selected to protect resident eagles not only for breeding, nesting and migrating but, wintering foraging eagles. The project will have a greater impact on a larger number of eagles in the winter. This would have a significant impact on local resident eagle populations if not selected. If year-round curtailment is not selected significant impacts will occur to the local resident population and this document needs to address this impact through an EIS and not an EA.

2) 4.7 Take Estimates pg. 61
   The LAP of Bald eagles is approximately 52 Bald Eagles. The cumulative effect of 6 wind projects in the LAP the total annual take for Bald Eagles would be 14.8 or 28.2% of the LAP which is above the established benchmark. This should trigger a significant impact to the LAP. The Service needs to either revise the document establishing the benchmark threshold prior to issuing the IETP for this project or state that a significant impact will occur to Bald Eagles within the LAP. Both the LAP and the EMU established benchmarks need to be met. Justification of only the EMU benchmark does not address the LAP issue. The Eagle Conservation Plan and the IETP need to be part of the terms and conditions for the project.

3) At the time of the writing of the Rawlins RMP a detailed analysis of wind projects was not done because wind development was in its infancy and not much was known about their impacts. Therefore, most references to the Rawlins RMP are not sufficient and further analysis in this document needs to be completed potentially addressing additional significant impacts.

4) There needs to be a section on environmental Justice in this document to address the agricultural rural impacts to the town of Medicine Bow and the surrounding Community.

5) 6.4.3 Big Game Species

   There is 18,758 acres of pronghorn crucial winter range within the project. The pronghorn collaring research study by the Wyoming Cooperative Fish and Wildlife Unit within the Shirley Basin has found that pronghorn avoid turbines were possible and spend less time foraging on migration routes and within crucial winter range where turbines are located. This in turn impacts animal fitness by shifting animals to poorer quality habitats. The Wyoming Cooperative Fish and Wildlife Unit made a presentation to the Carbon County Commissioners where a temporary moratorium was placed on wind projects. So, this document is wrong when it says

that there are no results currently from big Game studies. Based on this pronghorn study there are significant impacts to pronghorn migration and crucial winter range.

Based on the above comments a finding of no significant impact (FONSI) should not be reached. Further analysis should be required to address the significant impacts.

Letter #16 December 22, 2022

Submitted via eplanning (https://eplanning.blm.gov/eplanning-ui/project/2003881/510)

Brandon Snyder, Project Manager
Bureau of Land Management
Rawlins Field Office
1300 North Third
Rawlins, WY 82301-2407

Tomas Kamienski, Migratory Bird Division
U.S. Fish and Wildlife Service
Mountain Prairie Region
134 Union Blvd.
Lakewood, CO 80228

Re: Comments on Environmental Assessment of the Two Rivers Wind Energy Project Wind Project (ROW and Incidental Eagle Take Permit; DOI-BLM-WY-D030-2021-0005-EA)

Dear Mr. Snyder and Mr. Kamienski:

Please accept and fully consider these comments on behalf of National Audubon Society, Audubon Rockies (the Audubon regional office within which two federal decisions are being considered for the Two Rivers Wind Development Project), and Wyoming Outdoor Council. This project proposes to install 79 wind turbine generators over two phases (Phase I-III is North of Medicine Bow, Phase IV is West of Rock River) in Carbon and Albany Counties. Following surveys and analyses presented in the Draft Environmental Assessment (EA), the proponent is pursuing two 30-year Incidental Eagle Take Permits for Golden Eagles from the U.S. Fish and Wildlife Service (USFWS) – one for each phase for a total take of 217 Golden Eagles over the anticipated duration of the project. We appreciate the opportunity to comment on the requested Bureau of Land Management (BLM) right-of-way (ROW) and associated permit authorizing the non-purposeful take of Bald Eagles and Golden Eagles from the USFWS.

For more than a century, National Audubon Society has built a legacy of conservation success by mobilizing the strength of its network of nearly two million members and supporters, 450+ independent chapters, 160 campus chapters, 32 nature centers, 23 sanctuaries, 16 state/regional offices, and dedicated professional staff to connect people with nature and the power to protect it. Audubon Rockies is a regional office of National Audubon Society, working with members, chapters, and partners in Wyoming, Colorado, and Utah.

Founded in 1967, the Wyoming Outdoor Council is the state's oldest and largest independent conservation organization. Its mission is to protect Wyoming's environment and quality of life for present and future generations.

Engaging with a wide range of stakeholders, our organizations work to support, expedite, and expand the development of renewable energy policies, planning, and properly sited and operated projects that support solutions to counteract the effects of climate change. We also recognize the economic benefits that renewable energy can bring to local families and communities and the value of diversifying Wyoming's economy.

For many decades, our organizations have sought protection for the publicly owned resources administered by the Department of the Interior and for trust species protected by federal law, including Bald and Golden Eagles. We are strong advocates for renewable energy that is responsibly sited, developed, and operated, fully complies with all applicable laws, and effectively mitigates impacts to maximize protection of wildlife, habitat value, and other natural resources.

Our comments are focused on two species of conservation concern throughout their North American ranges, **Golden Eagles** and **Ferruginous Hawks**. Deaths from wind development activities would be considered unlawful take under relevant federal laws, specifically the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. There is increasing concern for both species due to current and future projections of mortality risk from anthropogenic sources, such as industrial scale wind development.

Numerous studies have documented these species' vulnerability to mortality from wind turbine collisions and localized population-level impacts. Squires et al. (2020) examined these two species in Wyoming and found that both are at risk from future habitat fragmentation[1]. In 2016, both species were identified as being at equally high risk of experiencing population declines from wind energy in the United States[2]. In a 2021 peer-reviewed publication by Diffendorfer et al., 14 raptor species were examined for level of vulnerability to current and anticipated installed wind capacity and in greatest need of management attention[3]. Golden Eagles and Ferruginous Hawks were among the top four species with the highest turbine-caused mortality rates. These two species were also among the top five species that showed larger estimated declines in population rate of change with increased levels of wind energy, thus had high potential for population-level impacts from wind turbine collisions. Additionally, Conkling et al. (2022) found that Golden Eagles were among the avian species found to be vulnerable to population-level effects from added fatalities caused by renewables and other sources[4].

In a publication that is under peer-review, long-time avian biologist and researcher Jim Watson notes that wind projects appear to expedite changes in raptor guild structure, facilitating long-term, significant declines in local breeding populations of Ferruginous Hawks and Golden Eagles, in part due to subsidizing human-tolerant and detrimental species (ravens and great-horned owls). In our opinion, such effects – when applied to the proposed Two Rivers wind project – could result in

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[1] Squires, J. R., L. E. Olson, Z. P. Wallace, R. J. Oakleaf, and P. L. Kennedy. 2020. Resource selection of apex raptors: implications for siting energy development in sagebrush and prairie ecosystems. Ecosphere 11(8):e03204. 10. 1002/ecs2.3204 https://esajournals.onlinelibrary.wiley.com/doi/10.1002/ecs2.3204

[2] Beston J.A., Diffendorfer J.E., Loss S.R., Johnson D.H. 2016. Prioritizing Avian Species for Their Risk of Population-Level Consequences from Wind Energy Development. PLoS ONE 11(3):e0150813. https://doi.org/10.1371/journal.pone.0150813

[3] Diffendorfer J. E., J. C. Stanton, J. A. Beston, W. E. Thogmartin, S. R. Loss, T. E. Katzner, D. H. Johnson, R. A. Erickson, M. D. Merrill, and M. D. Corum. 2021. Demographic and potential biological removal models identify raptor species sensitive to current and future wind energy. Ecosphere. 12(6):e03531. https://esajournals.onlinelibrary.wiley.com/doi/epdf/10.1002/ecs2.3531

[4] Conkling TJ et al. 2022. Vulnerability of avian populations to renewable energy production. Royal Society Open Science. 9: 211558. https://doi.org/10.1098/rsos.211558

changes in guild structure and increase predation pressure likely to impact Golden Eagles at the local area population (LAP) scale, defined as "the area of the permitted activity bounded by the 90h quantile of the natal dispersal distance for golden eagles, 109 mi."[5]

Conkling et al. (2022) also found that vulnerability varied by species and by taxonomic group. Most raptors also were vulnerable to increases in absolute numbers of fatalities, which is of concern as wind development interests increase in the Shirley Basin and throughout Wyoming. Conkling et al. (2022) and others, as described in further detail below, further find that localized fatalities lead to broader continental-scale population impacts.

In the closing paragraph of their publication, Diffendorfer et al. (2021) specified that their research highlighted "the conservation value of ongoing efforts to continue developing collision deterrent technologies (Mayet al. 2020, Stokke et al. 2020), to implement automated shutdowns when raptors are in close proximity to wind turbines (Tom´e et al. 2017, Hayes et al. 2019), and to site new turbines in locations that avoid raptors (de Lucas et al. 2012a, b, Hanssen et al. 2020)." [Emphasis added]. It is with this strong guidance that we frame our comments.

Impacts on eagle population structure from wind energy development are being elucidated at the same time as technological solutions are being created and tested. It is the USFWS's duty to create the policy space to incorporate appropriate protective measures and innovations. The USFWS was formed in 1871 by Congress to study and reverse the decline of the nation's fisheries. Since then, the species list has expanded dramatically, but for eagles the goal is the same. We urge the USFWS to uphold the obligation their founding was based upon and ensure meaningful protections for eagles that take into account all major life-history phases and the broader population-level impacts of localized mortalities.

I. GOLDEN EAGLES

A. Protections Are Inadequate – Potential for Population Sink

Inadequate protections in a Golden Eagle stronghold experiencing high growth in wind development risks the project area becoming a "population sink" (aka: ecological trap) – an area Golden Eagles are strongly attracted to where they experience high mortality, leading to continued population level declines. When year-round breeding eagles experience mortalities, "floater" eagles are likely to be the ones that fill territory vacancies[6], which themselves also face the same fate, a downward population spiral becomes possible[7]. Several existing wind developments (Dunlap and Ekola Flats) are located adjacent to Phase I-III. The proposed Lucky Star Wind Project would be adjacent to Phase IV, among others.

The Draft Environmental Assessment (EA) states on page 79 that these existing wind developments "have likely resulted in the encroachment of breeding and foraging habitats use by eagles and have

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[5] U.S. Fish and Wildlife Service. 2016. Bald and Golden Eagles: Population demographics and estimation of sustainable take in the United States, 2016 update. Division Migratory Bird Management, Washington D.C., USA.

[6] Grainger, H.W., J. David Wiens, P.R. Law, M.R. Fuller, T.L. Hunt, D.E. Driscoll, R.E. Jackman. 2017. Quantifying the demographic cost of human-related mortality to a raptor populations. PLoS ONE 12(2): e0172232.

[7] https://wyofile.com/biologist-wind-development-outpaces-slow-work-of-tracking-eagles/

potentially led to the displacement of eagles from historically occupied territories. Golden Eagle territories within the Project area are likely limited by the amount of available nesting substrate, and it is unknown how much flexibility breeding pairs have to adjust their boundaries without a territorial pair abandoning or being driven away from their territory by neighboring eagles."

The situation for Golden Eagles in Shirley Basin is concerning and is expected to get worse, according to Mike Lockhart, who has spent approximately 15 years working on energy development impacts on raptor populations (personal communication). Lockhart's research emphasis has been on Golden Eagles and wind development, has marked many eagles adjacent to existing and proposed wind projects on this part of the state. Thus, with the strength of the arguments presented in this comment letter, adequate protections are necessary to ensure that renewable energy projects continue in a sustainable manner, without compromising the preservation standard of an iconic avian species.

1. Protections Should Take Into Account All Major Life-History Phases/Groups (i.e., breeding, wintering, and migration season, age, and migratory status)

Wyoming is home to the largest breeding population of Golden Eagles in the lower 48 states and provides critical habitat for wintering and migrating individuals; the state contains some of the most valuable areas for long-term conservation in the western United States[8]. Even the Draft EA notes on page 40 that large concentrations of migrant eagles can occur in Wyoming throughout the winter months depending on prey availability. Experts note that Wyoming hosts many over-wintering migrants and wandering sub-adults from both northern and southern latitudes. Specifically, wintering migrants travel from the north (e.g., Alaska, Canada) and from the south (e.g., New Mexico, Arizona), and itinerants from other states (e.g., California, Idaho, Montana)[9]. At the same time, parts of Wyoming support some of the densities of resident eagles in the United States; golden eagle activity occurs throughout the year.

Mike Lockhart gave presentations to Albany County and Carbon County Commissioners, in January and May 2022, respectively. Lockhart spoke to the value of the land encompassing Shirley and Laramie Basins, and adjoining hill and mountain slopes, as an incredibly important focal habitat. Based on his work in the area, Lockhart not only described how this area supports both a resident breeding and large resident, non-breeding population year-round, but also serves as a major corridor for far northern eagles that migrate to southern states and Mexico. One such individual is depicted in Figure 1, having arrived on the Shirley Basin wintering grounds after a 21-day migration. Squires et al. (2020) also built spatial maps of nesting habitat for Golden Eagles and found that the Shirley Basin ranks high for nest site selection.

Modeling products for Wyoming and adjoining areas, based upon established methods developed by USFWS researchers and eagle experts are actively being developed, and these support the year-round importance of the project and surrounding areas [10]. These models predict that the project boundary for Phase I-III contains a much higher proportion of high value Golden Eagle nesting habitat than the state

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[8] Wyoming Golden Eagle Working Group https://sites.google.com/view/wy-goea-wg/

[9] Katzner et al. in Wyoming Golden Eagle Working Group's 2020 Research Summary (https://sites.google.com/view/wy-goea-wg/resources)

[10] Dunk, J.R., B. Woodbridge, T.M. Lickfett, G. Bedrosian, B.R. Noon, D.W. LaPlante, J.L. Brown, J.D. Tack. 2019. Modeling spatial variation in density of golden eagle nest sites in the western United States. PLOS ONE 14(9): e0223143. https://doi.org/10.1371/journal.pone.0223143

as a whole, while Phase IV contains a much higher proportion of high value winter habitat (Bryan Bedrosian – personal communication, Wallace et al. in prep).

