Attachment B

Phase I Bird and Bat Conservation Strategy

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VIA Electronic Mail

July 6, 2016

Casey Stemler, Division Chief
Mountain-Prairie Region
U.S. Fish and Wildlife Service
134 Union Blvd.
Lakewood, CO 80228

Re: Amendment 1 to the Phase I Bird and Bat Conservation Strategy for the Phase I Chokecherry and Sierra Madre Wind Energy Project

Dear Mr. Stemler:

Thank you for your review of Power Company of Wyoming LLC's (PCW's) May 20, 2016, Phase I Bird and Bat Conservation Strategy (Phase I BBCS). PCW is pleased to submit the enclosed Amendment 1 to the Phase I BBCS in response to your feedback. As detailed in the attached document, Amendment 1 addresses three main items that you brought to our attention. In particular, Amendment 1:

1. clarifies a conclusion on page 4-75 regarding the risk of impacts to sagebrush obligate species from Phase I;

2. documents that the results of active nest monitoring will be reported with the annual reports required in Section 8.3; and

3. revises Table 5.1 to more specifically identify benefits to bats from the Phase I ECP avoidance and minimization measures.

The attached Amendment 1 to the Phase I BBCS revises the May 20, 2016 Phase I BBCS filed in support of PCW's June 15, 2015 Phase I Eagle Conservation Plan. We appreciate the assistance and guidance provided by your agency in developing the Phase I BBCS. If you have any questions concerning the Phase I BBCS, please contact me to discuss by telephone or to arrange an in-person meeting. Thank you.

Sincerely,

Garry L. Miller
Vice President, Land and Environmental Affairs

Encl. as referenced

cc: Clint Riley, USFWS

Amendment No. 1 to
May 20, 2016 Chokecherry and Sierra Madre Wind Energy Project
Phase I Bird and Bat Conservation Strategy

1. Page 4-75, first full paragraph, fifth sentence is changed to read:

   "Finally, sagebrush habitats are available throughout southern Wyoming and the abundance of these habitats throughout that area make it unlikely that the risk of adverse impacts resulting from the construction and operation of Phase I would result in population level declines in obligate species."

2. Page 5-26, first paragraph under the Nest Management sub-heading, the following sentences are added immediately prior to the last sentence of the paragraph:

   "When active nest monitoring is required (*See Figure 5.10*), the qualified biological monitor will document the final nest status (active, abandoned, failed, or fledged) following the completion of the construction, operations, or maintenance activities. This information will be reported in accordance with Section 8.3 and will be used as appropriate to inform adaptive management. *See Section 8.4*."

3. Table 5.1 on pages 5-28 and 5-29 is replaced in its entirety with the following table:

Table 5.1. Phase I ECP Avoidance and Minimization Measure Benefits to Migratory Birds and Bats

Measure or Type of Measure	Description of Measure	Benefits to Migratory Birds and Bats
Eagle Nest-specific Measures	Measures include seasonal curtailment strategies and identification of nest buffers in which no turbines would be constructed that are specific to individual eagle nests or territories.	Benefits avian species using areas surrounding the specific eagle nests for which site-specific avoidance and minimization measures have been identified. Specific benefits are expected for non-eagle raptors and other avian species that nest, roost, or forage along cliff bands associated with eagle nests and territories. Benefits to crevice-roosting and cliff-roosting bats would also be likely in areas surrounding eagle nests built on cliff bands.
Occupied Nest Measures	Measures include seasonal curtailment strategies used when nest-specific or territory-specific measures have not been identified.	Benefits avian species using areas surrounding occupied eagle nests. Specific benefits are expected for non-eagle raptors and other avian species that nest, roost, or forage along cliff bands associated with eagle nests and territories.

Measure or Type of Measure	Description of Measure	Benefits to Migratory Birds and Bats
Unoccupied Nest Measures	Measures include seasonal curtailment strategies used when nest-specific or territory-specific measures have not been identified.	Benefits avian species using areas surrounding unoccupied eagle nests. Specific benefits are expected for non-eagle raptors and other avian species that nest, roost, or forage along cliff bands associated with eagle nests and territories.
Prey Resource Areas	Twenty-eight turbines were removed from a portion of Phase I Sierra Madre where eagle foraging activities or opportunities were identified.	Benefits avian species using identified areas as prey resources. The habitats contained within the prey resource areas primarily consist of sagebrush steppe, upland grasslands, barren slopes, and salt desert shrub. Removal of turbines from this area will benefit foraging raptors that utilize the same prey resources as well as other avian species (including sagebrush obligates, mountain plover, loggerhead shrike, and other species of interest) that use these habitats for foraging, breeding and migratory purposes.
Miller Hill Rim Activity Area	Turbines were set back from the rim of Miller Hill to reduce collision potential for avian species utilizing the habitats along the rim as well as the movement corridor provided by the Miller Hill Rim Turbine No-Build Area	Benefits avian species using habitats along the rim and immediately under the rim of Miller Hill in Phase I. Habitats in this area include upland grasslands, barren slopes, aspen mixed-conifer woodlands, sagebrush steppe, and mountain shrub communities. Species utilizing these habitats and specifically benefiting from this measure include, but are not limited to, raptors, sagebrush obligates, and forest and montane ecosystem specialists. Benefits to tree-roosting bats and foraging bats would also be likely because turbines will be set back from forested habitats used for roosting and mesic areas on the slopes of Miller Hill that may provide foraging habitat.

Measure or Type of Measure	Description of Measure	Benefits to Migratory Birds and Bats
McKinney Creek Activity Area	Four turbines were removed immediately south of the Miller Hill Road in the headwaters of McKinney Creek to provide a movement corridor between undeveloped portions of Miller Hill, the Miller Hill Turbine No-Build Area, and greater sage-grouse Core Areas	Benefits avian species using the Miller Hill Road as a movement corridor, sagebrush steppe habitats on Miller Hill, and habitats along the rim and immediately under the rim of Miller Hill in Phase I. Habitats in this area include upland grasslands, barren slopes, aspen mixed-conifer woodlands, sagebrush steppe, and mountain shrub communities. Species utilizing these habitats and specifically benefiting from this measure include, but are not limited to, raptors, sagebrush obligates, and forest and montane ecosystem specialists. Benefits to tree-roosting bats and foraging bats would also be likely because it provides a movement corridor between forested habitats on the slopes of Miller Hill and suitable lowland mesic foraging habitats on top of Miller Hill.
Lower Miller Hill	Fourteen turbines were removed from areas identified as having eagle and raptor soaring and kiting activities along slopes in the Lower Miller Hill portion of Phase I.	Benefits are primarily to raptors and other avian species that use the same features for soaring and kiting activities. Also benefits other avian species using the habitats within the area for breeding, foraging, or migratory activities.
Eagle Activity Area	Seventeen turbines were removed from an area north of Miller Hill in Phase I where eagle activity was observed during pre-construction survey efforts.	Area is adjacent to the Miller Hill Rim Turbine-No Build area and will benefit all avian species using the corridor provided by that area. Also benefits avian species using the area for foraging, nesting, or migration activities. Habitats in this area include upland grasslands, barren slopes, aspen mixed-conifer woodlands, sagebrush steppe, and mountain shrub communities. Species utilizing these habitats and specifically benefiting from this measure include, but are not limited to, raptors, sagebrush obligates, and forest and montane ecosystem specialists. Benefits to tree-roosting bats and foraging bats would also be likely because turbines have been removed from areas containing forested and mesic habitats that provide suitable roosting and foraging habitats.

Measure or Type of Measure	Description of Measure	Benefits to Migratory Birds and Bats
Infrastructure Avoidance and Minimization Measures	Avoidance and minimization measures were developed for the North Platte River Water Extraction Facility, the Road Rock Quarry, and the Phase I Haul Road and Transmission Lines where these facilities are proximate to certain eagle nests.	Benefits avian species using areas surrounding the specific eagle nests included in the measure. Specific benefits are expected for non-eagle raptors and other avian species that nest, roost, or forage along cliff bands associated with eagle nests and territories.

