AVIAN PROTECTION PLAN

Powder River Energy Corporation

November 2022

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Revision History

Date	Person	Description
November 22, 2022	Joe Roth	Original document creation – Complete rewrite of PRECorp's Avian Protection Plan dated August 9, 2010 and prepared by EDM International, Inc.

1. Introduction

Powder River Energy Corporation (PRECorp) is a non-profit and member-owned electric cooperative. PRECorp serves over 12,000 members and has a diverse portfolio of members ranging from large industrial members that operate coal mines and oil & gas facilities, to rural ranch and residential members. PRECorp owns and operates over 11,000 miles of distribution power lines serving Campbell, Crook, Johnson, Sheridan and Weston counties in Wyoming, and Bighorn and Powder River counties in Montana.

PRECorp recognizes that eagles, hawks, owls, and other large birds may collide with or be electrocuted on PRECorp's electrical facilities that can cause power outages, equipment damage, and injury or death to the bird. Other species, such as osprey, may also use power poles and substations to build their nests, which may result in pole fires, power outages, and loss of young birds or eggs. PRECorp also recognizes that bird-caused power outages are costly, lead to power quality or reliability concerns for its members and may lead to enforcement action under federal protection for various avian species.

As part of PRECorp's original efforts to develop an Avian Protection Plan (APP), in 2005 EDM International, Inc. (EDM) was hired to examine a sample of distribution structures and identified configurations that presented higher risks to perching raptors and other large birds within PRECorp's service territory. This work was instrumental in the development of PRECorp's avian safe structure designs that continue to evolve as new resources, knowledge, and materials become available.

PRECorp's APP provides the program framework to protect and conserve avian populations by reducing the risks that result from interactions with PRECorp's facilities and activities. The development and implementation of the APP moves PRECorp closer to the overall goal of reducing avian mortalities while maintaining reliable and cost-efficient energy services. This APP and the associated actions taken will enhance PRECorp's system through the practice of environmental stewardship.

2. Corporate Policy

PRECorp's commitment to managing environmental impacts is demonstrated throughout the organization from its core principles and Environmental Stewardship Policy to the standards, programs, and plans that are used in day-to-day work activities. Several principles are used by PRECorp in the development and implementation of this plan:

- Compliance with relevant safety and environmental laws/regulations to protect the health and safety of employees, the public, and wildlife
- Implementation of a comprehensive APP to reduce the risk of injury or mortality to raptors and other migratory birds from interactions with company owned infrastructure
- Continual consideration of new technologies and methods that enhance the ability to achieve environmental and safety objectives
- Perform periodic reviews of the principles to ensure the needs of their employees and the public are addressed
- Provide training to improve employee knowledge of the APP and avian protection laws

The applicability of this APP extends to PRECorp's electrical power lines and substations.

3. Regulations

There are three main federal laws in the United States protecting birds; the **Migratory Bird Treaty Act** of 1918 (MBTA) (16 U.S.C. 703-712), the **Bald and Golden Eagle Protection Act** of 1940 (BGEPA (16 U.S.C. 668-668d) and the **Threatened and Endangered Species Act of** 1973 (ESA) (16 U.S.C. 1531-1544). These three laws are administered by the U.S. Fish and Wildlife Service (USFWS) and are the cornerstones of modern bird conservation at the national level. There are only a few birds that are not protected by these laws: house sparrow, European starling, rock dove, escaped exotic pet trade species (parrots, finches, and canaries) and non-migratory birds. Non-migratory species typically recognized within PRECorp's service territory are upland game birds such as turkey, partridge, pheasant, and grouse.

The MBTA, BGEPA and ESA are strict liability laws where the USFWS does not have to show intent to cause harm to a bird to charge an individual or company with a take under these laws. Violation of any of these laws can result in mandated remedial obligations, fines and/or imprisonment. USFWS Region 6 (headquartered in Denver, CO) is the jurisdiction of PRECorp's Wyoming and Montana operations.

In addition to the above listed federal laws, there are also state laws that protect birds and wildlife. In addition to Wyoming and Montana protecting federally listed species within their borders, these states also have regulations for the protection and management of upland game birds such as turkey, ring-necked pheasant, and greater sage-grouse. In Wyoming, a Governor's Executive Order includes the conditions and stipulations for siting and constructing new electrical facilities located in established sage-grouse core management areas. PRECorp has developed and implemented a Sage-Grouse Protection Plan to address the Governor's Executive Order.