Figure 1. Path of migrating marked Golden Eagle, banded in October 2003 as hatch year bird and ultimately wintering in Shirley Basin, WY.

Golden Eagles have delayed maturation and typically do not breed until they are at least 4.5 years-old. Movement patterns of Golden Eagles are complex, variable, and affected by age, breeding status, and resource availability. Protections around nests do not sufficiently protect all age classes, breeding statuses, and migratory statuses.

2. NSO Buffer Around Nests Should be a Minimum of 2.0 miles

The USFWS Region 6, Recommendations for Avoidance and Minimization of Impacts to Golden Eagles at Wind Energy Facilities (version 3.0) clearly state that occupied nests within a project area should have a 2.0 mile buffer within which wind turbines cannot be built. Reducing this buffer to 1.0 mile for in-use nests dramatically reduces protection. Nesting areas are documented as the center of activity during the breeding season, and based on the formula presented by Marzluff et al. 1997, core areas that encompass most activity during breeding season can be as much as 61% larger than 2.0 square miles[11]. **Reducing this protection also sets a concerning precedent**, as wind development interests increase in high value Golden Eagle habitat and the documented conflict between eagle and wind turbines bring the preservation standard into question.

[11] Marzluff, J.M., S.T. Knick, M.S. Vekasy, L.S. Schueck & T.J. Sarrielo. 1997. Spatial use and habitat selection of golden eagles in southwestern Idaho. The Auk, 114: 673-687.

3. Curtailment Should Be Year-Round for Occupied Nests

The area around nests, as noted in the USFWS Region 6 Recommendations, are often centers of activity during the non-breeding season as well[12]. Ending curtailment of occupied nests when the young fledge does not make biological sense, as this is when the fledglings are most naïve and vulnerable to collisions. Additionally, the areas contained within Phase I-III and IV support eagles year-round, and seasonal curtailment would not address collisions during non-breeding seasons.

The Draft EA states, for Alternative 1 – Agency Curtailment Alternative (section 4.7.2), that "[i]mplementing diurnal, seasonal curtailment would reduce the potential for take during the breeding season, but this approach *would not address potential for take during the fall migration season*. Year-round autonomous curtailment would likely provide the most mitigation value, since it would provide protection to both species of eagles, year-round and that protection would likely extend to resident (breeding/nesting) and migrating eagles. Fewer eagles killed/detected would allow the USFWS to adjust the overall take accordingly, which would subsequently lower the compensatory mitigation required."

B. Need Recognition of Potential Continental-Scale Consequence of Fatalities at Two Rivers

The Draft EA fails to recognize that Golden Eagle fatalities in Wyoming could have broader continental-scale population impacts. Given the previous description of the value of the state for supporting breeding, wintering and migrating individuals, eagle fatalities in Wyoming can have far-reaching consequences.

For an international example that holds powerful similarities to Golden Eagles in Wyoming, researchers in Spain - which is the world's third largest wind-power producer after the United States and Germany - examined the population response of Egyptian vultures (a long-lived raptor that had the bulk of its breeding population in Spain) to wind farms[13]. They found that even "very low" reductions in survival associated with wind-farms strongly impacted the species' population viability. The authors note the extension of this research in the management of other imperiled, long-lived species, notably Golden Eagles.

Numerous researchers have documented the effects of renewable energy projects extending far beyond the location of energy production to impact bird populations in distant regions across continental migration networks. In 2017, this was demonstrated with Golden Eagles killed at the Altamont Pass Wind Resource Area in California. Researchers used genetic and stable isotope data to show that the effects of local-scale wind-energy associated fatalities can have continental-scale consequences[14]. In the Conkling et al. (2022) research, eagle mortalities originated from both local and non-local subpopulations and vulnerability population-level effects occurred to both. Additionally, Domenech reported to the Wyoming Golden Eagle Working Group of results of his work to determine natal origins

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[12] U.S. Fish and Wildlife Service, Region 6 Wildlife Buffer Recommendations for Wind Energy Projects (Ver.3; Mar 2021) https://www.fws.gov/sites/default/files/documents/usfws-r6-wildlife-buffer-recommendations-wind-energy-projects-v3-2021.pdf

[13] Carrete, M., J. A. S´anchez-Zapata, J. R. Ben´ıtez, M. Lob´on, and J. A. Don´azar. 2009. Large scale risk assessment of wind-farms on population viability of a globally endangered long-lived raptor. Biological Conservation 142:2954–2961. https://www.sciencedirect.com/science/article/abs/pii/S0006320709003383

[14] Katzner, T. E., et al. 2017. Golden eagle fatalities and the continental-scale consequences of local wind energy generation. Conservation Biology 31:406–415. https://pubs.er.usgs.gov/publication/70176711

of eagles killed at Wyoming wind energy facilities[15]. Based on feather samples from 33 juvenile (n=11) and immature (n=22) Golden Eagles killed on five wind farms in Converse and Carbon Counties from 2017-2019, he found that 67% had natal origins significantly north of where they were recovered in Wyoming, indicating that the majority killed and collected were possibly migrants or long-distance dispersers. Additional work is being conducted by Dr. Katzner at the U.S. Geological Survey, who is working with a team of researchers to determine the range-wide demographic consequences of fatalities of Golden Eagle killed in Wyoming.

Effective management of energy production is improved by an understanding of its consequences, locally, nationally, and globally. Given the loss of approximately 3 billion birds in North America since 1970[16] and the ecological/economic value of avian species, understanding and mitigating the many threats to bird populations is critical to make renewable-energy industry truly sustainable. Conkling et al. (2022) note in the closing paragraph of their publication, "In the case of renewable energy, decisions about facility siting, investment and development, as well as management and mitigation actions, will be most effective if they consider both local and non-local impacts to focal species, and if their demographic frame of reference extends to breeding, wintering or stopover habitat far from where the facility is located."
We strongly encourage the USFWS to change the Final EA so that it explores the population-level consequences of the proposed project and all the potential mechanisms to minimize, mitigate, and reduce negative consequences of this project on broader populations as a whole.

C. Fatality Monitoring Must be Robust and Transparent

The Draft EA states that the applicant would conduct a minimum of two years of intensive post-construction monitoring for eagles and that additional post-construction monitoring would be conducted for all years of the permit. Clarification is needed where this latter monitoring would take place. Given how active turbines are expected to change the behavior and use areas of Golden Eagles over time, as well as migrants traveling through the area, monitoring effort in Phase IV area should not be minimal. Also, fatality monitoring reports should be made available to the public and be considered, by the receiving agencies, in conjunction with those of adjacent operating wind projects.

Additionally, given the increasing interest of wind development in the Shirley Basin area, the BLM and USFWS should consider having feather samples from mortalities evaluated to determine natal origins. This information will better infer the consequences of Golden Eagle mortalities to range-wide population-level consequences, using a framework developed by Katzner et al. (2020)[17]. Conkling et al. (2022) also emphasize the importance of assessing the origins of wildlife affected when interpreting consequences to wildlife populations of these, or any, types of anthropogenic activities.

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[15] Domenech, R. in Wyoming Golden Eagle Working Group's 2020 Research Summary (https://sites.google.com/view/wy-goea-wg/resources)

[16] Rosenberg, K.V. et al. 2019 Decline of the North American avifauna. Science 366, 120–124.

[17] Katzner, T. E., M. A. Braham, T. J. Conkling, J. E. Diffendorfer, A. E. Duerr, S. R. Loss, D. M. Nelson, H. B. Vander Zanden, and J. L. Yee. 2020. Assessing population-level consequences of anthropogenic stressors for terrestrial wildlife. Ecosphere 11(3):e03046. https://esajournals.onlinelibrary.wiley.com/doi/10.1002/ecs2.3046

D. Compensatory Mitigation

Additional mitigation options should be considered for this project, beyond solely relying on retrofitting of power lines to abate electrocution risk. Options should include use of non-toxic ammunition for hunting and removal of animal carcasses from highways, which could reduce Golden Eagle mortality from secondary lead poisoning and vehicle collisions, respectively [18,19,20].

1. Carcass Removal

Vehicle collisions are a reoccurring source of Golden Eagle deaths, as they are attracted to these high-risk areas of food sources provided by roadkill carcasses [21,22]. This accounts for an estimated 1% annual mortality in the western U.S.[23] Lonsdorf et al. (2018) devised a methodology to estimate Golden Eagle vehicle collision rates based on eagle densities, road traffic volume, and animal carcass abundance and then used these predictions to analyze potential mitigation credits controlling for carcass number, traffic volume, and background carcass removals. Based on work in Wyoming, the authors emphasize the cost effectiveness and ease of implementation this strategy offers and propose it as an alternative to power pole retrofits. This mitigation strategy has already proven successful in connection with this project and should be a recognized mitigation option going forward. Multiple mitigation strategies should be pursued to ensure that mitigation benefits occur as close to the project area as possible. On page 71 of the Draft EA, it states that "[c]arcasses that may attract eagles would be removed within the wind project lease area and Two Rivers Wind would promptly inform WYDOT on necessary carcass removal from nearby highways when identified." However, the EA further states that "[r]oad-kill livestock and big game carcasses along Wyoming State Highway 487 and domestic livestock carcasses or wild game gut piles left by hunters within the Project area may also provide a source of food for scavenging eagle."

Thus, care needs to be taken to not entirely remove this potentially important food source or place them in an area where greater conflicts could arise. The disturbances caused by the project may cause displacement and behavioral changes amongst these apex predators/scavengers, further adding food scavenging challenges in a more fragmented landscape. Slater et al. (2022) recommend that roadkill be moved at least 12 meters from the road to increase eagle use and decrease flushing 4-fold relative to behavior observed at the road edge[24]. Because flushing from roadkill is believed to be the primary cause of eagle–vehicle strikes, informed roadkill management has the potential to reduce human-caused mortality of Golden Eagles. It is also worth noting that recent work by Millsap et al. (2022) found that

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[18] Allison, T. D., J. F. Cochrane, E. Lonsdorf, and C. Sanders-Reed. 2017. A Review of Options for Mitigating Take of Golden Eagles at Wind Energy Facilities. Journal of Raptor Research 51: 319–33.

[19] Cochrane, J. F., E. Lonsdorf, T. D. Allison, and C. A. Sanders-Reed. 2015. Modeling with Uncertain Science: Estimating Mitigation Credits from Abating Lead Poisoning in Golden Eagles. Ecological Applications 25: 1518–33.

[20] Lonsdorf, E., C. A. Sanders-Reed, C. Boal, and T. D. Allison. 2018. Modeling Golden Eagle-Vehicle Collisions to Design Mitigation Strategies. Journal of Wildlife Management 82: 1633–1644. https://doi.org/10.1002/jwmg.21527; summary available at https://rewi.org/wp-content/uploads/2018/12/Eagle-Vehicle-Collision-Results-Summary.pdf

[21] Harmata, A.R. 2002. Encounters of Golden Eagles banded in the Rocky Mountain West. Journal of Field Ornithology 73(1): 23-32. https://doi.org/10.1648/0273-8570-73.1.23

[22] Hunt, G. 2002. Golden Eagles in a Perilous Landscape: Predicting the Effects of Mitigation for Wind Turbine Blade Strike Mortality. Prepared for the California Energy Commission, Sacramento, CA. https://tethys.pnnl.gov/sites/default/files/publications/Hunt-2002.pdf

[23] https://www.fws.gov/migratorybirds/pdf/management/EagleRuleRevisions-StatusReport.pdf

[24] Slater, S.J., D.M. Maloney, J.M. Taylor. 2022. Golden eagle use of winter roadkill and response to vehicles in the western United States. Journal of Wildlife Management 86. https://doi.org/10.1002/jwmg.22246

starvation was a much higher source of Golden Eagle mortality, particularly for Y1 eagles, than previously believed[25].

2. Lead Abatement

Review of seasonal big game range data by Wyoming Game and Fish Department (WGFD) shows how the proposed project is located in an epicenter of important big game (antelope, deer, elk) ranges. Both project areas (Phase I-III, Phase IV) intersect and are surrounded by WGFD-identified *Antelope Crucial Winter/Yearlong habitat* and *Winter/Yearlong habitat*. The modifier Crucial denotes "the determining factor in a population's ability to maintain itself at a certain level (theoretically at or above the WGFD population objective) over the long term."[26] All phases of the proposed Two Rivers wind project are almost entirely within annual *Antelope Crucial Winter/Yearlong habitat* (Figure 2). For all three ungulate species, the crucial seasonal habitat component is availability of areas with less snow accumulation, where browse and shelter are available. For Elk, Phase I-III are located in *Yearlong habitat* in the area north of Greasewood Flats and the entirety of Phase IV is in *Winter/Yearlong range* (Figure 3). For Mule Deer, all phases are in a combination of *Winter/Yearlong* or *Yearlong* (Figure 4).