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VIA Federal Express and E-Mail

May 20, 2016

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U.S. Fish and Wildlife Service
134 Union Blvd.
Lakewood, CO 80228

Re: Phase I Bird and Bat Conservation Strategy
for the Phase I Chokecherry and Sierra Madre Wind Energy Project

Dear Mr. Riley:

Power Company of Wyoming LLC (PCW) is pleased to submit the enclosed Phase I Bird and Bat Conservation Strategy (Phase I BBCS) for Phase I of the Chokecherry and Sierra Madre Wind Energy Project. This Phase I BBCS is filed in support of the separate Phase I Eagle Conservation Plan that PCW filed with the USFWS on June 15, 2015, and completely replaces the Phase I BBCS filed by PCW on August 3, 2015.

This Phase I BBCS addresses the comments received from the U.S. Fish and Wildlife Service on April 15, 2016 concerning the August 2015 Phase I BBCS. For reference, a comment response table and a redline electronic version of the BBCS comparing the May 2016 document to the August 2015 document are available through a file share site. The link to the file share site will be provided by e-mail.

We appreciate the assistance and guidance provided by your agency in developing the Phase I BBCS. If you have any questions concerning the Phase I BBCS, please contact me to discuss by telephone or to arrange an in-person meeting. Thank you.

Sincerely,

Garry L. Miller
Vice President, Land and Environmental Affairs

Encl. as referenced

Phase I Bird and Bat Conservation Strategy

Chokecherry and Sierra Madre Wind Energy Project

May 2016

Power Company of Wyoming LLC

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ACRONYMS AND ABBREVIATIONS

ACM	applicant-committed measure
APLIC	Avian Power Line Interaction Committee
APP	Avian Protection Plan
BBCS	Bird and Bat Conservation Strategy
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BMP	best management practice
BO	Biological Opinion
BPP	Bat Protection Plan
CCSM Project	Chokecherry and Sierra Madre Wind Energy Project
C.F.R.	Code of Federal Regulations
CUP	Conditional Use Permit
DEIS	Draft Environmental Impact Statement
EA	Environmental Assessment
ECP	Eagle Conservation Plan
EIS	Environmental Impact Statement
ESA	Endangered Species Act
ETP	Eagle Take Permit
FAA	Federal Aviation Administration
FEIS	Final Environmental Impact Statement
GPS	global positioning system
HSR	horizontal scanning radar
ISC	Industrial Siting Council
IM	Instruction Memorandum

MBTA	Migratory Bird Treaty Act
MCP	minimum convex polygon
MW	megawatt
NEPA	National Environmental Policy Act
NREL	National Renewable Energy Laboratory
NTP	notice to proceed
PCW	Power Company of Wyoming LLC
Phase I ECP	Phase I Eagle Conservation Plan
POD	plan of development
Ranch	The Overland Trail Ranch
RFO	Rawlins Field Office
RMP	Resource Management Plan
ROD	Record of Decision
ROW	right-of-way
RSZ	rotor swept zone
SGCN	Species of Greatest Conservation Need
SWAP	State Wildlife Action Plan
TOTCO	The Overland Trail Cattle Company LLC
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service
USFWS Region 6	U.S. Fish and Wildlife Service Mountain-Prairie Region Office, Lakewood, Colorado
USFWS Region 6 Outline	U.S. Fish and Wildlife Service Region 6 Outline for a Bird and Bat Conservation Strategy: Wind Energy Projects
USFWS Wind Energy Guidelines	U.S. Fish and Wildlife Service Land-based Wind Energy Guidelines

VSR	vertical scanning radar
WDA	wind development area
WGFC	Wyoming Game and Fish Commission
WGFC Wind Energy Recommendations	Wyoming Game and Fish Commission Wildlife Protection Recommendations for Wind Energy Development in Wyoming
WGFD	Wyoming Game and Fish Department
WHMA	wildlife habitat management area

1.0 Introduction and Purpose

This Bird and Bat Conservation Strategy (BBCS) applies to Phase I of Power Company of Wyoming LLC's (PCW) Chokecherry and Sierra Madre Wind Energy Project (CCSM Project). Phase I of the CCSM Project (Phase I) is located in the western portions of two Wind Development Areas referred to as "Chokecherry" and "Sierra Madre." *See Figure 1.1*. Phase I will consist of 500 wind turbines generating approximately 1,500 megawatts (MW) of renewable energy.

PCW has developed this BBCS for Phase I of the CCSM Project to avoid and minimize impacts to migratory birds and bats in accordance with USFWS Wind Energy Guidelines, WGFC Wind Energy Recommendations, and BLM requirements:

- The U.S. Fish and Wildlife Service (USFWS) issued Land-Based Wind Energy Guidelines (USFWS Wind Energy Guidelines) in March 2012. They recommend that wind energy projects use an iterative tiered approach to characterize migratory bird and bat use of the project area and to evaluate the potential risks of the project to migratory bird and bat species. This information can then be used when making decisions regarding siting, construction, and operation to avoid and minimize impacts to migratory birds and bats. *See Section 2.4. See USFWS 2012a.*
- The Wyoming Game and Fish Commission (WGFC) issued Wildlife Protection Recommendations for Wind Energy Development in Wyoming (WGFC Wind Energy Recommendations). They suggest early and ongoing coordination with the Wyoming Game and Fish Department (WGFD) to develop appropriate site-specific monitoring and best management practices to avoid potential conflicts with wildlife, including migratory birds and bats. *See Section 2.5. See WGFC 2010.*
- The Bureau of Land Management (BLM) in its Record of Decision (ROD) for the CCSM Project requires PCW to develop an Avian Protection Plan (APP) and Bat Protection Plan (BPP) for Phase I of the CCSM Project prior to the BLM's issuance of a right-of way (ROW) grant or notice to proceed (NTP).[1] *See Section 1.3.2.*

PCW has worked with USFWS personnel from the Mountain-Prairie Region Office, Lakewood, Colorado (USFWS Region 6), and the Wyoming Ecological Services Office, Cheyenne, Wyoming, since 2010 regarding the potential for the CCSM Project to affect migratory birds and bats. USFWS, as documented in its April 2011 letter to BLM regarding the CCSM Project, determined that "developing an APP is an appropriate option to avoid and minimize the potential take of eagles (based on BLM's IM 2010-156) and migratory birds and bats…" provided that PCW incorporate appropriate conservation measures into

[1] The terms Avian Protection Plan (APP), Bat Protection Plan (BPP), and Avian and Bat Protection Plan are used in the BLM ROD and BLM IM-2010-156. *See BLM 2010; BLM 2012a.* USFWS, however, in its Wind Energy Guidelines and other related documents has indicated it prefers the term Bird and Bat Conservation Strategy (BBCS) in the context of wind energy facilities.

the CCSM Project. *See Appendix A.* PCW has prepared this Phase I BBCS, as well as its Phase I Eagle Conservation Plan (Phase I ECP), in compliance with USFWS's determination.1 *See PCW 2015a.*

PCW has worked cooperatively with WGFD since 2009 to avoid and minimize impacts to wildlife, including migratory birds and bats. As recommended by the WGFC Wind Energy Recommendations, PCW has incorporated site-specific best management practices into Phase I of the CCSM Project. PCW has also entered into a Landowner Agreement with The Overland Trail Cattle Company LLC (TOTCO) that sets forth management goals and actions to implement the WGFD recommendations. WGFD reviewed and approved the Landowner Agreement, acknowledging that the Landowner Agreement satisfies the applicable requirements of the WGFC Wind Energy Recommendations. This BBCS further describes PCW's commitments for Phase I and addresses the WGFC monitoring and best management practice recommendations specific to migratory birds and bats.