4. Training

PRECorp will provide awareness and training to appropriate company personnel, including managers, supervisors, and field staff regarding PRECorp's APP, avian protection laws, liability issues, and avian species identification.

PRECorp's training objectives include, but are not limited to:

- Why PRECorp implemented an APP
- What are the benefits of the APP to PRECorp, PRECorp's members, and the environment
- What are the laws and liabilities regarding PRECorp's APP
- What procedures are to be followed in investigating, reporting, and the handling of birds covered by the APP
- What are PRECorp's Nest Management Options
- What Species are covered by the APP

5. Permits

Federal:

Migratory Bird Special Purpose Utility Permit - PRECorp acquired a Migratory Bird Special Purpose Utility Permit issued by the USFWS. This permit authorizes PRECorp to possess and transport migratory birds and to address nests as defined within the permit. A report of activities conducted under the provisions of this permit must be sent to the migratory bird permit issuing office annually.

Additional Permits - Additional permits for nests management related to Eagles or Threatened or Endangered Species may be required.

State:

(Wyoming) Chapter 33 Permit – PRECorp acquired a Chapter 33 Permit issued by the Wyoming Game and Fish Department. With the issuance of this permit PRECorp can salvage and transport dead raptors found near power lines maintained by PRECorp within the State of Wyoming. Nest removal or relocation may be addressed as defined within the permit. A report of activities conducted under the provisions of this permit must be sent to the Wyoming Game and Fish Department annually.

(Montana) Scientific Collector's Permit – PRECorp acquired a Scientific Collector's Permit issued by the Montana Fish Wildlife and Parks. This permit allows PRECorp to salvage migratory birds found dead along power lines operated by PRECorp within the State of Montana. A report of activities conducted under the provisions of this permit must be sent to Montana Fish, Wildlife and Parks annually.

6. Construction Design Standards

PRECorp is a USDA Rural Utilities Service (RUS) borrower and constructs its facilities in accordance with RUS approved assembly units. Additionally, PRECorp has developed numerous construction design standards specific to new construction, structure modifications and retrofits of existing power structures to reduce the risks of electrocutions and collisions with PRECorp's structures and lines. Details for each configuration are included in PRECorp's avian construction and engineering standards. Refer to the following link to view most of PRECorp's avian standard drawings:

http://precorp.coop/construction-engineering-standards

These standards are described in the PRECorp document entitled "Specification PRE-CNS-000, Retrofitting Existing Facilities for Avian Protection" and are included in the construction and engineering standards available online. Individual material assembly units are also included within the specification, while numerous construction standards are available for new construction or retrofits, the individual material assemblies for specific materials and construction can be identified in the staking sheets for either removal or modifications to address all conditions found in the field. A description of the typical codes used in PRECorp's staking sheets is provided in Table 1.

Construction assemblies that include unique suffixes with the letters 'MA' designate a retrofit assembly has been applied to an existing structure to improve avian safety and/or to deter perching. If the described suffix also includes the letter 'G' (e.g., "MAG"), the assembly modifies the original structure to be avian safe and reduce perching to prevent predation of greater sage-grouse by raptors near leks or within designated sage-grouse core areas. The primary reason for installing perch discouragers is to achieve a conservation benefit for Greater Sage-Grouse and is not intended to prevent electrocutions.

Table 1. Codes used in PRECorp Staking Sheets.