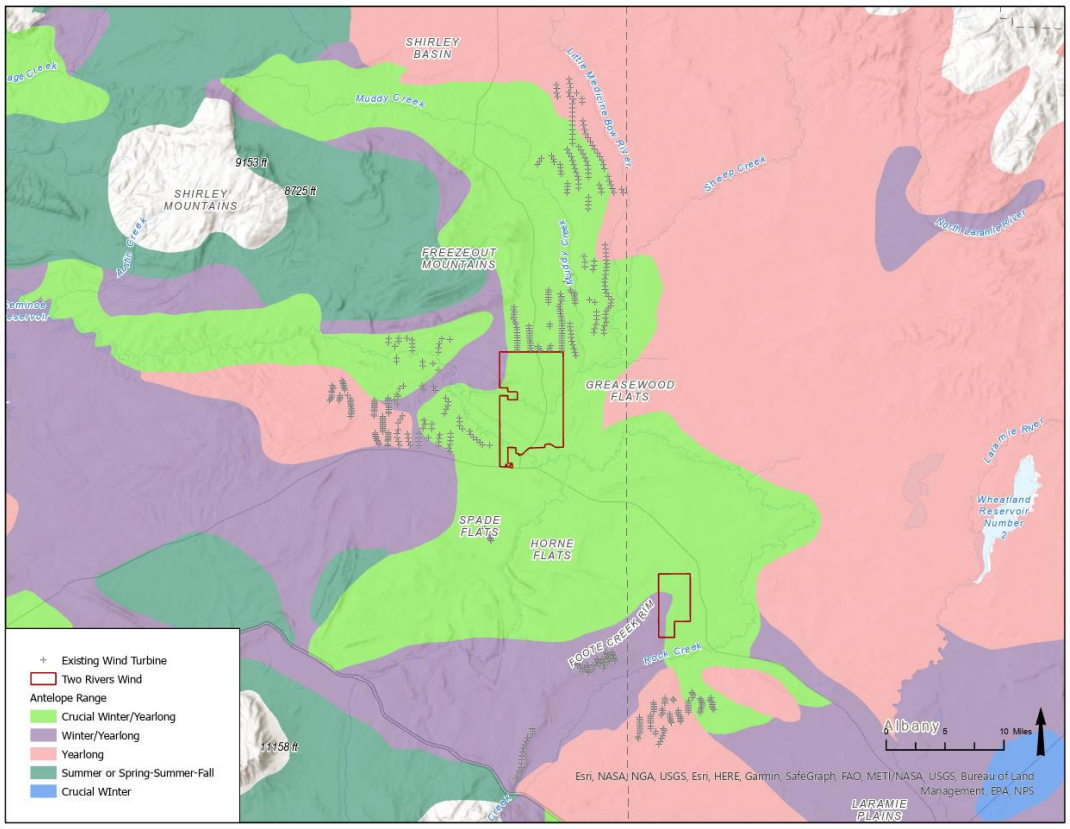

Figure 2. Proposed Two Rivers Wind Project in relations to Wyoming Game and Fish Department-identified seasonal ranges for antelope, which is almost entirely within annual Antelope Crucial Winter/Yearlong habitat.

[25] Millsap et al. 2022. Age-specific survival rates, causes of death, and allowable take of golden eagles in the western United States. Ecological Applications 32:e2544. https://doi.org/10.1002/eap.2544

[26] https://wgfd.wyo.gov/WGFD/media/content/PDF/Habitat/Habitat%20Information/Seasonal-Range-Definitions.pdf

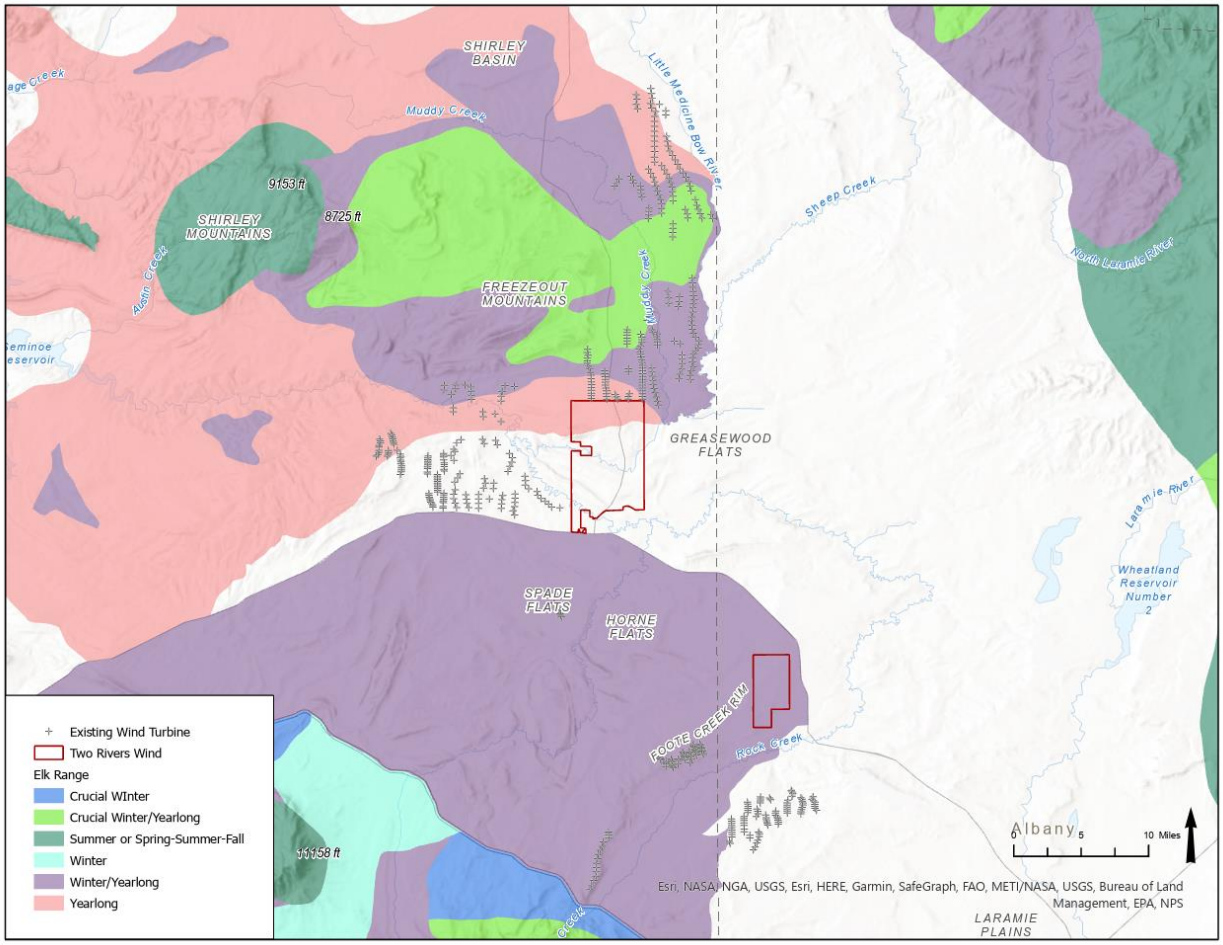

Figure 3. Proposed Two Rivers Wind Project in relations to Wyoming Game and Fish Department-identified seasonal ranges for elk. The northern portion of Phase I-III is located in *Yearlong habitat* in and the entirety of Phase IV is in *Winter/Yearlong range*

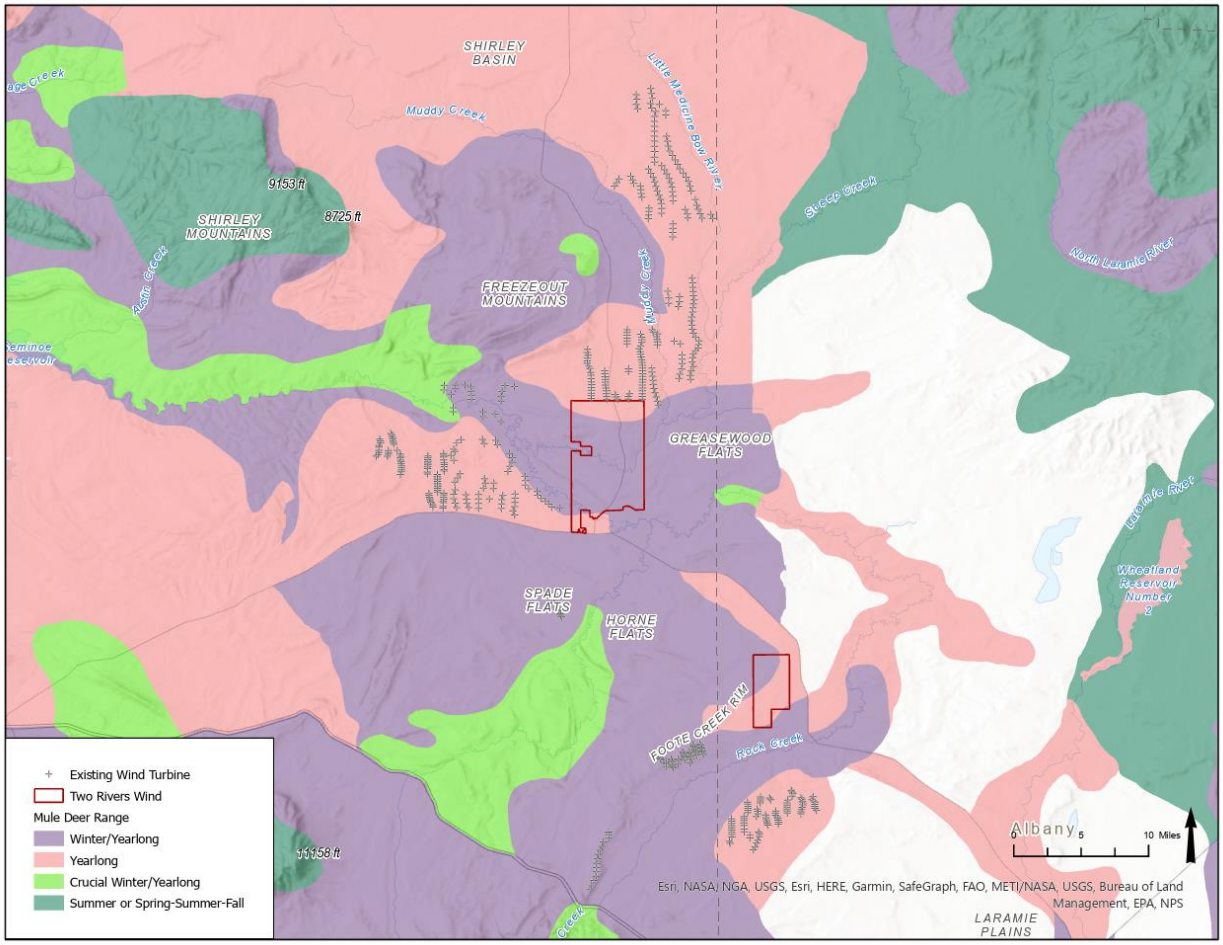

Figure 4. Proposed Two Rivers Wind Project in relations to Wyoming Game and Fish Department-identified seasonal ranges for mule deer. All portions of the project area are within a combination of *Winter/Yearlong* or *Yearlong habitat.*

Thus, big game are plentiful at all times of the year in the area proposed for the Two Rivers wind project. In regards to Golden Eagles (and Ferruginous Hawks[27]), winter is the time of greatest carcass availability for scavenging, especially as gut piles from hunting activity become available just as other food sources are becoming scarce. Using combined hunter harvest rates for all three big game species into single layer created by Lau et al. (2016), which was created to represent lead poisoning risk for Golden Eagles, the area encompassed by the proposed wind project has a medium-high level of harvest density (Figure 5) [28].

[27] Travsky, A. and G.P. Beauvais. 2005. Species assessment for the ferruginous hawk (buteo regalis) in Wyoming. United States Department of the Interior, 1: 1-39. http://www.uwyo.edu/wyndd/_files/docs/reports/speciesassessments/ferruginoushawk-jan2005.pdf

[28] Lau, M.J., K. Burks, W. Ponting, K. Sinclair, and M. Spencer. 2016. Golden eagle lead poisoning hazard mapping project. https://ecos.fws.gov/ServCat/Reference/Profile/112224

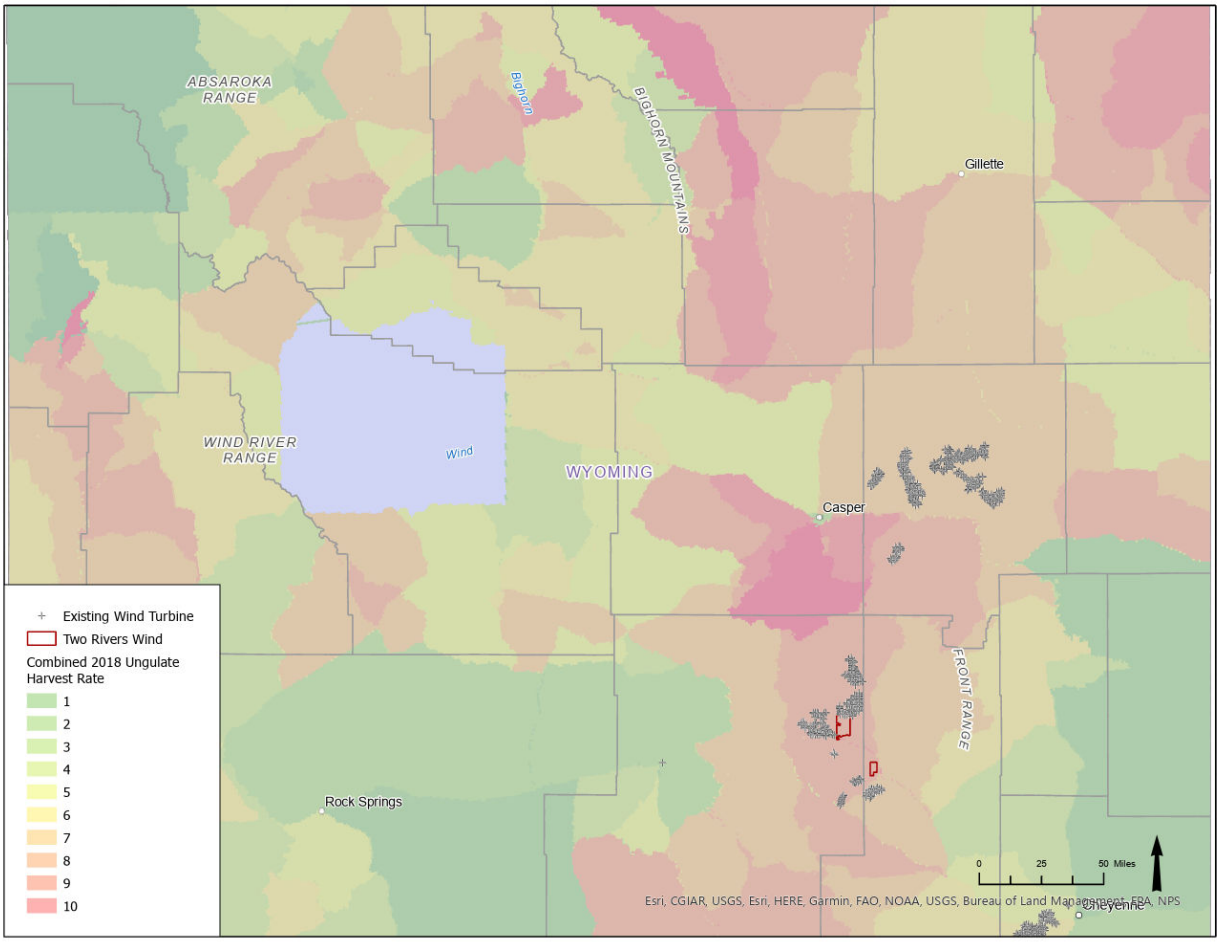

Figure 5. Proposed Two Rivers Wind Project (red polygons) in relation to counties (grey polygons) and hunter harvest rates for three big game species (antelope, elk, mule deer). Area encompassed by the proposed project has medium-high level of big game harvest density, resulting in abundant gut piles upon which Golden Eagles and other raptors can scavenge upon and be exposed to lead poisoning.