PCW has worked in close coordination with BLM, WGFD and USFWS using the extensive CCSM Project and Phase I data to avoid and minimize impacts to migratory birds and bats. This Phase I BBCS documents PCW's: (a) extensive site characterization efforts; (b) scientifically rigorous field studies to document the presence or absence of migratory birds and bats and their habitat; and (c) the comprehensive best management practices and conservation measures that have been and will be implemented to avoid and minimize potential adverse impacts to migratory birds and bats. As documented in this Phase I BBCS, development of Phase I is consistent with the USFWS Wind Energy Guidelines, the WGFC Wind Energy Recommendations, and the requirements of BLM's ROD.

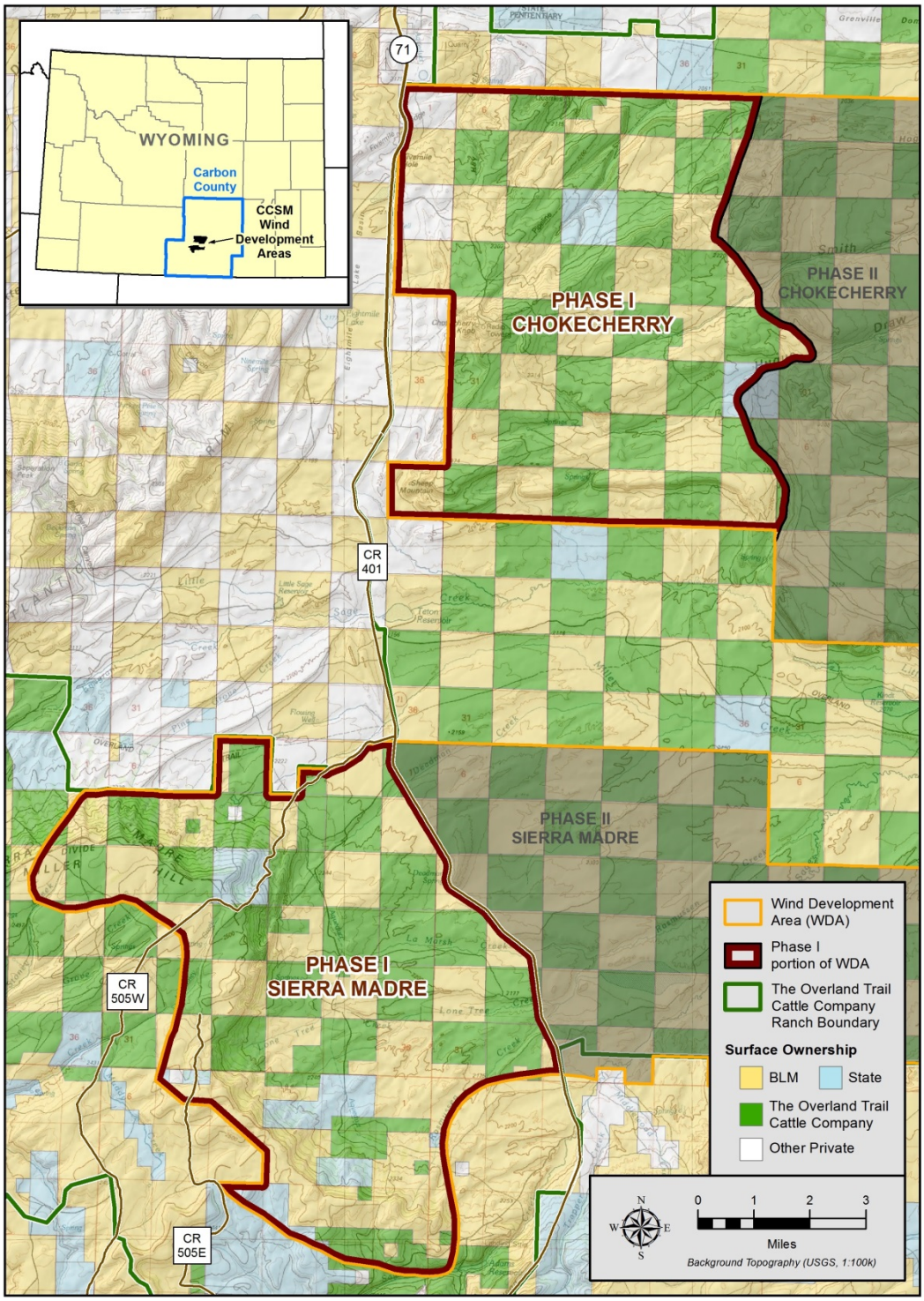

Figure 1.1. Phase I of the Chokecherry and Sierra Madre Wind Energy Project.

1.1 Purpose of the Phase I Bird and Bat Conservation Strategy

This Phase I BBCS documents PCW's strategies and commitments to avoid and minimize impacts to migratory birds and bats during construction, operation, maintenance, and decommissioning of Phase I of the CCSM Project. This Phase I BBCS also details PCW's identification of potential risks to migratory birds and bats and its reduction of those risks through implementation of avoidance and minimization measures, best management practices, and conservation measures. This Phase I BBCS describes Phase I and the surface disturbance[2] associated with the development of Phase I, as well as the alternate sites, configurations, construction methods, and operational practices evaluated by PCW during the project design and avoidance and minimization process. This Phase I BBCS is not intended to provide the full impacts analysis and disclosures required of federal agencies under the National Environmental Policy Act (NEPA). As describe in section 1.3.2, both the USFWS and BLM have prepared NEPA documentation to analyze the impacts of Phase I to migratory birds and bats and their habitats. This Phase I BBCS references these impact analyses where appropriate to evaluate risks to migratory birds and bats from Phase I.

PCW prepared this Phase I BBCS in accordance with the USFWS Wind Energy Guidelines, WGFC Wind Energy Recommendations, USFWS Region 6 *Outline for a Bird and Bat Conservation Strategy: Wind Energy Projects* (USFWS Region 6 Outline) and the requirements included in BLM's ROD. Consistent with these guidelines and recommendations, PCW initiated discussions with USFWS and WGFD regarding potential impacts to migratory bird and bat species early in the development of the CCSM Project and maintained communication with USFWS, WGFD, BLM, and other stakeholders throughout the development process. As a result, PCW substantially redesigned the CCSM Project, removing wind turbines from hundreds of acres of the original proposed site and relocating, removing, and agreeing to curtail certain wind turbines within the areas of the site that remain slated for wind development. Collectively, the measures identified in this Phase I BBCS will avoid and minimize risks to migratory bird and bat species to the extent practicable. *See Chapter 4.0*.

1.2 Scope of the Phase I Bird and Bat Conservation Strategy

This BBCS is limited in scope to Phase I of the CCSM Project. Phase II of the CCSM Project will have a separate BBCS; however, some sections of this Phase I BBCS describe the CCSM Project as a whole to provide context.

The USFWS Wind Energy Guidelines broadly define species of concern as "any species which 1) is either a) listed as an endangered, threatened or candidate species under the Endangered Species Act, subject to the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act; b) is designated by law, regulation, or other formal process for protection and/or management by the relevant agency or other authority; or c) has been shown to be significantly adversely affected by wind energy development, and

[2] Surface disturbance is used to define project areas and is not intended to represent the full range of direct and indirect impacts to migratory birds and bats.

2) is determined to be possibly affected by the project." *See USFWS 2012a at p.63.* Consistent with the USFWS Wind Energy Guidelines, this Phase I BBCS adopts this broad definition of species of concern. However, in recognition of agency management priorities, this Phase I BBCS is primarily focused on special status species that have been identified by federal and state agencies.