	Code	Sub	Location	Meaning	Misc.
	E		Column 1	Existing configurations	Existing PRECorp Pole, see callout in row
	R		Column 1	Removal configurations	Retirement action to be taken on pole, see callout in row
	C		Column 1	Construction changes	Construction action to be taken on pole, see callout in row
Prefix	V		Column 4 - Primary Unit	Voltage class	V = 14.4/24.9kV
Suffix	M		Column 4 - Primary Unit	Modified after initial construction	
Suffix	A		Column 4 - Primary Unit	Modified to include avian safety	
Suffix	G		Column 4 - Primary Unit	Modified to include perch deterrents for sage-grouse	
	Rev		Column 4 - Primary Unit	Revision Number	
	A		Column 4 - Primary Unit	Single-Phase	
	B		Column 4 - Primary Unit	Two-Phase	
	C		Column 4 - Primary Unit	Three-phase	
	AP		Column 4 - Primary Unit	Avian protection	Usually followed by suffix RP
	RP		Column 4 - Primary Unit	Raptor protection	Usually followed by a suffix (see the following)
		CT	Column 4 - Primary Unit	Pole top cone	Denoted AP-RPCT - Raptor protection pole top cone
		DT	Column 4 - Primary Unit	Double pin insulating cap	Denoted AP-RPDT - Raptor protection double pin insulating cap
		E	Column 4 - Primary Unit	Raptor guard extender	Denoted AP-RPE - Raptor protection perch guard extender
		EX	Column 4 - Primary Unit	Epoxilator	Denoted AP-RPEX - Raptor protection epoxilator
		FL	Column 4 - Primary Unit	Fiberglass link	Denoted AP-RPFL - Raptor protection fiberglass link
		ICT	Column 4 - Primary Unit	Insulator clamp top	Denoted AP-ICT - Avian protection insulator clamp top
		SC	Column 4 - Primary Unit	Conductor cover	Denoted AP-SC - Avian protection split seam conductor insulation
		ST	Column 4 - Primary Unit	Single pin insulating cap	Denoted AP-RPST - Raptor protection single pin insulating cap
		TP	Column 4 - Primary Unit	Pole top pin	Denoted AP-RPTP - Raptor protection pole top pin
		Z	Column 4 - Primary Unit	Zena spikes	Denoted AP-RPZ - Raptor protection Zena spikes
	G		Column 9	Transformer	These are callouts to specific PRECorp Unit Drawings
	P		Column 11	Ground	These are callouts to specific PRECorp Unit Drawings
	E		Column 12	Guy	These are callouts to specific PRECorp Unit Drawings
	J or K		Column 15	Secondary attachments	These are callouts to specific PRECorp Unit Drawings

PRECorp has elected to implement site specific designs to mitigate potential line collision concerns associated with segments of lines next to water features or highly traveled fly routes in which the potential for possible collisions has been identified. As stated within the Avian Power Line Interaction Committee (APLIC) Mitigating Bird Collisions (2012) document, many studies suggest most bird collisions occur with the shield wire, which is the smallest diameter and highest wire on a transmission and/or distribution power line. It is also noted that a significant reduction in collisions can be achieved with the installation of flight diverters. However, recommendations for the most effective device and standard spacing are not possible due to differences in study designs and site-specific conditions.

All new standards and proposed revisions to existing design standards are implemented through a rigorous internal process that involves multiple stakeholders at PRECorp. Along with public safety, regulatory adherence, reliability, total ownership cost, and many other factors, avian safety is a major consideration involved with establishing any new design standard or modifying any existing standard.

7. Nest Management

With a vast network of infrastructure crossing through a wide variety of habitats, bird nests inevitably appear on, in, and around PRECorp's system. Power line structures in open habitat provide perch, roost, and nest substrate for some avian species, this is especially true where natural substrates are limited. Legal protection of bird nests through the Migratory Bird Treaty, Bald and Golden Eagle Protection, and the Threatened and Endangered Species Acts warrants special management protocols for birds nesting in, on, or in very close proximity to PRECorp's infrastructure. PRECorp will adhered to federal and state requirements pertaining to when and where nest surveys are required, timing restrictions around construction and maintenance activities, and protocols for dealing with active nests.

Protecting active nests involves following established buffers set by federal and state agencies that restrict construction activities during certain times of the year relating to the specific species occupying an active nest. Spatial or season buffers are intended to prevent take of active nests, eggs, nestlings, or nesting birds because of construction activities. Spatial or seasonal limits to disturbance can vary from one bird species to another and thus the reason for differing buffers meant to allow for successful nesting while reducing constraints on construction activities. Potential variances to spatial buffers could include but are not limited to line of sight (features between the nest and the construction activity), terrain, vegetation screens, or other factors that might exist in the project area. When proposing a variance to established nesting buffers, PRECorp would work with a biologist consultant as well as state and federal biologists when appropriate.

Nests built on electrical infrastructure can cause power outages, fires, and bird fatalities. If a nest poses an operational problem, personnel shall contact the APP Coordinator for further instruction. Once the APP Coordinator is notified of a potential nesting issue, an assessment will be carried out to determine if the nest is active (presence of an adult, eggs, or nestlings), the nesting species and if the nest poses an emergency. If deemed necessary, PRECorp will engage a wildlife consultant in completing the assessment. Once the assessment has been completed, a mitigation plan can be made and implemented. Potential mitigation may include, but is not limited to, nest relocation, nest

avoidance or may require that the nest be destroyed to eliminate the potential for avian electrocution or power outages. If an eagle nest is found on PRECorp's system that is deemed a safety issue to humans or the eagle, PRECorp will work with the USFWS on determining a mitigation strategy that will eliminate or mitigate the nesting concern. Only in situations where PRECorp determines that there is immediate or imminent danger will a nest be moved or destroyed and PRECorp will follow the conditions of any federal or state issued permits.