Golden Eagles rely on carrion from hunter gut piles during the winter and experience elevated lead exposure levels during December when these food resources are most available[29]. As shown in the Wyoming and Uinta Basins Golden Eagle Conservation strategy (see Figure 4.14, inserted below, from Wallace et al. 2019)[30], the overlap of high hunter harvest rates in oranges and high breeding and wintering habitat use in greens is shown for Golden Eagle breeding and winter habitat in shades of purple on the left and right maps, respectively. The Two Rivers proposed project areas (black stars) are again both located in areas of high hunter harvest rates and high eagle habitat quality.

[29] Craig, E.H., T.H. Craig, F. Huettmann, and M.R. Fuller. 2009. Use of machine learning algorithms to predict the incidence of lead exposure in golden eagles. Conference: Ingestion of Spent Lead Ammunition - Implications for Wildlife and Humans. https://science.peregrinefund.org/legacy-sites/conference-lead/PDF/0303%20Craig.pdf

[30] Wallace, Z.P., et al. 2019. Wyoming and Uinta Basins Golden Eagle Conservation Strategy. Western Golden Eagle Team. https://ecos.fws.gov/ServCat/Reference/Profile/98137

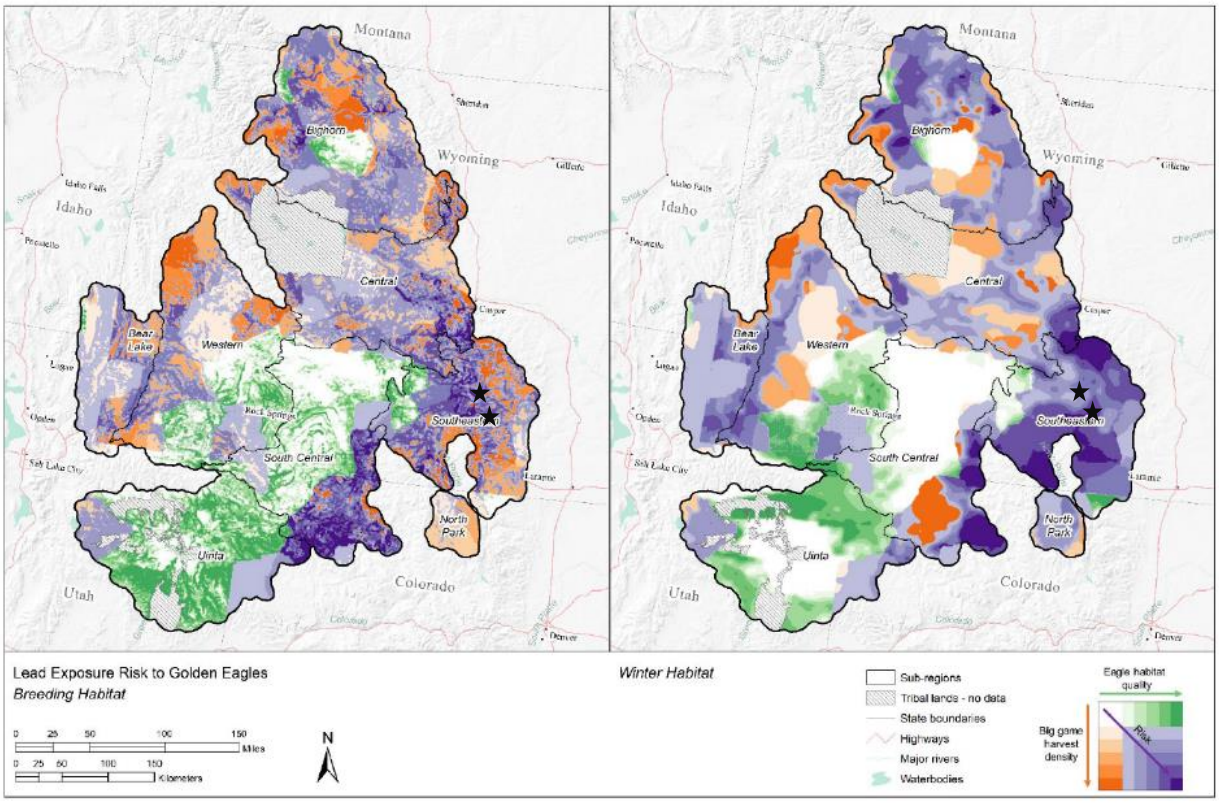

Figure 4.14. Relative risk of exposure of golden eagles to lead from big game carcasses in the Wyoming and Uinta Basins Conservation Strategy Area within (A) breeding and (B) winter habitats. Colors match the cells in Table 4.5.

In groundbreaking work by Slabe et al. (2022), unexpectedly high frequencies of lead poisoning were detected in Golden Eagles, both chronic (47%) and acute (7-35%)[31]. Crandall et al. (2020) shared preliminary results with the Wyoming Golden Eagle Working Group of a non-lead ammunition distribution program in an area northwest of Laramie, Wyoming[32]. This study area has high predicted risk of lead exposure to Golden Eagles, existing and planned wind energy facilities and ample movement data supporting use by eagles. Their preliminary data suggested that non-lead ammunition programs are a successful and cost-effective form of compensatory mitigation to offset Golden Eagle mortalities in geographic areas with wind facilities. Thus, given that *eagles are at extremely high risk from lead poisoning in the proposed project area and lead abatement potential is very high*; this option should be explored.

Approaches to estimating mitigation credits from lead abatement, both through providing ammunition free to hunters as well as gut pile removal, have been developed by Cochrane et al. (2015),[33] who note that the main obstacle to evaluating lead mitigation and other potential actions is the low number of eagles predicted to be taken or actually taken at individual wind facilities, an issue that could be

[31] Slabe, V.A et al. 2022. Demographic implications of lead poisoning for eagles across North America. Science 375: 779-782. https://www.science.org/doi/10.1126/science.abj3068

[32] Crandall et al. in Wyoming Golden Eagle Working Group's 2020 Research Summary (https://sites.google.com/view/wy-goea-wg/resources)

[33] Fitts Cochrane J., E. Lonsdorf, T.D. Allison, C.A. Sanders-Reed. Modeling with uncertain science: estimating mitigation credits from abating lead poisoning in Golden Eagles. Ecol Appl. 2015 Sep;25(6):1518-33. doi: 10.1890/14-0996.1. https://rewi.org/wp-content/uploads/2018/05/Cochrane-et-al.-2015_GOEA-lead-mitigation.pdf

overcome through integrating data across many projects with a collaborative and coordinated research program.

E. Cumulative Impact Analysis: Failure to Consider Oil and Gas Development

The Draft EA fails to adequately consider oil and gas development amongst the existing and expected pressures on the landscape, instead focusing on wind development. Work by Squires et al. (2020) demonstrated that the high-quality habitat for Golden Eagles in sagebrush and prairie ecosystems is at risk of further loss and fragmentation based on predicted patterns of spatial overlap with oil/gas, as well as wind energy development. This is a major oversight that results in an underrepresentation of the threats being faced by Golden Eagles.

F. Technical Advisory Committee

Given the pressures that the Shirley Basin has begun to experience in regards to conflicts between various wind facilities and federally-protected Golden Eagles, a fully transparent and defined process for monitoring the effectiveness of conservation practices and future revisions of the management practices (where warranted) is needed. Thus, we encourage creation of a Technical Advisory Committee (TAC) for the Project, an approach that is used at other wind facilities, as it provides a credible platform to ensure implementation of an effective adaptive management framework. The TAC should be assigned clear and specific goals and timelines. TAC membership should include not only operator and state and federal agency expertise but also third-party scientists as guests, with expertise on issues related to eagles in Wyoming. A credible source of expertise could come from the Science Committee of the Wyoming Chapter of The Wildlife Society. WY-TWS is composed of wildlife management professionals from across the state, who have expertise to engage on Golden Eagle issues.

II. FERRUGINOUS HAWKS

As the largest hawk in North America, Ferruginous Hawks are identified as Species of Greatest Conservation Need in 53% of states where they occur. The BLM has designated them as a sensitive species and the USFWS has designated them as a Bird of Conservation Concern. Unfortunately, they utilize habitats that are undergoing extensive modification from energy development.

A. Importance of Area to Ferruginous Hawks

The Draft EA notes that Ferruginous Hawks were among the most frequently observed species in the project area. In addition to Golden Eagles, Squires et al. (2020) also built spatial maps of nesting habitat for Ferruginous Hawks and found that the Shirley Basin ranks high for nest site selection.

B. Inadequate Protections from Wind Development Impacts

As a reminder, Beston et al. (2016) and Diffendorfer et al. (2021) identified Ferruginous Hawks as being at high risk of experiencing population declines due to wind energy. Wulff et al. (2016) also found that Ferruginous Hawks at risk of collision with wind turbines based on observed diurnal flight

heights within the rotor swept zone at planned wind facilities in Texas [34]. In Oregon, researchers found that greater wind turbine densities were related to decreased nest success and lower post-fledging survival of Ferruginous Hawks[35]. Juveniles were hatched from nests in areas of greater turbine density were more likely to die from predation or starvation just after fledging and prior to becoming independent compared to those in areas of lower turbine density. The researchers suggest that wind turbines affected reproductive efforts by three species (Red-tailed Hawks, Swainson's Hawks, and Ferruginous Hawks), with the effects being greatest for the latter. The researchers proposed that this likely represents some combination of breeding adults being killed from turbine collisions, disturbed from activities associated with the increasing wind energy development in the area, or displaced from portions of their home range to minimize the risk of disturbance or death.

The proposal to use no surface disturbance buffer of 1,200-feet (0.25 mile) from active nests is completely inadequate. This 0.25 buffer is referenced as coming from the Rawlins 2008 Resource Management Plan, though closer examination found that this was recommended for oil and gas development-related infrastructure. The risks that wind turbines (significantly taller vertical, moving structures) pose to aerial hunters such as Ferruginous Hawks cannot be equated to that associated with oil and gas development structures. Using this flawed buffer will surely result in mortality of breeding Ferruginous Hawks given the proximity to nests and the need for the adults to forage and fly along ridges for lift and passage. Also, with home range sizes of 22km^2, this buffer is severely inefficient[36]. Thus, the buffer should be - at a minimum - what is recommended in the USFWS Region 6 Recommendations, 1,600-meters (1-mile) for Ferruginous Hawks[37]. In these recommendations, the USFWS also notes that since Ferruginous Hawks are a USFWS-designated Bird of Conservation Concern, there are additional considerations in conserving their nest sites, which our organizations strongly encourages be applied. A species that is protected under the Migratory Bird Treaty Act, their protections should not be undermined.

C. Analysis of Impacts from Wind Development is Needed

The Draft EA notes on page 56 that risk is greatest in the spring, summer and fall periods when Ferruginous Hawks were more frequently observed. However, the draft EA does not contain adequate analysis of the impacts that this proposed wind farm, and the existing/proposed development, could have on this species of conservation concern.

Mortality and survival rates of adult raptors exert the strongest influence on direction and rate of population change relative to other population parameters[38]. Thus, meaningful measures should be taken to avoid and minimize mortality for these long-lived species.

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[34] Wulff, M. J. Butler, and W. B. Ballard. 2016. Assessment of diurnal wind turbine collision risk for grassland birds on the southern Great Plains. Journal of Fish and Wildlife Management 7:129-140. https://doi.org/10.3996/042015-JFWM-031

[35] Kolar, P. S. and M. J. Bechard. 2016. Wind energy, nest success, and post-fledging survival of Buteo hawks. Journal of Wildlife Management 80:1242-1255.

[36] Kocina, M. and K. Aagaard. 2021. A Review of Home Range Sizes of Four Raptor Species of Regional Conservation Concern. Western North American Naturalist 81(1):87-96. https://doi.org/10.3398/064.081.0108

[37] U.S. Fish and Wildlife Service, Region 6 Wildlife Buffer Recommendations for Wind Energy Projects (Ver.3; Mar 2021) https://www.fws.gov/sites/default/files/documents/usfws-r6-wildife-buffer-recommendations-wind-energy-projects-v3-2021.pdf

[38] Hunt, G.W. 1998. Raptor Floaters at Moffat's equilibrium. Oikos 82:191-197.

D. Washington State Lists Ferruginous Hawk as Endangered – Conflict with Wind

The conflict between Ferruginous Hawks and wind energy development is most obvious in Washington State, where in August 2021, the Washington Department of Fish and Wildlife (WDFW) recommended listing the species as endangered, which ultimately was unanimously approved by the Commission[39]. Among the reasons provided were the potential threats from wind energy development[40]. This comes on the heels of the bird being previously listed as threatened in 1983 and having breeding populations in the state in sustained decline, as well as reduced quality and quantity of habitat[41].