This Phase I BBCS addresses migratory birds managed under the Migratory Bird Treaty Act (MBTA) and bats managed as non-game mammal species by WGFD. However, this Phase I BBCS does not apply to greater sage-grouse (*Centrocercus urophasianus*) or bald and golden eagles (*Haliaeetus leucocephalus* and *Aquila chrysaetos*, respectively). Detailed information on PCW's commitments to avoid, minimize, and mitigate impacts to bald and golden eagles under the provisions of the Bald and Golden Eagle Protection Act (BGEPA) is included in the Phase I Eagle Conservation Plan (ECP) submitted to USFWS on June 15, 2015. *See PCW 2015a.* Information specific to PCW's commitments to avoid, minimize, and mitigate impacts to greater sage-grouse is included in the CCSM Project ROD and PCW's Sage-grouse Conservation Plan. *See BLM 2012b, App. B at App. N.*

In addition, this Phase I BBCS does not apply to any species listed under the Endangered Species Act (ESA). BLM determined that federally threatened or endangered migratory bird or bat species are unlikely to occur on the CCSM Project Site, including Phase I. *See BLM 2012b at pp.3.15-1:3.15-4.* However, if a threatened or endangered migratory bird or bat species is identified in Phase I, PCW will implement the applicable provisions of the ESA in addition to the measures included in this Phase I BBCS.

USFWS maintains a list of all species protected by the MBTA. *See 50 C.F.R. § 10.13*. This list includes over 1,000 species of migratory birds, including raptors, waterfowl, shorebirds, seabirds, wading birds, and passerines. The MBTA does not protect introduced species such as the house (English) sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), rock dove (pigeon) (*Columba livia*), Eurasian collared-dove (*Streptopelia decaocto*), and non-migratory upland game birds (Greater sage-grouse, dusky grouse [*Dendragapus obscurus*], etc.). USFWS also maintains a list of introduced species not protected by the MBTA. *See 70 Fed. Reg. 12,710 (2005)*.

PCW has identified 117 species of migratory birds within the CCSM Project Site, including Phase I. *See Appendix B.* Of these, 22 species are identified as USFWS Birds of Conservation Concern, BLM Sensitive Species, or WGFD Species of Greatest Conservation Need (SGCN). *See Table 1.1*. In addition, this Phase I BBCS addresses the multiple bat species that have been observed, acoustically detected, or documented in the vicinity of the CCSM Project. *See Orabona et al. 2012; BLM 2012b.* Table 1.2 lists the bat species that may be present on the CCSM Project Site, including Phase I.

Table 1.1. Phase I Special Status Migratory Bird Species.

Species Group	Common Name	Scientific Name	Conservation Status
Passerines	Brewer's Sparrow	*Spizella breweri*	USFWS-CC, BLM-S, WGFD-SGCN
	Lark Bunting	*Calamospiza melanocorys*	WGFD-SGCN
	Loggerhead Shrike	*Lanius ludovicianus*	USFWS-CC, BLM-S
	Sagebrush Sparrow	*Artemisiospiza nevadensis*	USFWS-CC, BLM-S, WGFD-SGCN
	Sage Thrasher	*Oreoscoptes montanus*	USFWS-CC, BLM-S, WGFD-SGCN
Raptors	Burrowing Owl	*Athene cunicularia*	USFWS-CC, BLM-S, WGFD-SGCN
	Ferruginous Hawk	*Buteo regalis*	USFWS-CC, BLM-S, WGFD-SGCN
	Merlin	*Falco columbarius*	WGFD-SGCN
	Northern Goshawk	*Accipiter gentilis*	BLM-S, WGFD-SGCN
	Peregrine Falcon	*Falco peregrinus*	USFWS-CC, BLM-S, WGFD-SGCN
	Prairie Falcon	*Falco mexicanus*	USFWS-CC
	Swainson's Hawk	*Buteo swainsoni*	USFWS-CC, WGFD-SGCN
Waterbirds/ Waterfowl	Black-crowned Night-heron	*Nycticorax nycticorax*	WGFD-SGCN
	Canvasback	*Aythya valisineria*	WGFD-SGCN
	Clark's Grebe	*Aechmophorus clarkii*	WGFD-SGCN
	Lesser Scaup	*Aythya affinis*	WGFD-SGCN
	Long-billed Curlew	*Numenius americanus*	USFWS-CC, BLM-S, WGFD-SGCN
	Mountain Plover	*Charadrius montanus*	USFWS-CC, BLM-S, WGFD-SGCN
	Northern Pintail	*Anas acuta*	WGFD-SGCN
	Redhead	*Aythya americana*	WGFD-SGCN
	Sandhill Crane	*Grus canadensis*	WGFD-SGCN
	White-faced Ibis	*Plegadis chihi*	BLM-S, WGFD-SGCN

Notes:
USFWS-CC = USFWS Birds of Conservation Concern
BLM-S = BLM Rawlins Field Office Sensitive Species
WGFD-SGCN = WGFD SGCN listed species

Table 1.2. Phase I Bat Species.

Common Name	Scientific Name	Conservation Status
California Myotis	*Myotis californicus*	---
Fringed Myotis	*Myotis thysanodes*	BLM-S, WGFD-SGCN
Little Brown Myotis	*Myotis lucifugus*	WGFD-SGCN
Long-eared Myotis	*Myotis evotis*	BLM-S, WGFD-SGCN
Long-legged Myotis	*Myotis volans*	WGFD-SGCN
Western Small-footed Myotis	*Myotis ciliolabrum*	WGFD-SGCN
Yuma Myotis	*Myotis yumanensis*	---
Big Brown Bat	*Eptesicus fuscus*	WGFD-SGCN
Eastern Red Bat	*Lasiurus borealis*	WGFD-SGCN
Hoary Bat	*Lasiurus cinereus*	---
Pallid Bat	*Antrozous pallidus*	WGFD-SGCN
Silver-haired Bat	*Lasionycteris noctivagans*	---
Townsend's Big-eared Bat	*Corynorhinus townsendii*	BLM-S, WGFD-SGCN

Notes:
USFWS-CC = USFWS Birds of Conservation Concern
BLM-S = BLM Rawlins Field Office Sensitive Species
WGFD-SGCN = WGFD SGCN listed species

1.3 Relationship with Other Documents and Processes

PCW's commitments set out in this Phase I BBCS, in combination with the various applicant-committed conservation measures and conservation plans included within the Phase I site-specific plans of development (site-specific PODs), along with the requirements outlined in BLM's ROD, promote the conservation of migratory birds and bats as well as many other wildlife and fish species within or near Phase I. *See PCW 2015b; BLM 2012a; BLM 2012b.* The following sections describe the other documents and permitting processes that relate to this Phase I BBCS.

1.3.1 CCSM Project Background [3]

This BBCS is limited in scope to Phase I of the CCSM Project. Phase II of the CCSM Project will have a separate BBCS; however, this section describes the CCSM Project as a whole to provide context for the discussion that follows on permitting.

The CCSM Project is located in Carbon County, Wyoming, south of the City of Rawlins and Town of Sinclair. The project is sited on the Overland Trail Ranch (Ranch), which is owned and operated by PCW's affiliate TOTCO. The Ranch is a 320,000-acre agricultural operation, consisting primarily of cattle ranching and hay production. The Ranch is located in "checkerboard" country, in which land section ownership alternates between private land, mostly owned by TOTCO, and federal land managed by BLM along with a small portion of Wyoming State Land Board and WGFD-managed land. This pattern of land ownership dates back to the land grants made to the railroad under the Union Pacific Railway Act of 1862. The Ranch has some of the nation's best onshore wind energy resources, Class 6 and 7, with annual average winds above 8.8 meters per second (20 miles per hour) as mapped by AWS Truepower for the U.S. Department of Energy's National Renewable Energy Laboratory (NREL).