Nest removal of any Eagle or Threatened and Endangered (T/E) Species, whether active or inactive, is not authorized without specific federal permits. Nests known to be used by T/E listed species or bald or golden eagles will not be removed unless coordination with state or federal agencies has deemed it appropriate to remove them. All mitigation efforts or actions taken regarding eagle nests will be documented and reported as required.

PRECorp's Migratory Bird and Special Purpose Utility Permit defines an "active nest" as a nest that contains chicks or viable eggs, and "inactive nests" are nests without viable eggs or chicks. For nests of species protected under the MBTA, PRECorp will follow the guidelines set forth in the federal and state avian related permits. All nest interactions should be reported to the APP coordinator for discussion prior to action being taken. In emergency situations PRECorp is authorized to take (relocate or destroy) active migratory bird nests, including eggs or chicks found on utility structures, if the safety of the migratory birds, nests, or eggs are at risk or pose a threat of serious bodily injury or a risk to human life, including a threat of fire hazard, mechanical failure, or power outage. PRECorp may not use the authority to destroy or relocate nests for situations in which migratory birds are merely causing a nuisance or inconvenience.

8. Avian Mortality Reporting System

PRECorp first began reporting and recording raptor mortalities in May 2001. Data on all reported avian mortalities is recorded including the species, condition, disposition, discovery date, collection date (if different than the discovery date), specific location, and state. This data is also used to satisfy pending regulatory reporting requirements for federal and state permits. Internally, bird related power outages are recorded in the system logs separately. The collected mortality data helped inform the first PRECorp implemented APP in December 2005 and continues to drive the program's framework.

Reporting avian mortalities and disposition of carcasses will be done in accordance with federal and state agency permits and guidelines. PRECorp will notify a USFWS Law Enforcement Special Agent of all eagles and MBTA protected birds found or reported to PRECorp within the timeframes and protocols set by the USFWS. Bird carcasses will be photographed in "as-found" conditions for submittal with the written incident notifications submitted to the USFWS.

9. Risk Assessment Methodology

Electrocutions occur when birds are large enough to span the distance between conductors or between an energized component and a ground. Using historical mortality data and GIS mapping, PRECorp has developed a database that documents high-risk structures and the specific electrical configurations relative to the structure location, associated habitat types, and relative bird use.

In 2005, PRECorp hired a third-party consultant to conduct a risk assessment to determine which structures pose the most immediate risk to raptors such that the structures can be prioritized for remediation. The assessment provided a snapshot in time using the best available information to inform PRECorp of relative risk. It is recognized that all structures lacking the appropriate clearances to prevent raptor electrocution pose some risk to birds. However, from a mitigation standpoint, it is not cost effective nor necessary to retrofit all existing infrastructure.

The purpose of the risk assessment is to determine which structures or areas pose the highest, most immediate risk to avian species, so they receive priority for mitigation. These structures are identified by incorporating data from past power outages, land use, proximity to nesting raptors, local topography, and evidence of avian use of the structure. Typically, electrocutions are more prevalent on structures with minimal clearances such as transformers, taps, and in-line arrestors.

10. Mortality Reduction Measures

Since the adoption of PRECorp's initial APP in 2005, the company has proactively been retrofitting problematic structures. Due to the vast extent of PRECorp's service territory, retrofits are completed following a phase approach. High risk structures within areas that had a higher incident of electrocutions were addressed first.

Over several years, the program reduced the density of the areas where incidents occur. PRECorp then adopted a more targeted approach to address the highest risk structure types throughout the entire service territory instead of prioritizing based upon geography. PRECorp has been tracking collisions and electrocutions by location and structure type for approximately 20 years, which has provided insight into the most problematic structures on its system. Based on this review, overhead transformers are the most problematic structure type and therefore have become the primary retrofitting focus. PRECorp's existing program includes retrofitting all pole mounted transformer structures on its system over a twelve-year period.