The WDFW also received attention when it raised concern about impacts resulting from the proposed Horse Heaven Hills Wind, Solar, and Battery Storage (HWSB) Project, which represents the largest renewable energy project in the State of Washington[42]. In spring 2021 letters to the Washington Energy Facility Site Evaluation Council, WDFW states "… the immense size of the HWSB along the Horse Hills ridgeline and the subsequent landscape-scale impact to an important habitat and ecological connectivity will be difficult if not impossible to mitigate. … Additionally, these canyons are important nesting and foraging habitat for Ferruginous Hawk, a State Threatened Species that is in the process of being uplisted to Endangered. Maintaining sufficient foraging area to support successful territories and nesting for Ferruginous Hawks and other raptors that use thermals and air currents associated with the Horse Heaven Hills seems particularly challenging with current proposed structure orientation." The WDFW closes the March 31, 2021 letter by discouraging pursuit of the wind component of the project, stating to "reduce the landscape-scale impact of the HWSB and maintain connectivity <u>we recommend that the project focus on solar development only</u> on agricultural and grasslands in the southern edge of the HWSB lease area and to the southwest." [emphasis added]

In closing, our comments are made with a goal of addressing our most immediate conservation concerns regarding Ferruginous Hawks and Golden Eagles. Given the rapid growth in wind development projects in Wyoming, and especially in the Shirley Basin, care should be taken to minimize harm to species known to be highly vulnerable to wind turbine collisions. The strongest protections should be put in place and appropriate adaptive management and monitoring procedures implemented. Efforts to collect and share data should be made so as to improve future development scenarios.

Bald and Golden Eagle Protection Act authorizes the USFWS to issue IETPs only when the take is compatible with the preservation of each eagle species, defined (81 FR 91494) as "consistent with the goals of maintaining stable or increasing breeding populations in all eagle management units (EMUs) and the persistence of local populations throughout the geographic range of each species." Based on the concerns raised thus far, these IETPs should not be granted as currently presented in the Draft EA or the preservation standard cannot be met.

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[39] August 27, 2021 Washington Fish and Wildlife Commission Meeting Agenda and Resources https://wdfw.wa.gov/about/commission/meetings/2021/27August2021-fwc-agenda

[40] Presentation by Taylor Cotton (Wildlife Program) to Commission https://wdfw.wa.gov/sites/default/files/2021-08/b_feha_periodic_status_review_decision.pdf

[41] Hayes, G.E. and J.W. Watson. 2021. Periodic Status Review for the Ferruginous Hawk. Washington Department of Fish and Wildlife, Olympia, Washington. 30+iii pp https://wdfw.wa.gov/publications/02210

[42] https://www.chronline.com/stories/washington-puts-hawk-on-endangered-list-wind-turbines-partly-to-blame,271309

We thank you for the opportunity to comment and welcome the opportunity to work together in the future, on behalf of Wyoming's avian species and the many communities that would benefit from properly sited and operated wind energy facilities.

Respectfully,

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Letter #17

Many thanks to the BLM and FWS staff who prepared this highly informative and comprehensive EA.

I am deeply concerned about both the climate and extinction crises. They are real, connected, and rapidly getting worse. Bold and innovative actions are urgently needed to effectively address them.

I generally support Alternative 1 although the Proposed Action Alternative has many positive features. I appreciate the work to balance the need for clean renewable wind energy with the need to protect eagles and other wildlife. This project can commendably help to advance solutions to the climate and extinction crises.

I wish BLM, FWS, and the applicant great success with this worthwhile project.

Thank you very much for your consideration.

Letter #18 December 23, 2022

To: Comment portal, BLM, (https://eplanning.blm.gov/eplanning-ui/project/2003881/510)
Rob Doster, FWS, Deputy Chief Migratory Birds, FWS, Denver, CO
Brian Smith, FWS, Deputy Assistant Regional Director, Migratory Birds, Denver, CO
Tyler Abbott, FWS, Wyoming Field Supervisor, Ecological Services, Cheyenne, WY
Nathan Darnell, FWS, Deputy Field Supervisor, Ecological Services, Cheyenne, WY
Jason Gay, BLM, Manager, High Desert District Office, Rawlins, WY
Brandon Snyder, BLM, Project Manager, High Desert District Office, Rawlins, WY

Re: Comments on the Draft Environmental Assessment, Proposed Two Rivers Wind Project in Carbon and Albany Counties, Wyoming – **request for denial of both a BLM Right of Way authorization and USFWS Incidental Eagle Take Permit**

I am writing to provide comments on the proposed Two Rivers Wind Project, Draft Environmental Assessment (DEA). But first, I am not receiving timely notice of federal wind development actions and I request both the Bureau of Land Management (BLM) and U.S. Fish and Wildlife Service (FWS, Service), add my name and contact information to provide formal notices for any future wind related planning and permitting processes in Wyoming (WY).

General Comments

Given the overriding importance of the Two Rivers wind project area to breeding golden eagles, and the unfortunate reality that no reasonably adequate protections would prevent impacts to possibly as many as six territorial pairs of golden eagles, I am opposed to this project in its entirety. Moreover, given the exceptional importance of the Shirley and Laramie Basins to both resident, migratory, and over-wintering golden eagles, I am opposed to additional, future wind projects in Albany and Carbon Counties, WY until such time as an Environmental Impact Statement (EIS) can be developed to comprehensively assess and publicly disclose: 1) the level of current, known golden eagle take by wind projects in WY, particularly those in Albany and Carbon Counties, 2) any projected/estimated additional loss of turbine killed, undiscovered golden eagles (and how estimated), 3) the current extent and effectiveness of both compensatory and on-site mitigation measures designed to either offset wind impacts on golden eagle populations, or decrease actual on-site turbine mortalities, and, 4) the expected level of cumulative impacts both existing and proposed new wind projects will have on golden eagles and other sensitive wildlife species in these counties.

My strong opposition stems from an informed belief that current levels of eagle losses from wind projects in these counties is far worse than expected, and is well on a trajectory to exceed the Service's own golden eagle "preservation standard". Moreover, the native grasslands, shrublands, foothills, ridgelines, and extensive white-tailed prairie dog complexes found in these counties represent perhaps some of the best resident, migrant, and over-wintering golden eagle habitat found in N. America, the long-term loss of which would be largely irreversible.

Wind turbines are a profoundly dangerous, additive human threat to golden eagles on WY landscapes. For unknown reasons, golden eagles are especially vulnerable to turbine collisions and until somewhat recently, largescale wind projects were not part of Wyoming's energy infrastructure. Existing wind development is undoubtedly now killing significant numbers of golden eagles in WY. But the rapid expansion and massive footprint of proposed, new projects will exponentially impact golden eagles and other wildlife to increased levels of additive loss never experienced before. In contrast to documented, enormous bald eagle population increases across North American in the last decade, golden eagle populations are thought to be holding their own at best, or are locally declining – perhaps significantly – in some parts of their range.

I also believe that existing and proposed turbine set-backs and other conservation strategies designed to mitigate on-site eagle losses at Two Rivers, and other area wind projects, are inadequate and will not reasonably arrest an inescapable, spiraling population sink for resident golden eagles, nor will these measures prevent increasing, long-term impacts to both migrant and over-wintering golden eagles. Simply put, there are specific, exceptional value golden eagle habitats and migration corridors where species population risks are too great to justify wind project siting. Although I am a strong renewable energy advocate, the anticipated extent and rate of growth of improperly sited wind projects in Albany and Carbon counties (and elsewhere in WY) will have devastating effects on golden eagles and a host of other airborne wildlife. These impacts are unnecessary since wind is a broadly available energy resource across the U.S., and projects can be sited well distant from ever-declining, native habitats of such unique wildlife value.

Moreover, a major justification advanced in the Two Rivers EA that this project is necessary to support climate action, is a false equivalency. While I do agree that climate change represents the greatest environmental threat the world faces today, and that extraordinary measures are needed immediately, the high cost to nationally important wildlife resources in Albany and Carbon counties do not justify additional wind development at this specific locale, not while other siting alternatives are available! For the same reasons, I do not believe Executive Order 14008 (issued January 27, 2021) gives either BLM or FWS adequate justification to circumvent clearly mandated responsibilities for protecting sensitive and declining Trust species, and the habitats they rely on to maintain population stability!

Foremost among my concerns is the improper implementation of the very Service program designed to assess local golden and bald eagle population risks, authorize incidental eagle take permits (IETP), and use of largely unproven conservation strategies designed to off-set or minimize eagle impacts from wind projects. The Service recently submitted a proposed rule to further revise "Permits for Incidental Take

of Eagles and Eagle Nests" (Federal Register, Vol. 87, No. 189, September 30, 2022), which ostensibly will make it even easier for companies to obtain IETPs, or get blanket approval to take yet more eagles. From my preliminary review of this proposed rule, it appears the Service views wind company participation in the incidental take program as a conservation goal in itself, and assumes that simply encouraging more company participation, with attendant commitments for some compensatory mitigation to retrofit dangerous powerlines, and/or implementing other on-site practices to reduce turbine collisions will effectively offset eagle losses for any project! This process appears to have grown into something of a rubberstamp which I find highly troubling, short-sighted, unproven, and contrary to statutory conservation mandates for golden eagles! Powerline companies should be required to retrofit dangerous powerline designs without piggybacking justifications to build and/or operate wind projects that will ultimately result in still more eagle deaths!

The Service must recognize the critical importance of high value eagle habitats found in Albany and Carbon Counties (and other locales in the U.S.) and do everything possible to encourage development elsewhere, both in and outside of WY. The Service's position that it cannot direct where wind projects are constructed is not reasonable justification to offer support to those dangerous projects that would overlay high value eagle habitats. The Service should never issue IETPs to projects sited in such critically important resident and migratory eagle habitats, and should be interacting with companies early to identify other siting solutions. The Service should proactively identify and map the most important broad geographical areas of prime habitat where future IETPs will not be issued, and provide early notice of these important habitat zones to companies and other state and federal agencies.

Both the Service and wind companies are far from transparent regarding the actual numbers of golden eagles being killed by wind turbines in WY. And until such time that FWS can conclusively prove the actual merit of the Eagle Incidental Take Permit policies, the effectiveness of associated compensatory mitigation and on-site company conservation measures to reduce turbine strikes, no further support should be offered by FWS for wind project construction in such vital golden eagle habitat. Furthermore, if companies proceed with construction without obtaining FWS permits, and eagle takings result, the consequences should be severe, including decommissioning of offending and adjoining turbines. If the Service took a firm stand against developing wind projects in high value eagle habitats, companies would necessarily look for other less costly project sites, and with less overall risk to protected wildlife.

The proposed Two Rivers EA is complex and requires a thorough review of the background documents and legal policies used by both the Service and project proponents to identify the environmental basis for reported site-specific eagle use and activity values, and then assess the likely impacts and merits of proposed compensatory mitigation and conservation strategies. It is an overwhelming task, and even with the extended review time, there is inadequate opportunity to critically delve into all the fundamental assumptions likely to be used by BLM and FWS to make permitting decisions. Nevertheless, I believe the very foundations of the Service's decision-making process to issue IETP is hopelessly flawed and completely unprotective. These decisions rely on statistical methodologies that give managers definable numbers, but which I believe are so fundamentally flawed there is no basis in reality for the actual effects these projects have on golden eagles. This program also highlights the

inconsistency of the Service in managing other golden eagle permitting elements. The Bald and Golden Eagle Protection Act includes provisions for lethal control of golden eagles to protect livestock, yet I'm not aware of any past authorized lethal taking for that purpose. Nor is the Service responsive to permitting live eagles for falconry or legitimate scientific purposes. These other potential eagle uses/takings combined represent a tiny, biologically insignificant fraction of the numbers of eagles taken compared to those that have been, and will continue to be lost from wind projects!

Golden eagles also serve as a key indicator for many other wildlife species which depend on these same locally critical habitats, and for largely the same biological reasons – e.g., abundant food, suitable nesting/roosting substrates, and key migration corridors. Such high value areas must be protected and the Service's continued facilitation of wind power takings of large numbers of eagles would be a sad reflection of the kind historical miscalculations that have led to worldwide habitat losses and species endangerment! Finally, the current eagle incidental take permitting policy is especially negligent when it comes to properly protecting breeding habitats, actual nests, and nesting pairs of golden eagles and produced young. More specific comments on this topic are addressed below.

Again, I recommend that neither the Two Rivers ROW or EITP be issued. I further recommend that any future area wind project planning, and the new Incidental Take proposed rule (FR 87, No 189, Friday, September 30, 2022) be put on hold and fully reexamined via a much more rigorous and transparent EIS. I know of no other industrial development that is posed to overlay such a massive, relatively contiguous area of prime wildlife habitat, and which is currently being pieced together through individual project EAs. Such a piecemeal approach is counter to the very spirit and intent of NEPA.

The considerable uncertainty and lack of public transparency over the current effects of wind projects on golden eagles, and the indisputable, exponential increase of impacts the Two Rivers and other future, proposed wind projects will have on golden eagle populations in this region demands greater accountability and analyses by both the FWS and BLM. Therefore, the Service should put an immediate moratorium on issuance of any new IETPs for the "Local Population Area" identified on page A-21 in the subject EA; again, pending completion of an associated umbrealla EIS and full assessment of expected cumulative impacts of wind energy development throughout Albany and Carbon counties. Indeed, the Service's Programmatic Environmental Statement for the Eagle Rule Revision (2016) should be completely reexamined given the pace and likely extent of wind project construction, and its outdated projections for "other permitted take" (see comment below). And although BLM stated in the EA that the Service's Incidental Take nexus does not prevent their issuance of a ROW for the Two Rivers project, I believe such an action would be contrary to Federal Lands Policy and Management Act and BLM's own responsibilities for protection of sensitive wildlife resources.