The CCSM Project will consist of 1,000 wind turbines capable of generating up to 3,000 MW of clean, renewable wind energy. Phase I includes 500 wind turbines and associated infrastructure including the Road Rock Quarry, West Sinclair Rail Facility and Phase I Haul Road and Facilities. The CCSM Project is partially located on federal land administered by BLM's Rawlins Field Office. This federal nexus triggered environmental reviews under NEPA. BLM prepared a Final Environmental Impact Statement (FEIS) and issued a ROD on the CCSM Project. BLM is also preparing two Environmental Assessments (EA) for Phase I. The EA for the Phase I Infrastructure Components is complete; on December 23, 2014, BLM issued a Decision Record approving the Phase I Infrastructure Components. *See BLM 2014a; BLM 2014b.* The EA for the remainder of Phase I, the Phase I Wind Turbine Development, is currently underway, and a Decision Record is anticipated in the fall of 2015. BLM's process to comply with NEPA and the status of its environmental review of the CCSM Project are described in more detail below.

[3] A more detailed description of the CCSM Project is included in chapter 3.0; however, some background is necessary to provide context for the discussion of the related documents and permitting processes.

1.3.2 Federal Environmental Review

BLM's Compliance with NEPA

Development of the CCSM Project began in November 2006 when applications for two right-of-way (ROW) grants for wind energy site testing and monitoring (Type-II Wind Energy Project Area Grants) were filed with BLM. The applications covered two areas of the Ranch, identified as Chokecherry and Sierra Madre. BLM granted the Chokecherry Wind Energy Project Area Grant on June 11, 2007, and the Sierra Madre Wind Energy Project Area Grant on June 15, 2007. By the end of June 2007, the first two meteorological towers were collecting data from the Chokecherry Project Area. Since the Type-II Wind Energy Project Area Grants were issued, PCW has erected over 30 meteorological towers, some located on private land and some located on federal land, collecting wind speed and weather data from diverse areas within Chokecherry and Sierra Madre. PCW has an easement from TOTCO for wind development on the privately owned sections, but a ROW grant for development of a wind energy project (Type-III Wind Energy Development Grant) from BLM is needed in order to use the adjoining federal land for the CCSM Project. Therefore, in January 2008, PCW submitted an application and plan of development (POD) for a Type-III Wind Energy Development Grant to BLM, which would authorize PCW to construct, operate, maintain and decommission the CCSM Project on BLM-administered land. Subsequently, BLM, in compliance with NEPA and in coordination with other state and local governmental agencies, commenced the preparation of an EIS, the most comprehensive form of environmental analysis.

<u>BLM's Environmental Impact Statement</u>

BLM published a Notice of Intent to prepare an EIS and conducted public scoping in August 2008. *See 73 Fed. Reg. 43,469 (July 25, 2008).* The agency action evaluated in the BLM's EIS was "to decide whether the area identified in PCW's proposal would be acceptable for development of a wind farm and identify the appropriate development strategy." *See BLM 2012b at p. ES-1.* On July 22, 2011, BLM segregated approximately 107,175 acres of federal land within the proposed project area and released the Draft EIS for public comment. On July 3, 2012, BLM published the Notice of Availability for the FEIS on the CCSM Project and the segregation of an additional 2,560 acres of federal land in the Federal Register. The BLM FEIS summarized the components of the CCSM Project as follows:

- A 2,000- to 3,000-megawatt (MW) wind farm consisting of approximately 1,000 wind turbine generators (WTGs) with a nameplate capacity ranging from 1.5- to 3-MW;
- Development of step-up transformers, underground and overhead electric collection and communication lines, electric substations, rail distribution facility (RDF), operation and maintenance facilities, and laydown areas;
- Haul road and transmission connection between the two sites;
- Construct new roads and upgrade existing roads; and
- Power from the wind farms would be transmitted via overhead electric transmission lines that would connect to a new substation.

See BLM 2012b at p. ES-1. In addition, PCW applied to BLM for a new road to allow PCW to reopen an on-site quarry that will supply aggregate for CCSM Project roads.

BLM prepared a project-wide EIS based on a conceptual POD prepared by PCW. *See BLM 2012b, App. B.* BLM used the conceptual wind turbine and facility sites and conceptual construction schedule in preparing its overall impacts analysis which assumed the "greatest potential for [surface] disturbance" so that impacts identified at the time of micrositing the various project components would most likely not exceed those impacts described in the FEIS. *See BLM 2012a at p. 3-1.* The BLM FEIS recognizes that because BLM's estimates of project-wide impacts are based on conceptual siting and analysis of "the largest possible area of [surface] disturbance," additional NEPA analysis may be necessary for site-specific PODs to examine any impacts that may exceed those analyzed in the project-wide level FEIS. *See BLM 2012b, App. B at pp. 1& 2.* It therefore provides for further NEPA analysis of site-specific PODs to be tiered to the BLM FEIS. *See BLM 2012b, App. B at p. 1.*

The potential impacts to migratory birds and bats at the CCSM Project were analyzed in the BLM FEIS. The BLM FEIS identifies the potential impacts including direct impacts consisting of fatalities and loss of habitat, as well as indirect impacts associated with habitat loss, modification, and displacement. *See BLM 2012b at pp.4.14-15 & 4.14-18.* BLM recognizes that "[t]he magnitude of these impacts depends upon the number of wind turbines and other infrastructure constructed for each alternative and the amount of direct and indirect habitat lost due to construction and operation of the project." *See BLM 2012b at p. 4.14-18.*

The BLM FEIS evaluates the impacts of granting the requested ROWs based on available data as of June 2012, for a 1,000 wind turbine, 3,000 MW project without the benefit of the avoidance, minimization, and conservation measures included in this Phase I BBCS. Without these measures in place, BLM recognizes that significant impacts to certain migratory bird and bat species may occur. *See BLM 2012b at p. 4.14-26 & 4.14-51.* The BLM FEIS requires development of an APP and BPP to avoid and minimize impacts to migratory birds and bats. Further, the BLM FEIS states that "Any project constraints and mitigation measures identified through the development of the [BBCS] will be approved prior to issuance of any Notice to Proceed for the project and, in turn, associated stipulations would be incorporated into the ROW grants."[4] *See BLM 2012b at p. 4.14-16 & 4.14-22.*

BLM's Record of Decision

On October 9, 2012, the U.S. Secretary of the Interior Ken Salazar signed the ROD approving wind energy development in the Chokecherry and Sierra Madre Wind Development Areas. In the ROD BLM determined that portions of the areas for which PCW seeks ROWs "are suitable for wind energy development and associated facilities . . . as described under the Preferred Alternative in the CCSM project Final EIS." *See BLM 2012a at p. ES-1.* BLM's Selected Alternative provides for "development of a

[4] The procedure for issuing ROW grants and NTP was detailed further in the Decision Record for EA1. *See "BLM's Supplemental Tiered NEPA Analysis."*

2,000- to 3,000- megawatt (MW) project consisting of up to 1,000 wind turbines and ancillary facilities in the two sites, the 109,086-acre Chokecherry site and 110,161-acre Sierra Madre site, and off-site access on 460 acres." *See BLM 2012a at p. ES-1.* The Sierra Madre Wind Development Area consists of two distinct areas located both east and west of Highway 71 - with the majority of the wind development acreage located west of Highway 71. *See BLM 2012a at Figure 3-1.* The portion of Sierra Madre located west of Highway 71 is referred to as Miller Hill, and the portion of Sierra Madre located east of Highway 71 is referred to as Sage Creek Basin. *See BLM 2012a, App. B at pp. 4-25 & 4-26. See Figure 4-10.* The Chokecherry Wind Development Area is located east of Highway 71, and is divided into Western and Eastern Chokecherry based on topography. *See BLM 2012a, App. B at p. 4-26, Figure 4-10.*

The BLM FEIS and ROD outline a detailed procedure under which PCW will submit site-specific PODs to BLM for subsequent NEPA analysis tiered "to the analysis and site-specific terms and conditions described in the ROD associated with the project-wide EIS." *See BLM 2012a at p. C-1.* The BLM ROD provides that "BLM will closely evaluate the site-specific [PODs] to determine whether the impacts exceed the [surface] disturbance estimates from the conceptual layouts that served as the basis for determining significance of impacts in the project-wide level EIS." *See BLM 2012a at p. 3-1.* The BLM ROD therefore provides that future site-specific development plans "will be screened against the analysis conducted in this EIS, and then the appropriate level of subsequent, tiered NEPA analysis will be conducted prior to BLM issuing a decision on ROW applications." *See BLM 2012a at p.3-3; BLM 2012a, App. C.* Thus, the ROD anticipated additional environmental review would be conducted by BLM.