A major contributor to the effectiveness of the program is that all new and rebuilt power lines utilize the avian safe design criteria described within Section 6. Due to a significant portion of PRECorp's electrical distribution system being aged and nearing end of life, it is being reconstructed with the same avian safe standards. This is a significant investment that benefits avian safety and overall reliability for PRECorp's membership.

When a mortality is identified due to electrocution, the structure in question is investigated and adequate modifications and retrofitting to that structure are completed to reduce the likelihood of a similar event. For eagle mortalities, additional higher risk structures are retrofitted where the surrounding habitat and type of structures around the mortality site are deemed to be a higher risk in a subsequent review process.

Additionally, PRECorp has adopted a practice of deenergizing inactive lines when feasible, thus eliminating a potential source that could result in an avian electrocution. Prior to placing an inactive line into service, except in emergency situations, PRECorp will first retrofit the inactive services before energizing them.

PRECorp also continues to monitor and analyze bird mortalities related to its electrical infrastructure to determine the program's effectiveness and allow for continuous improvement in materials, designs, and processes for gains in both efficiency and effectiveness.

11. Adaptive Management

The APP will be a living document that will be revised and updated as goals are achieved, innovative solutions are developed to mitigate impacts, agency guidance is adjusted, and conditions within PRECorp's service territory change. As such, PRECorp will utilize an adaptive management approach to address issues as they arise. Through this process, PRECorp will be better at identifying potential risks and minimizing impacts to avian species. Set out below are examples of some areas where adaptive management will serve to benefit avian species within PRECorp's service territory.

- Pursuing new retrofit/remedial protective measures
- Incident tracking noting collision or electrocution, location, and structure type
- Partnerships to collaborate on projects that reduce the potential risk to avian species
- Utilization of industry resources such as the APLIC Guidelines, NRECA Avian Tool Kit, and Federal and State guidance documents

12. Quality Control

PRECorp will conduct periodic reviews of the APP to determine the relative progress and success of the program's implementation and will make changes and modifications as required or necessary. Minor changes will be incorporated into this plan through amendments.

Furthermore, PRECorp has implemented the following quality control measures to ensure that this APP and actions are accurate, up to date, and used effectively.

- PRECorp reviews submitted nest reporting forms and avian incident reporting forms as they are submitted to ensure that they are properly and adequately completed. Any missing information will be obtained from the worker who completed the form.
- Any observed incidents of additional injury or mortality on structures that are already retrofitted will be investigated for further remedial actions, which will then be determined and implemented.
- A sampling of completed work orders that include new or modified construction are inspected annually to ensure completed field work adheres to design and construction standards.
- Approximately a 12^{th} of PRECorp's infrastructure has a detailed inspection performed annually to ensure that it is adequately maintained, and that materials are in good standing order. Deficiencies found in materials, equipment, or workmanship are remedied accordingly.
- PRECorp will keep an internal database that tracks detected avian injuries or mortalities, a list of retrofitting operations over the last year, a map of the last year's avian incident data, and an itemized list of the operating costs associated with implementing the protective measures in this APP.

These quality control measures will also be reviewed periodically to determine their effectiveness and merit with future modifications documented within amendments.

13. Public Awareness

PRECorp does not have a formal public awareness plan but has taken the opportunity to educate the public of PRECorp's avian protection plan when given the opportunity. These efforts have included publishing articles in the Wyoming Rural Electric Newsletter (WREN), participating in local and regional workshops, among other normal communication channels.

PRECorp also maintains an avian email address (raptors@precorp.coop) that is published in various news articles and public publications that allows the public to submit comments, questions and/or concerns to PRECorp, which are then internally reviewed.

14. Key Resources

Resources available to PRECorp are the USFWS Region 6 Migratory Bird Permit Office, USFWS Region 6 Ecological Services Office, USFWS Region 6 Office of Law Enforcement, USFWS Montana/Wyoming Office of Law Enforcement, Montana Department of Fish, Wyoming Game and Fish Department Offices, and Wildlife and Parks Office.

PRECorp has chosen not to list individuals or agencies office phone numbers and physical addresses as this information is easily obtained through other methods.

15. Approvals and Signatures

This plan has been reviewed with and accepted by PRECorp's Board of Directors.

Quentin Rogers (Mar 27, 2023 17:08 MDT)

Quentin Rogers
Vice President of Engineering and Technical Services

27-Mar-2023
Date

Brian Mills (Mar 28, 2023 08:22 MDT)

Brian J. Mills
Chief Executive Officer

28-Mar-2023
Date