In undertaking an EIS, the Service must fully disclose all information it now possesses on the actual numbers of eagles taken in WY by specific wind projects. The project names don't need to be disclosed but a full table/spreadsheet revealing each mortality, the date, and the county should be made available. In addition, the spreadsheet should include: 1) the species taken, 2) overall turbine design and height, 3) whether turbine strikes resulted in immediate death or injury, and 4), if injured eagles

were still mobile on the ground after being struck (which would provide insights into how many other eagles may have been injured, ultimately die, but escape detection) . The Service and wind project proponents should identify when and what kind of specific efforts were implemented to reduce eagle deaths as part of associated conservation plans (i.e., direct observational curtailment or remote camera systems), and what the actual level of eagle losses were pre- and post- implementation. More details should be provided on exactly how much compensatory mitigation (powerline retrofitting) has been accomplished by each project to date. How are dangerous powerlines identified and prioritized? Aren't there requirements in place now to retrofit powerlines when electrocuted eagles are discovered?

Finally, although the major focus of my EA comments center on golden eagle concerns, there are a number of other sensitive and important species that will be impacted by the Two Rivers project and other existing and proposed wind projects in this area of WY. For example, full and transparent evaluation of the known turbine losses of ferruginous hawks, and any impacts on specific nest sites should also be accomplished as part of a broader EIS. Similarly, bats are known to be killed in high numbers by wind turbines in WY and a full disclosure of the extent of bat losses by species and by project should be provided. The Two Rivers project area also has more conifer habitat than any other area projects (current or proposed) and hoary bats, eastern red bats and silver-haired bats depend on trees for roosting. Impacts to these three species would likely be much higher on the Two Rivers project area than other area wind farms.

Background

Comments for this review are provided from personal perspectives gained through involvement in ongoing field research to help assess risks of wind development on golden eagles in Central and Southcentral Wyoming; and, from a 33 year history as a FWS biologist (retired) with a background in evaluating energy development conflicts with Trust species, endangered species recovery, contaminant assessments in eagles, and environmental reviews of a wide array of other resource development projects (transportation corridors, powerlines, ski areas, dams, hydro projects, etc.). I have also been employed by a WY consulting company from 2008 to 2012 and spent considerable time conducting turbine mortality assessments, avian point counts, and other pre-project wildlife screening efforts. But in particular, I have worked on a number of both golden eagle and bald eagle studies over the past 50 years, and since 2014 have been trapping and satellite tagging golden eagles for three separate research projects in WY.

Golden eagle capture work was first accomplished for the Service as part of their West-wide ecological studies, which FWS used to help develop policies and regulations pertaining to application of incidental take permits for golden eagles. From 2017 to the present, I have been trapping and tagging golden eagles under National Fish and Wildlife Foundation grants, and as part of a research project directed by the USGS, Forest and Rangeland Ecosystem Science Center, Boise, ID, and, Conservation Science Global, Inc., NJ. **It is important to understand that as an independent contractor/biologist, the opinions and information presented by me here are solely my own and do not represent the views or positions of any other referenced entities**.

Since 2014, I have trapped a total of 193 golden eagles (189 in WY and 4 in CO) for three separate studies. One hundred and twenty-five of these eagles were fitted with satellite tags, and to help assess area activity patterns and potential impacts from wind turbines, 92 were tagged on or adjacent to wind projects in WY. A number of these tags have disappeared and/or eagles were killed but were too decomposed to assess cause of death. Nevertheless, of 22 eagles I have personally tagged and where cause of death was definitively determined via necropsies, 19 died from human related causes (wire and vehicle collisions, lead poisoning, shooting, electrocutions, and wind turbine collisions). Of 12 eagles tagged on or near wind projects, the cause of deaths were: 2 by shooting, 2 by vehicle collisions, 2 by electrocutions, and 6 by turbine strikes. Some of these deaths are undoubtedly accounted for and referenced in the Two Rivers EA (FWS reporting). But personally, I believe that a number of eagles tagged on or near wind farms, and which ultimately disappeared were likely lost through turbine strikes (eagles that used wind project areas yet suddenly went off-air). As violent as some of turbine collisions proved to be, if the blade actually stuck the part of the body supporting the tag, the tag could be rendered inoperable. Nor, are all eagles that are killed by turbines found (see discussion in specific comments below).

I am intimately familiar with much of the area surrounding the Two Rivers project area and all the other existing and proposed wind project sites in Carbon and Albany Counties. Moreover, I have been monitoring the nest status/success of numerous breeding pairs of eagles in this area for the past 6 or 7 years (depending on location). However, since much of the proposed wind project areas in Albany and Carbon counties overlay private lands, and I do not have access, there is still a lot I do not know, especially some nest locations. A few nests that are new to me were revealed in the Two Rivers EA. But taken as a whole, I believe I have as much direct knowledge of golden eagle habitat use, activities, and breeding behaviors for this geographic area as anyone, and have more extensive experience than consultants who provided the foundation of the environmental assessments for this project; albeit via policy and guideline limitations prescribed by FWS.

Specific Comments, Proposed Two Rivers Wind Project

Note: Although specific comments are directed at identified Two Rivers project elements and reported environmental consequences, the examples presented here also reflect, and reinforce, the broader FWS programmatic policy deficiencies associated with golden eagle conservation and management for wind project development.

Page 1; last full sentence carrying over onto page 2. I believe that the compounded industrialization, and cumulative impacts of the Two Rivers project on top of other existing, nearby wind projects (Dunlap, Ekola Flats, Foote Creek Rim, High Plains/McFadden, Seven Mile Hill, TB Flats I, TB Flats II) is not compatible with golden eagle preservation. The future addition of still other proposed projects (e.g., Boswell Springs, Lucky Star, Maestro, Rail Tie, Rock Creek) would even further elevate cumulative impacts and result in catastrophic, perhaps irreversible impacts to both resident and migratory golden eagles.

Page 2, first paragraph, last sentence. This statement is troubling and seems pre-decisional by FWS. Is there a written document from FWS that confirms/outlines the Service's tiering criteria? Shouldn't that

have been attached for reference? Has the FWS accomplished any cumulative impact assessments for any wind projects in Albany and Carbon Counties, or anywhere in WY? It seems I remember a 5-yr post permit issuance time frame when the Service would re-examine take levels and address cumulative impacts of incidental take permits on the "local golden eagle population". If so, where are those analyses, do they actually respond to the broader issue of cumulative impacts, and shouldn't they be available for public review? Moreover, Section 4.3 of the Service's 2016 PEIS (pp 169 – 170) is confusing, and it appears FWS believed that the level of "other permitted take" (OPT) in their modeling analyses was sufficient to cover future cumulative impacts from wind development since "the level of OPT included in the baseline exceeds the levels of reported OPT from 2010—2014". There has been massive wind development since 2014 and, again, I do not believe that modeling for eagle mortalities and population responses likely represents real-world impacts!

Page 2, Section 1.1. A FONSI for this project is not appropriate!

Environmental Consequences, 4.7 Eagle Impacts, pp 60 through 67. Unfortunately, I believe the Two Rivers project represents the worst-case scenario for on-site and adjacent breeding pairs of golden eagles than any other wind project in Carbon County thus far, either operational or proposed. The issue of "in-use" and alternate golden eagle nest terms used in the EA and as used by FWS and the proponents, v. long-accepted terminology of "unoccupied", "occupied", "inactive" and "active" nests is confusing and somewhat misrepresentative of the overall biological significance of what is undoubtedly occurring on site! Given the simple spatial distribution and clusters of golden eagle nests portrayed in Figures 3A, 4A and 5A of the EA (Appendix A, pages 6, 8 and 10), as many as 6 potential breeding pairs could be directly impacted by the Two Rivers project (seven territories with the inclusion of Phase IV).

On July 12, 2022, Wyoming Game and Fish Department (WGFD) warden, Rob Shipe, texted me photos of a 7-week-old golden eaglet found on the Marshall Road (see Figure 1). This eagle was a young "brancher" and was too young to be out of its nest, but they sometimes get blown out or fall at this age. The eaglet was found very close to nest FWS-1 (see Appendix C page 13). However, the game warden examined that nest and reported no evidence of nest use this past year (no accumulation of whitewash or prey remains below). I briefly looked for a nest and adults from the Marshall Road but did not have permission to access adjacent the private lands, and did not observe either. Nevertheless, it is unlikely that this eaglet came from anywhere other than the conifer habitats found just S of the Marshall Road and E of Hwy 487. Golden eagle nests in pine trees are often difficult to detect (even from aircraft), especially if they are new, smaller nests.

In this area of Central Wyoming, nesting substrates are at a premium, and as far as I know the terms of "unused" or "inactive" are irrelevant to what is actually occurring within established golden eagle territories. In this important area of WY for breeding golden eagles there are likely no unoccupied territories and adult pairs can remain on territory for years and may only periodically breed! Eagle territories likely remain intact and stable for decades (lost mates are typically quickly replaced), and "alternate" nests may not be used for years but are still within the home range/territory of specific golden eagle pairs and certainly have potential for use again. Consequently, even three years of

background information on nest occupancy and use is not a definitive window to assess what is actually happening on-the-ground within specific breeding territories. The most relevant information to weigh possible impacts to breeding pairs is the simple distribution of occupied nests/territories and the total number of pairs potentially affected. And the only realistic protection for those breeding pairs is absolute avoidance of turbine construction.

Golden eagle territories are relatively fixed, small in size, and both heavily used and defended by the adults. They are typically defined by foraging areas and adjacent breeding pairs for which there is little overlap between respective breeding adults (see Figures 2, 3 and 4). The breeding adult males represented in Figures 2 and 3 are adjoining pairs and have well defined home ranges/territories the boundaries of which are known and respected by each other (incursions could result in death). As can be seen by the small number of excursions away from territories, which typically occur outside of the breeding season, they mostly range out over areas not occupied by other breeding adults (Figure 2). There are no nesting habitats or breeding territories to the east of the territories of either eagle 152365 or TBFI-2. In addition, these occasional distant movements can result in flights over existing wind farms and put established breeders from more distant nests at risk! In the case of eagle 152365, he flew over the TB Flats wind farm areas to the East (Figures 2 and 3). And so, narrowly focusing an Eagle Conservation Plan around turbine set-backs and/or seasonal operations schedules for actual nest sites does little to realistically protect resident pairs or their future ability to successfully rear young.

For the past several years, I believed FWS was likely providing clear and careful guidance to companies on how to assess potential wind energy impacts on golden eagles, and how to develop responsive measures to avoid and or substantially minimize those impacts. Moreover, I hoped the Service was utilizing data from satellite tagged golden eagles in WY to help determine the relative threats specific wind projects may have on golden eagles. However, based on the history and observations for the Seven Mile, Ekola Flats, and the Two Rivers EA, I find the company/FWS consultation evaluation process, impact assessment procedures, resulting analyses of environmental consequences, and proposed mitigation responses to be alarming and completely ineffectual to meet golden eagle conservation needs, and the Service's own preservation standard. Indeed, the Two Rivers EA reveals that the Service's entire incidental take regulations and associated policies are irretrievably broken and needs a comprehensive biological review and overhaul (i.e., Eagle Conservation Plan Guidance -- Recommended Approach for Development and Submission of Eagle Conservation Plans in support of an Eagle Incidental Take Permit Application for Wind Energy Projects. FWS Region 6. March 31, 2021)!

In particular, golden eagle flight paths and the 80 percent eagle flight density polygons depicted in Figures 5 and 6 of the EA Appendix C have no real significance or application. Virtually all of the area within an occupied breeding territory is heavily used by the adults (see Figures 2, 3, and 4). Moreover, the assumption that people on the ground, from fixed observation points, can accurately identify overhead eagle activity and high use activity areas is erroneous. It became obvious long ago, via trapping and tagging golden eagles, that most golden eagles attracted to baits are wind or thermal soaring and great altitudes and cannot be physically seen until they fall out of the sky and drop onto trap sets. In a typical day, few eagles might be observed by me while actively scouting areas around trap

sites, and more common than not, those golden eagles which visit traps are never seen until they arrive (see figures 5 and 6 below). In recent years, I have come to rely on cellular trail cameras to monitor trap sets from more distant locations but I still usually remain nearby and continually scout for eagles.

And while golden eagles actively defend territories and are most commonly seen engaging in territorial flights (undulating) at lower altitudes, their territories are not completely locked out against other non-breeders. Both Figures 7 and 8 are trail cam images of trap sets that were made while trying to capture specific breeding adults from nearby nest sites. Again, at each of these sets, eagles vertically stooped down to baits from great altitudes. This is a primary foraging strategy of golden eagles that is not readily observed from the ground. Consequently, it is impossible for standardized field observations to accurately assess the relative importance of any given piece of ground to golden eagles, especially on breeding territories. However, there are nearby areas which are obviously more important to non-breeders and migrants and which do not support nesting pairs (i.e., much of the Shirley and Laramie Basins where nesting habitat is not readily available). Much greater numbers of eagles can be seen on open grassland/shrubland areas of these basins, but again, there are likely many more eagles coursing higher altitudes during the day which cannot be seen.

The most significant, unavoidable impact that will result from Two Rivers project construction will be the chronic loss of breeding and fledged golden eagles, and diminished reproductive potential for breeding territories over the life of the project. The proposed Phases I - III project area and nearby lands are occupied by up to 6 breeding pairs and neither turbine setbacks, seasonal operational restrictions, nor any other on-site mitigation will sufficiently protect breeding birds and their long-term reproductive potential. Even losses and disruptions to half of those pairs would be a significant impact on the local breeding population. In the proponents Eagle Conservation Plan they applied a one-mile buffer around "in-use" nest sites and only ½ mile set-backs for all other golden eagle nests. Even a one-mile buffer is grossly inadequate to protect breeding adults or the young they produce, nor is the Service's two-mile project survey boundary requirement a sufficient buffer to protect nesting golden eagles from wind impacts!