The BLM ROD also recognizes that USFWS has jurisdiction with respect to migratory birds; therefore, the BLM ROD requires action by USFWS before BLM will issue a NTP for construction of the CCSM Project. *See BLM 2012a at pp. 3-1 & 3-4.* As explained in the BLM ROD, PCW is to provide an APP (now Eagle Conservation Plan [ECP] and BBCS) that incorporate "additional data collection activities, avoidance and minimization measures, offsite mitigation strategies that could be implemented, and monitoring to determine effectiveness of mitigation measures." *See BLM 2012a at p. 1-2.* The ROD indicates that once PCW develops an ECP and BBCS, BLM will incorporate the measures "into subsequent NEPA analyses and ROW grants." *See BLM 2012a at pp. ES-2 & 1-2.*

In sum, the BLM FEIS and ROD contemplated that "conceptual" construction plans would be refined and become "final" plans or site-specific PODs that would be evaluated as part of BLM's tiered NEPA process for the CCSM Project. The ROD also requires action by USFWS with respect to PCW's ECP and BBCS. The process set out in the ROD identifies that PCW should work with USFWS in submitting refined wind turbine layouts in the applicable site-specific PODs that implement further avoidance and minimization measures. The ROD further provides that "BLM will not issue ROW grants to PCW [ ] until USFWS issues letters of concurrence for the [BBCS] and ECPs." *See BLM 2012a at p. 3-1.*

BLM's Supplemental Tiered NEPA Analysis

PCW's 2012 POD provided that its approach to construction of the CCSM Project would be finalized and detailed in the site-specific PODs submitted to BLM. *See BLM 2012a, App. B at p. 4-1.* PCW's POD also recognized that the "[p]roject design will continue to be updated and refined to utilize the best data and information available." *See BLM 2012a, App. B at p. 4-1.*

PCW submitted four site-specific PODs covering Phase I to BLM for review. In accordance with the ROD, BLM is preparing two EAs evaluating PCW's Phase I site-specific PODs. These EAs are tiered to the BLM FEIS. EA1 is complete and addresses PCW's site-specific PODs for: (1) Phase I Haul Road and Facilities; (2) West Sinclair Rail Facility; and (3) Road Rock Quarry. A Decision Record for EA1 was issued on December 23, 2014. *See BLM 2014a.* EA2 addresses PCW's site-specific POD for the Phase I Wind Turbine Development, including 500 wind turbines and approximately 1,500 MW. BLM issued a draft of EA2 for public review and comment on March 9, 2016. USFWS and WGFD are acting as cooperating agencies on both of the EAs being prepared by BLM.

BLM held four public scoping meetings in September and December 2013 to provide the public with opportunities to provide input on each EA. BLM made a draft of EA1 available to the public for review and comment on August 11, 2014, including a draft Decision Record finding that "no new or significant impacts were identified beyond those already disclosed in the EIS." BLM issued the final Decision Record for EA1 on December 23, 2014, approving the Phase I Infrastructure Components. *See BLM 2014a.* The Decision Record clarifies BLM's intent regarding the ROD's requirements for coordination with USFWS and issuance of Notices to Proceed for the CCSM Project. According to the Decision Record, "[t]he Notice to Proceed (NTP) for individual [site-specific PODs] would be issued as permitting requirements are completed." *See BLM 2014a.* Specific to this Phase I BBCS, the Decision Record states that, "[t]he USFWS concurrence is dependent on PCW submitting a complete application for an eagle take permit, including an ECP and [BBCS] that has all the USFWS required components and is adequate for review of the application." *See BLM 2014a at p. 4.*

USFWS Compliance with NEPA

PCW has submitted applications to USFWS for BGEPA non-purposeful take permits covering activities at Phase I of the CCSM Project. On June 15, 2015, PCW filed its application for a 30-year programmatic take permit for Phase I of the CCSM Project, as well as a standard take permit for potential disturbance take that may occur during construction of Phase I. PCW's applications for eagle take permits (ETPs) incorporate its detailed ECP for Phase I. The Phase I ECP documents PCW's: (a) identification of important eagle use areas; (b) comprehensive actions it has already taken and those it has committed to implement in the future to avoid and minimize adverse effects to eagles, including its commitment to compensatory mitigation; and (c) procedures it will employ to monitor for impacts to eagles during construction and operation of Phase I. Based on its commitments in the Phase I ECP, PCW believes Phase I meets the standards in 50 C.F.R. §22.26 for issuance of ETPs for incidental take.

USFWS's consideration of PCW's applications for ETPs is a discretionary federal action that is subject to NEPA. USFWS has determined that preparation of an EIS is appropriate to comply with NEPA. PCW notified USFWS of its intent to pursue ETPs for the CCSM Project in 2012. USFWS began preparation of its EIS on December 4, 2013, with the publication of a Notice of Intent in the Federal Register. *See 78 Fed. Reg. 72,926 (December 4, 2013).* As set forth in the Notice of Intent, USFWS's purpose and need is to respond to PCW's applications and consider whether or not to issue ETPs to PCW. In responding to PCW's applications for ETPs, USFWS must ensure compliance with BGEPA and its regulations as well as USFWS's goal to maintain stable or increasing breeding populations of bald and golden eagles. While the purpose and need for USFWS's EIS is to respond to PCW's applications for ETPs, the USFWS EIS will also consider the measures included in this Phase I BBCS.

USFWS is preparing its EIS to analyze impacts to eagles, raptors, migratory birds, bats and their habitats from Phase I, to evaluate potential issuance of ETPs for Phase I in parallel with BLM's preparation of the Phase I EAs. USFWS held public scoping meetings for its EIS in Rawlins and Saratoga, Wyoming, on December 16 and 17, 2013, respectively. The USFWS Draft Environmental Impact Statement (DEIS) was issued for public review and comment on April 29, 2016. *See 81 Fed. Reg. 25,688 (April 29, 2016).* The USFWS EIS will analyze the measures described in PCW's Phase I ECP and this Phase I BBCS as well as consider and incorporate where appropriate other relevant information sources, including BLM's NEPA documentation and PCW's site-specific PODs. USFWS is a cooperating agency on the two EAs being prepared by BLM. *See "BLM's Supplemental Tiered NEPA Analysis."*

Section 7 Consultation

The ESA directs all federal agencies to work to conserve endangered and threatened species and to use their authorities to further the purposes of the Act. Section 7 of the ESA, called "Interagency Cooperation," is the mechanism by which federal agencies ensure the actions they take, including those they fund or authorize, do not jeopardize the existence of any listed species. Under section 7, federal agencies must consult with USFWS when any action the agency carries out, funds, or authorizes (such as through a permit) *may affect* a listed endangered or threatened species or designated critical habitat.