A breeding, adult male golden eagle (#152367) I caught and tagged November 11, 2016, and which successfully reared young 4 out of 5 years, was killed by an Ekola Flats turbine 2.47 miles away from his nest, and just months after the Ekola Flats project became operational (Figures 4 and 7). Additionally, a well-established territory with excellent nests to the NW of the Ekola Flats nest has been occupied for the last 6 years but has not successfully produced young (Figure 8)! Although now impossible to prove, I am convinced this nesting territory has been compromised by the Seven Mile wind project. Two adults, a female and a male were killed in 2009 and 2010, approximately 2.2 miles and 2.3 miles, respectively, from the close cluster of 4 nests. It is important to understand that the takings of breeding adults will never likely to be a one-off occurrence. The continued presence of the other adult and available nests will attract replacement mates. This is what happened to the Ekola Flats nest in 2022. A replacement male took possession of the territory and nest and the pair successfully fledged 2 eaglets in 2022.

If male 152367 had been killed earlier in the nesting season, the single eaglet would not have been hatched and/or fledged in 2021, and the male's death would have resulted in the actual taking (loss) of

two eagles. Furthermore, instead of remaining viable nests/territories over future years, these situations will likely spiral into a protracted history of continuing losses of both adults and young over the life of the Seven Mile, Ekola Flats, and Two Rivers projects (if constructed) (see Hunt and Watson. 2016. J. Raptor Res. 50(1):92–96). More recently, Watson et. al. (The Journal of Wild. Mgmt. 1-10; 2020) found that "current and historical evidence for depressed golden eagle nesting in Washington (State) is consistent with documented effects from habitat conversion, prey declines, lead contamination, and wind power development" (emphasis added). Again, the likely additive impacts of wind turbines on golden eagles are especially severe in Albany and Carbon Counties, and will have long-range devastating effects on the "local population", and migrant and over-wintering populations of golden eagles as well. **Both the Seven Mile and Ekola Flats wind farms have only one breeding pair close to their turbine strings. The Two Rivers project area would have as many as six! Retrospectively, the Seven Mile and Ekola Flats projects should have never been constructed. And neither should the Two Rivers project now, given the large additive losses this project would impose on the local, breeding population.**

One additional, major concern is the unidentified/unreported loss of golden eagles killed by wind turbines. As an example, a 3-yr-old female I tagged on the Seven Mile wind farm on 4/19/2018, was killed by a Seven Mile turbine on 7/20/21. This eagle was struck so hard by the blade one wing was completely sheared off and the eagle thrown well outside of the blade radius and in a sage brush swale. Had the tag been damaged and not transmitting, it is highly likely this eagle would have never been discovered. In addition, the last two eagles I trapped and satellite tagged that were hit by turbines were not killed outright and both were found on the ground alive. The first, eagle 55654, had a severely broken wing and was euthanized by WGFD. But, this eagle could walk! I'm not sure if the second eagle (# 49482) could actually walk or not, but it was alive when euthanized. There is great variability to the degree of damage done to eagles when struck by a wind turbine but it is safe to say that a number of eagles are undoubtedly hit, permanently injured, and likely escape into adjacent areas where they die and are never found. This is an extremely important consideration in assessing overall wind project impacts on golden eagles.

Finally, it is not clear how important the Two Rivers project area is for migrating and over-wintering golden eagles. Due to the "observability" issues addressed above, no ground surveys could meaningfully detect differences in resident/non-breeding v. migratory eagle numbers. Satellite telemetry does however offer insights into local area use by eagles from the far north. Several golden eagles satellite-tagged in winter months in the Shirley/Laramie Basin areas have been documented holding home ranges and/or breeding territories in NW Canada and Alaska during spring and summer months. And during recent efforts to capture an adult from the Ekola Flats nest, I instead trapped and tagged two adult males which satellite relocation data revealed are both migrants. One captured just two weeks ago moved into South Park, Colorado, and the other which was trapped and tagged on Nov. 22 migrated to central Mexico in just 10 days (see Fig 9).

Eagle Conservation Plans, Two Rivers and other area wind projects. The Two Rivers, Eagle Conservation Plan (ECP) identified in the subject EA, is wholly inadequate for protecting either resident breeding golden eagles, or any other golden eagles which may temporarily occupy the project site. Indeed, I believe there is likely nothing realistic that can be done to protect local breeding eagles from any level of wind development on the project site, should construction be authorized. As identified above, the proposed one-mile set-backs of turbines from nests are not sufficient, nor would any seasonal turbine operating schedules make any difference (breeding eagles occupy and use their territories year-long). Based on satellite telemetry data for 6 tagged, territorial adults in Carbon and Albany Counties, a

reasonable and more protective turbine set-back would be four miles, which would render the Two Forks project infeasible; an outcome which is exactly the only reasonable alternative the BLM and FWS can take to protect resident golden eagles, and other important local wildlife species found on this site!

The Service's tiered and adaptive management strategy, as outlined in the Two Forks ECP, is an especially worrisome part of the Service's IETP guidance. It appears somewhat pre-decisional in that the ECP and associated IETPs may be approved without a realistic understanding of, or providing meaningful responses to, the actual level of eagle impacts experienced during project operations. And once approved, there appears to be no real mechanism to suspend or reverse permitted actions if eagle impacts exceed projected losses -- only incremental, yet superficial, "mitigation" responses! Nor are there any direct FWS monitoring, oversight and/or enforcement provisions that are defined or included as standardized FWS oversight during or after the consultation process. Instead, the Two Rivers proponents have formulated a ECP that solely responds to specific Service recommendations outlined in the FWS's Region 6 Eagle Conservation Plan Guidance (March 31, 2021), and puts all associated monitoring and reporting for the ECP in the hands of third-party entities! The Two Rivers proponents rejected the Service's Number 1 recommendation to avoid siting wind turbines within 2 miles of golden eagle nests, which alone should give FWS sufficient cause to reject issuance of a project IETP, and BLM adequate cause to reject a ROW!

Included in the ECP, is an outline of "stepwise adaptive management approaches" (Table 11, beginning on page 25). This table identifies what happens sequentially if progressively more and more eagles are taken over authorized limits set forth in the IETP, for which the baseline "take" number is small. Each step identifies "conservation measures" that would be implemented, which usually involves additional FWS consultation and, in the case of Step II would call for more of the same pre-construction monitoring (e.g., flight path monitoring to assess seasonal, diurnal flight paths). In the case of Step III, and in the event that three eagles are taken within any 2-year period, the proponents would continue on-site eagle monitoring and develop a curtailment plan to have "people with appropriate skills" monitor eagles and shut down turbines when eagles approach. Step IV would be similar but would include more rigorous efforts and potentially more advanced technology to help stop turbine rotation when approached by flying eagles.

The Seven Mile project began operations in 2009, but a staffed eagle observation tower was only constructed in 2015, ostensibly to try to reduce unanticipated levels of eagle deaths from turbine strikes. And not long after the Ekola Flats project was constructed, an eagle observation tower was likewise erected on site. Between 2015 and 2019, I periodically trapped and tagged golden eagles on two Converse County, wind farms where similar observation towers were constructed and staffed by observers with binoculars and telescopes. These towers had computer links to wind operation facilities and could quickly shut down turbine rotation on an as needed basis, and at the approach of flying eagles. In addition, there were typically one or two vehicles spread over project areas that were also staffed by eagle observers who could help shut down turbines at more remote parts of wind farms. On one of those wind farms, an automated camera system (IdentiFlight) was later deployed and tested to further help reduce wind impacts to eagles, and has shown substantial promise.

These on-site mitigation measures were employed on wind farms that were previously constructed and then found to have significant golden eagle mortalities. The presence of observation towers is indicative of elevated eagle deaths on wind projects that perhaps should have never been constructed, and it is unconscionable to use these largely unproven methods to justify development of new wind projects on critically important golden eagle breeding grounds in Albany and Carbon Counties.

While attempting to trap and satellite tag golden eagles on wind farms with eagle observation towers, and watching both flying eagles and observer responses, it was apparent that these observation and curtailment methods were likely helping, but were far from foolproof. In particular, wind companies typically only staff these towers during "high risk" periods. Which in Converse County is during fall, winter, and spring, which made a little more sense because that area appeared to support more migrants than local resident birds. However, the same schedule appears to have been adopted for both the Seven Mile and Ekola Flats wind projects, where a large, vibrant resident population resides year-round. Two eagles I tagged several years prior were killed, one on Ekola Flats and one on Seven Mile in months when towers were unstaffed (see Figures 4, 7 and 8). And again, observation towers are limited by everything from observer efficiency to weather. While trying to capture one of the Ekola Flats adults this past Nov. 22, I saw both adults chase another adult and fly directly at and dangerously close to a wind turbine NW of their nest. Neither that turbine nor other nearby turbines were curtailed even though I could see that the Ekola Flats tower was staffed at the time. It is simply impossible for observers looking at a vast expanse of wind turbines to detect and track all eagle flights, especially when eagles suddenly appear and may be moving quickly.

Neither FWS nor wind companies are transparent about the overall effectiveness of curtailment measures. And yet, as the Two Rivers EA and ECP reveal, these largely unproven mitigation approaches are being used to justify issuance of an EITP in support of project construction. More disturbing yet, the Two Rivers ECP will cap costs of all mitigation efforts, $75k for Step I, $100k for Step II, and $200k for Step III. Hence, it appears that proposed protection measures, which are inadequate to begin with, and would not be seriously undertaken even if the project were approved, impacts occur, and mitigation cost caps are reached. The losses of golden eagles in the face of measures designed to curtail turbine rotation, and the fact such measures are being promoted to justify new wind projects further reinforces the need for an overriding, cumulative impact analyses before habitats and eagle populations are degraded further in this critically important area of South-Central WY. Greater accountability and oversight of existing and future wind development in Albany and Carbon counties by both the FWS and BLM is also sorely needed!

Conclusions/Recommendations

1. The Two Rivers wind project EA does not accurately portray the existing environmental conditions, nor the importance of this site to the local breeding population of golden eagles, or other non-breeding resident and migratory golden eagles.

2. This project will have substantially greater impacts on nesting pairs of golden eagles than other area wind projects, and could impact substantial numbers of other resident non-breeders and migratory golden eagles.
3. The taking of breeding adult golden eagles and associated disruption of breeding efforts will have a somewhat hidden, but much broader level of impact on the local eagle population. Since causes for loss of productivity are often difficult to identify, these increased population stresses would go largely undetected.
4. Proposed golden eagle mitigation and conservation plans for the Two Rivers project are inadequate, and provide no real conservation assurances for either resident or migrant golden eagles.
5. The Two Rivers projects will impact other protected species (e.g., ferruginous hawks) and will likely have a more significant impact on certain bat species than other area wind projects.
6. For the above reasons, I strongly oppose the Two Rivers project in its entirety. And, given the broader responsibilities of both the FWS and BLM to ensure the long-range protection and conservation of golden eagles, and other area important wildlife resources, neither the FWS nor BLM should issue respective IETP or ROW permits in support of this project.
7. Two Rivers is just the next proposed wind project in line for development approvals, and there are numerous other proposed wind farms identified in Albany and Carbon Counties, WY. The level of golden eagle impacts from approved, existing wind projects in these counties likely already exceeds the Service's "preservation standard" for the local golden eagle population.
    a. Given the overriding importance of Shirley and Laramie Basin habitats for golden eagles, and a host of other wildlife, a moratorium on further wind project development is warranted pending preparation of an over-arching and comprehensive wind industry EIS. Such an EIS must fully disclose and weigh the projected cumulative impacts from both existing and proposed projects, and assess the success and overall merit of mitigation now in use to both minimize and/or off-set golden eagle losses.
    b. To date, wind projects in Albany and Carbon Counties have achieved construction approvals via individual EAs which has resulted in a staggering industrial footprint in these counties. This piecemeal approach to such large-scale development is contrary to the intent and spirit of NEPA and further justifies preparation of a comprehensive EIS.
    c. Project proponents and the FWS must be fully transparent regarding past and current levels of golden eagle take by specific wind projects in WY, especially in Albany and Carbon Counties.
8. A review of the Two Rivers EA and ECP exposes fundamental inadequacies of the Service's Eagle Incidental Take policies and associated guidance. No further IETPs should be issued for wind projects in Albany and Carbon Counties until such time as a comprehensive EIS can be developed to critically review the merit and effectiveness of IETPs issued in WY.
9. The Service should critically reexamine the biological basis of their rulemaking and established national and regional guidance for assessing golden eagle impacts and issuing IETPs.

10. Given the national importance of habitats found in Albany and Carbon Counties for golden eagles and other wildlife, the Service, and other federal, state, and local regulatory entities should encourage wind development outside of these counties and steer development toward areas of less overall importance to protected, declining wildlife species.