For the CCSM Project, BLM formally consulted with USFWS resulting in the issuance of a Biological Opinion (BO). *See BLM 2012a, App. F.* All reasonable and prudent measures and terms and conditions for threatened and endangered species listed in the BO will be included by BLM as requirements of any ROW grants BLM issues for the CCSM Project. *See BLM 2012a at p. 4-2; 50 C.F.R. § 402.* In addition, the BO incorporates PCW's applicant-committed measures (ACMs) from the BLM FEIS and ROD; therefore, the ACMs are mandatory requirements of the BO. *See BLM 2012a at p. 4-2.* However, implementation of the conservation measures for proposed and candidate species identified in the BO to reduce potential adverse impacts are discretionary, unless already included in PCW's ACMs. *See BLM 2012a at p. 4-2.*

The migratory birds and bats that are the subject of this Phase I BBCS are not threatened or endangered species and are therefore not protected under the ESA and are not included in the section 7 consultation process. However, when considering PCW's applications for ETPs, USFWS may conduct "intra-Service consultation" regarding threatened and endangered species, as well as proposed species, and candidate species. If necessary, this process would be completed in conjunction with USFWS's NEPA process. *See "USFWS Compliance with NEPA."*

1.3.3 State and County Permitting

In addition to complying with the requirements of BLM and USFWS, the CCSM Project is subject to state and county permitting. PCW has already obtained the principal state and county permits for the CCSM Project. The fact these permits have been issued will not negatively impact the ability of USFWS and BLM to require future modifications to the CCSM Project based on additional environmental analysis, or to enforce such modifications. Although the state and county permitting processes each have their own requirements, they complement and further the goals of BLM and USFWS to avoid, minimize and mitigate the environmental impacts of the CCSM Project. Moreover, they both require that PCW comply with all applicable federal and state laws, regulations, and standards, as well as any requirements of the federal permitting processes.

Wyoming State Permitting Process

Pursuant to Wyo. Stat. Ann. §35-12-101 *et seq.*, PCW is required to have a permit from the Wyoming Industrial Siting Council (ISC) to construct and operate the CCSM Project. On May 12, 2014, PCW filed its permit application with the Department of Environmental Quality, Industrial Siting Division. On July 18, 2014, the Division determined that PCW's application was complete pursuant to Wyo. Stat. Ann. § 35-12-109. The ISC held a two-day administrative hearing beginning on August 5, 2014, in Saratoga, Wyoming. At the end of the hearing, the ISC deliberated in public and unanimously voted to grant PCW a permit for the CCSM Project. The permit issued by ISC on September 12, 2014 requires PCW to comply with all applicable federal permits. Moreover, should BLM or USFWS require modifications to the CCSM Project, enforcement mechanisms are two-fold: (1) if PCW does not make the required modifications, BLM will not issue the ROW grants and the NTPs; and (2) PCW would be in violation of its Wyoming state permit for not meeting the applicable federal permit requirements.

Carbon County Permitting Process

PCW has obtained a Conditional Use Permit (CUP) for the CCSM Project from the Carbon County Board of Commissioners. On September 17, 2012, a public meeting of the Carbon County Planning and Zoning Commission was held, pursuant to section 5.11 of the Carbon County Zoning Resolution of 2003, as amended, in order to provide the opportunity for public comment on PCW's application for a CUP. After considering the Staff Recommendation from the Office of Planning and Development and both written and verbal public comments, the Planning and Zoning Commission voted to recommend approval of the CUP with conditions.

On October 2, 2012, the Carbon County Board of Commissioners (pursuant to section 5.11 of the Carbon County Zoning Regulations of 2003, as amended, and W.S. §18-5-501 *et seq.*) held a public meeting and convened a public hearing for purposes of allowing members of the public to comment on the CCSM Project. Following the hearing and the entry of specific findings into the record, the Board voted unanimously to approve PCW's application for a CUP.

On October 18, 2012, at a regularly scheduled meeting, the Board presented, read and adopted the Opinion of Board of County Commissioners Carbon County, Wyoming Regarding the Decision to Approve the CUP – Commercial Wind Energy Facility (C.U.W. Case File #2012-01) Rendered on October 2, 2012, (the Opinion). The Opinion reflects that the Board made specific and detailed findings of fact that: (1) according to the Carbon County Planning and Zoning Commission, the CCSM Project will comply with standards required by W.S. §18-5-504 and with all applicable zoning and county land use regulations; (2) the application for the CCSM Project meets all standards and requirements of W.S. §18-5-501 *et seq.* and all applicable zoning and county land use regulations; and (3) the CCSM Project is in general conformance with the Carbon County Comprehensive Land Use Plan, as amended, and otherwise promotes the health, safety and general welfare of the residents of Carbon County.

The CUP contains the following conditions of approval:

- Nothing in this permit's conditions is intended to preempt other applicable State and Federal laws or regulations. All WECS[5] Project facilities shall be constructed to meet and be maintained in compliance with all Federal, State, and County requirements, including all Wyoming Industrial Siting Council requirements.

- This Permit is subject to final approval and issuance of a permit by the Industrial Siting Council and a ROW grant by the Bureau of Land Management. The Applicant(s) shall submit a copy of all subsequent Federal and State approvals, including all required studies, reports and certifications prior to the issuance of any building permits.

These permit conditions ensure that any requirements imposed by BLM or USFWS subsequent to Carbon County's issuance of the CUP will be enforced. On July 15, 2014, the Carbon County Board of County Commissioners approved a one-year extension of the Conditional Use Permit's requirement to commence construction within two years of the original date of issuance. On July 2, 2015, PCW applied to the Carbon County Board of County Commissioners for an additional two-year extension of the Conditional Use Permit's requirement to commence construction within two years of the original date of issuance. If approved, the extension would require commencement of construction by October 2, 2017.

[5] WECS means Wind Energy Conversion System. *See Carbon County §5.11 Wind Energy Overlay-District Regulations, Approved April 5, 2011 at 5.11(c)(1).*

1.4 PCW's Objectives and Environmental Commitment

PCW is a limited liability company organized in Delaware and authorized to do business in Wyoming. The company is indirectly wholly-owned by The Anschutz Corporation (Anschutz), an energy and natural resource company based in Denver, Colorado. Anschutz is a diversified company with worldwide investments in energy exploration, ranching and agriculture, lodging, transportation, telecommunications, and entertainment including music, sports and film production. PCW was formed to develop the CCSM Project.

1.4.1 Objectives

PCW's objectives for the CCSM Project are detailed in its POD submitted to BLM in conjunction with BLM's preparation of the FEIS and are also detailed in BLM's ROD. *See BLM 2012a at §3.6.2.* Generally, PCW's objectives for the CCSM Project are to help satisfy the projected future market for power from renewable energy sources by extracting the maximum potential wind energy from the site and developing a 3,000 MW wind energy project consisting of up to 1,000 wind turbines. As reflected in the ROD, "[t]hrough a confidential economic analysis reviewed by the National Renewable Energy laboratory, the applicant has determined that a project size of up to 1,000 wind turbines for the Application Area would provide the greatest return on investment using the highest capacity wind turbines commercially available at the time of development." *See BLM 2012a.* Originally, PCW determined that the Application Area could host up to 2,387 wind turbines. However, 397 wind turbines were removed from greater sage-grouse cores areas designated in Wyoming Executive Order 2011-5, Attachment A, Sage-Grouse Core Breeding Areas Version 3 (Core Areas), 52 wind turbines were removed from below-acceptable wind resource areas, and spacing between wind turbines was increased to avoid significant wake losses further decreasing the potential project size. *See BLM 2012a.* The resulting CCSM Project size of 1,000 wind turbines was considered in the economic analysis reviewed by NREL.