FIGURES

Figure 1. Seven-week-old eaglet found adjacent to the Marshall Road, July 12, 2022 (photos by Rob Shipe)

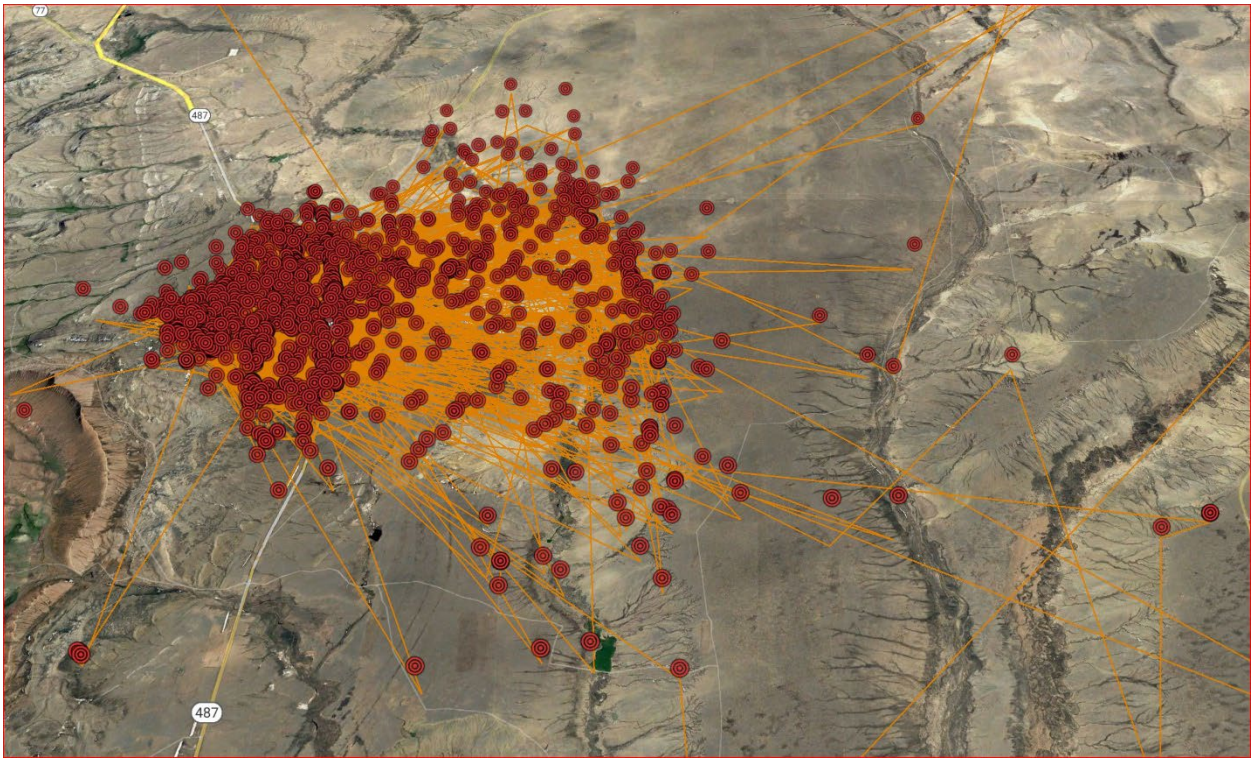

Figure 2. The cumulative 2022 territory/home range of a breeding golden eagle male (#152365). This eagle was tagged in 2016 and the transmitter still remains active.

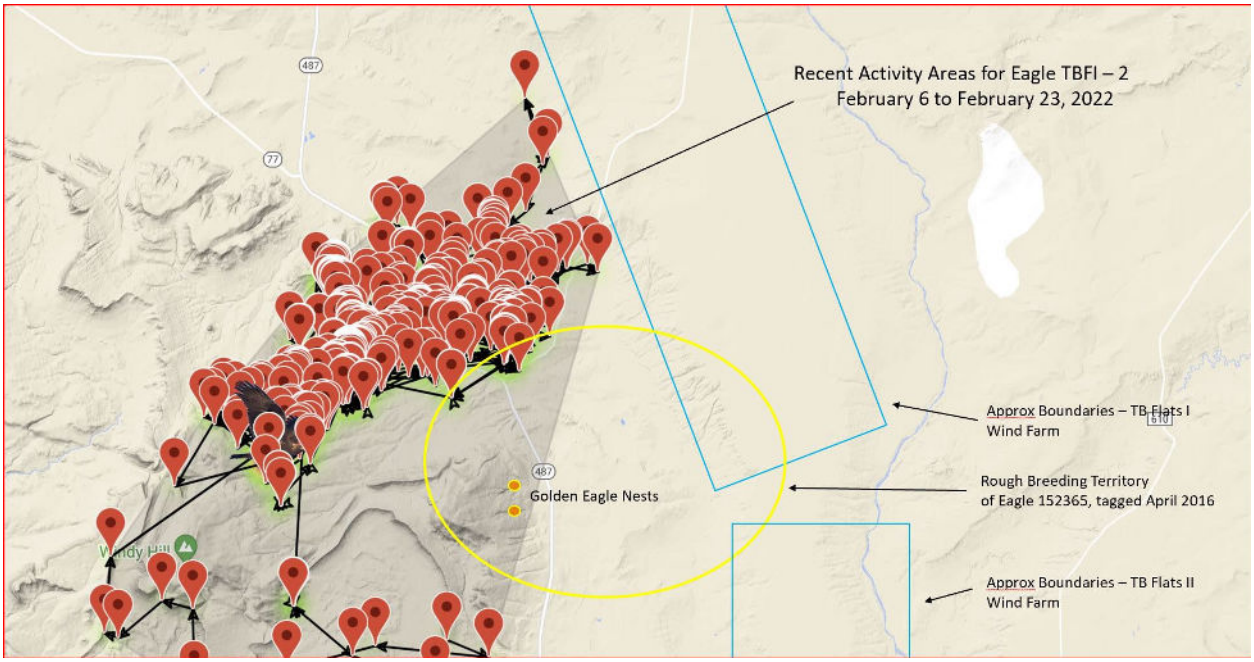

Figure 3. February 2022 data points for golden eagle breeding male (Eagle TBFI – 2). Note tight clusters of activity areas within territories.

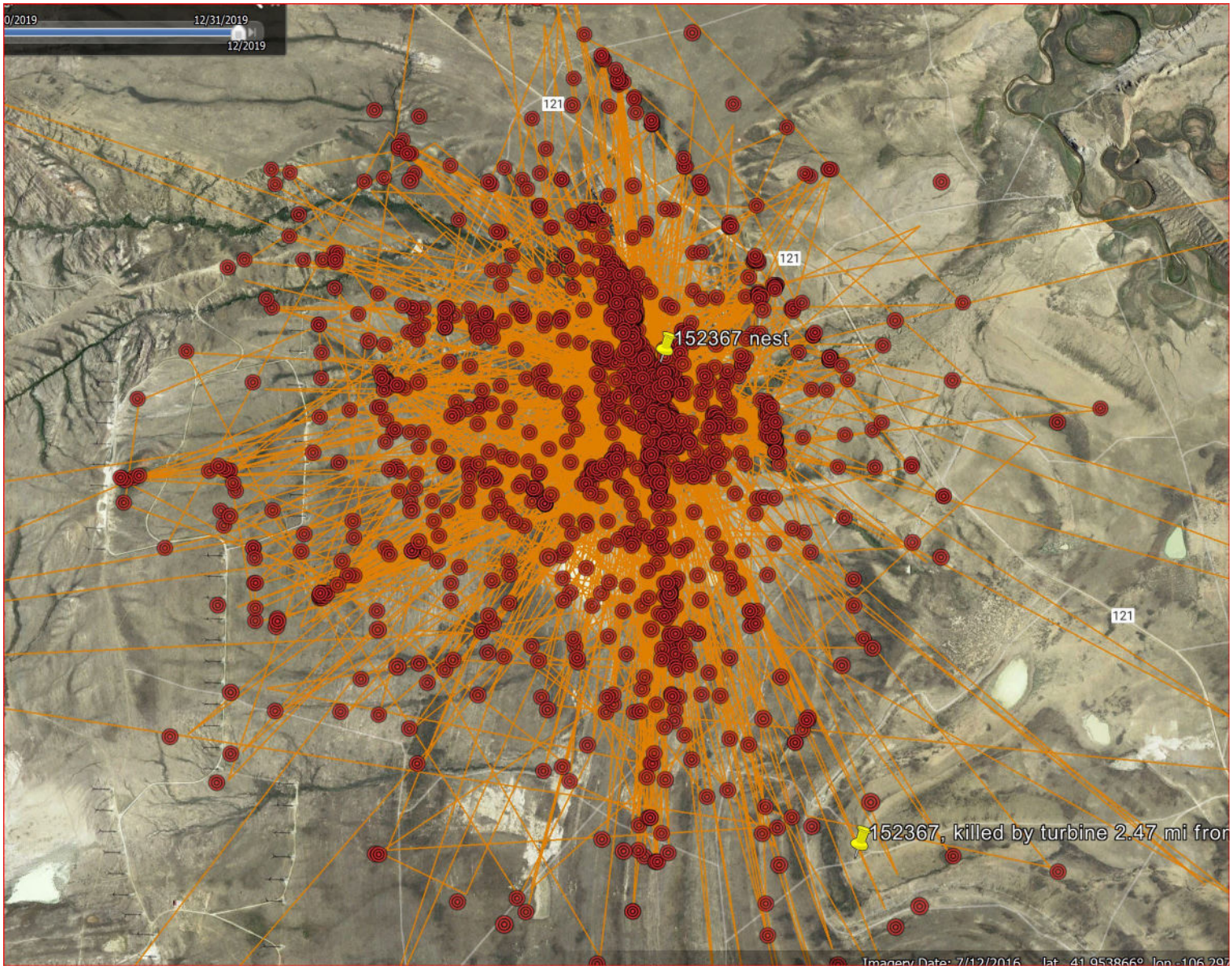

Figure 4. The 2019 to 2021 home range/territory of Eagle 152367 just a few miles W of the proposed Two Rivers wind project area. Slide depicts how extremely dense breeding adult activity areas typically are, and again, with little overlap between breeding pairs.

Figure 5. Previously unseen golden eagles attracted to a trap site by a captive, live lure eagle (right). As many as 6 wild eagles possibly visited this set.

Figure 6. Previously unseen golden eagles attracted to a trap site by a live lure eagle (right). As many as 9 eagles visited this trap set over the course of the day.

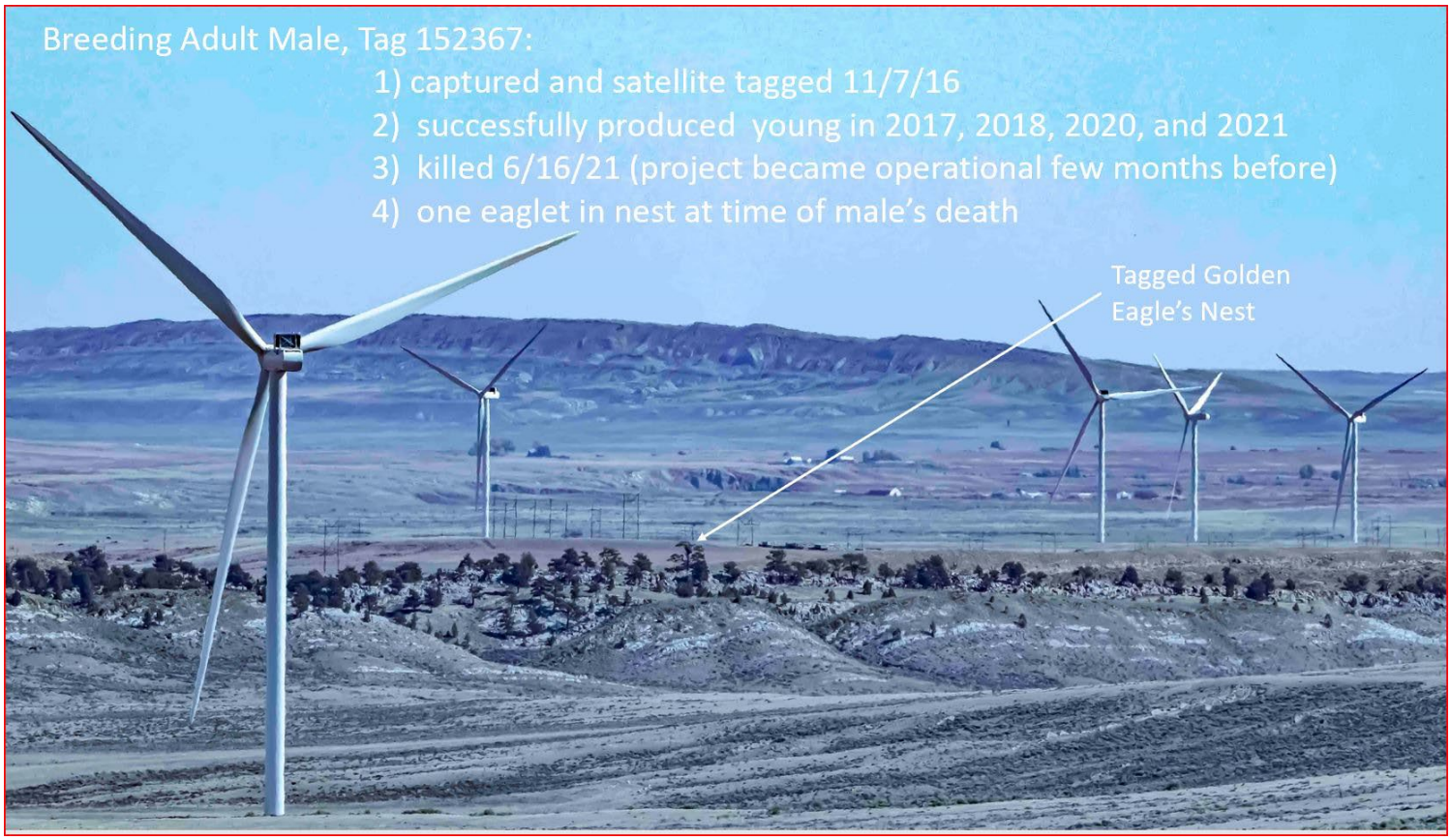

Figure 7. Relationship between actual nest site of tagged eagle 152367 and surrounding wind turbines. Closest turbines are a little over a mile away.

Figure 8. The spatial relationship of two golden eagle breeding territories on and adjacent to the Seven Mile and Ekola Flats wind farms. Ekola Flats is a much newer project and yet a continuing history of periodic loss of one or both adults, and fledged young can be expected over the life of the Ekola Flats project life.

The nest identified to the N has been occupied every year for the past 6 years and there was an attempt to refurbish the nest in 2022. Nevertheless, no young have been fledged over this period and only one adult can be verified occupying this territory at the present time. It is highly likely that breeding eagles from this nesting territory have been killed by Seven Mile turbines in the past (possibly even those adults know to have been killed in 2009 and 2010).

Figure 9. Eagle, Ekola Flats – 4. Captured near Two Rivers project area on Nov. 22, 2022 and migrated deep in to Mexico by Dec. 2, 2022.