PCW's objectives for Phase I are tied closely to PCW's objectives for the CCSM Project as a whole. As described in the site-specific POD for the Phase I Wind Turbine Development, PCW has determined that developing the CCSM Project in two phases of 500 wind turbines (1,500 MW) each will achieve its purpose and need for the CCSM Project. S*ee PCW 2015b.* This overall size and phased approach is supported by the current market for renewable energy in the Desert Southwest and independent studies by both the NREL and the Western Electricity Coordinating Council (WECC). *See PCW 2015b.* PCW's objectives for Phase I are detailed in its site-specific POD for the Phase I Wind Turbine Development. However, generally, PCW's objectives for Phase I are to permit and build an economically viable project and to extract the maximum potential wind energy from the site by developing the first phase of the CCSM Project consisting of 500 wind turbines with an installed capacity of 1,500 MW.

1.4.2 Environmental Commitment

PCW's approach to development of the CCSM Project is novel because during the process, PCW maintained the flexibility that allowed it to significantly redesign the project from what was originally proposed. PCW has adjusted wind turbine layouts multiple times when finalizing the site-specific POD for the Phase I Wind Turbine Development as more information became available regarding the applicable environmental and site constraints and wildlife considerations. Through iterative application of the tiers identified in the USFWS Wind Energy Guidelines, PCW has substantially revised the CCSM Project from the original Wind Energy Application Area and its original Proposed Action to address potential environmental risks to species of concern, including migratory birds and bats. *See Section 5.1.*

Further, PCW is in the unique position of being able to partner with an affiliate to use the approximately 320,000-acre Ranch for the development of the CCSM Project. Since the 1990s, PCW affiliate TOTCO has owned and operated one of the largest cattle ranching operations in the West. TOTCO has been a part of the Carbon County community and a steward of the land and wildlife resources on the Ranch for over 15 years. PCW has a wind easement, access easement, transmission easement and other non-exclusive rights with respect to TOTCO's privately-owned land on the Ranch. The CCSM Project will result in long-term surface disturbance of less than 2,000 acres of the 320,000-acre Ranch, and ranching operations will continue without material change during construction and operation of the project.[6]

In sum, PCW has demonstrated its commitment to building and operating the CCSM Project in an environmentally responsible manner. Responsible development includes taking measures, such as those documented in this Phase I BBCS to avoid, minimize, and mitigate the CCSM Project's impact to wildlife populations, including migratory birds and bats, within the CCSM Project Site. The evolution of the CCSM Project illustrates: (1) PCW's attention to the early determination of potential environmental risks at the landscape scale; (2) PCW's adjustment of the CCSM Project siting and design based on species of concern and their habitat; (3) PCW's evaluation of potential environmental risks on the adjusted CCSM Project Site based on site-specific data; and (4) PCW's adjustment/limitation of the areas of potential wind turbine development on the CCSM Project Site to avoid, minimize, and mitigate the impacts to migratory birds, bats, and non-avian species.

[6] Surface disturbance is used to define project areas and is not intended to represent the full range of direct and indirect impacts to migratory birds and bats. *See Section 1.1*.

2.0 Regulatory Framework

There is a comprehensive and complex existing legal framework designed to protect migratory birds and bats. This framework includes statutes in the United States Code (U.S.C.), federal regulations, state statutes, state regulations, the USFWS Wind Energy Guidelines, the WGFD State Wildlife Action Plan (SWAP), and the WGFC Wind Energy Recommendations. Brief summaries of the major components of this legal framework are set out below. While not all of the legal authorities summarized in this section apply to this Phase I BBCS, which is limited in scope to migratory birds and bats, they are included to provide context.

2.1 Migratory Bird Treaty Act[7]

The Migratory Bird Treaty Act (MBTA) is the cornerstone of migratory bird conservation and protection in the United States. The MBTA implements four treaties that provide for international protection of migratory birds. It has been described as a strict liability statute, meaning that proof of intent, knowledge, or negligence is not an element of an MBTA violation. Under the statute, actions resulting in a "taking" or possession (permanent or temporary) of a protected species, in the absence of an USFWS permit or regulatory authorization, are a violation of the MBTA.

The MBTA provides, "[u]nless and except as permitted by regulations . . . it shall be unlawful at any time, by any means, or in any manner to pursue, hunt, take, capture, kill . . . possess, offer for sale, sell . . . purchase . . . ship, export, import . . . transport or cause to be transported . . . any migratory bird, any part, nest, or eggs of any such bird . . . . [The MBTA] prohibits the taking, killing, possession, transportation, import and export of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior." *See 16 U.S.C. § 703.* The word "take" is defined by regulation as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect." *See 50 C.F.R. § 10.12.*

The MBTA provides criminal penalties for persons who commit any of the acts prohibited by the statute in section 703 on any of the species protected by the statute. *See 16 U.S.C. § 707.*

USFWS maintains a list of all species protected by the MBTA at 50 C.F.R. § 10.13. This list includes over 1,000 species of migratory birds, including eagles and other raptors, waterfowl, shorebirds, seabirds, wading birds, and passerines. The MBTA does not protect introduced species such as the house (English) sparrow, European starling, rock dove (pigeon), Eurasian collared-dove, and non-migratory upland game birds. USFWS maintains a list of introduced species not protected by the Act. *See 70 Fed. Reg. 12,710 (2005)*.

[7]Drawn from USFWS 2012a at p. 2.

2.2 Bald and Golden Eagle Protection Act[8]

This Phase I BBCS addresses migratory birds and bats other than bald and golden eagles. PCW has developed an ECP for Phase I and has applied for eagle take permits as described in section 1.3.2. Therefore, a brief summary of the Bald and Golden Eagle Protection Act (BGEPA) is provided for reference. Detailed information on the regulatory framework surrounding bald and golden eagles and PCW's commitments to avoid and minimize impacts to bald and golden eagles is included in the Phase I ECP. *See PCW 2015a.*

Under the authority of BGEPA, 16 U.S.C. §§ 668–668d, bald eagles and golden eagles are afforded additional legal protection. BGEPA prohibits the "take, sale, purchase, barter, offer of sale, purchase, or barter, transport, export or import, at any time or in any manner of any bald or golden eagle, alive or dead, or any part, nest, or egg thereof." *See 16 U.S.C. § 668.* BGEPA also defines take to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb," and includes criminal and civil penalties for violating the statute. *See 16 U.S.C. § 668.* USFWS has further defined the term "disturb" as agitating or bothering an eagle to a degree that causes, or is likely to cause, injury, or either a decrease in productivity or nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior. *See 50 C.F.R. § 22.3*. Through its authority for implementation of BGEPA USFWS may permit the take of eagles for certain purposes and under certain circumstances, including scientific or exhibition purposes, religious purposes of Indian tribes, and the protection of wildlife, agricultural, or other interests, so long as that take is compatible with the preservation of eagles. *See generally, 16 U.S.C. § 668(a).*

2.3 Endangered Species Act[9]

This BBCS addresses migratory birds and bats within Phase I of the CCSM Project. No migratory birds or bats that are listed, proposed, or candidate endangered and threatened species occur within Phase I of the CCSM Project. Nevertheless, while the provisions of the Endangered Species Act (ESA) do not apply to the species addressed in this Phase I BBCS, a summary of the ESA is provided for reference.

The purpose of the ESA is to protect and recover imperiled species and the ecosystems upon which they depend. USFWS administers the ESA for terrestrial and freshwater organisms. Under the ESA, species may be listed as either endangered or threatened. "Endangered" means a species is in danger of extinction throughout all or a significant portion of its range. "Threatened" means a species is likely to become endangered within the foreseeable future. For the United States, all native species of plants and animals, except pest insects, are eligible for listing under ESA as endangered or threatened. The ESA directs USFWS to identify and protect endangered and threatened species and their critical habitat, and to provide a means to conserve their ecosystems.

8Drawn from USFWS 2012a at pp. 2 & 3.
9Drawn from USFWS 2013a at p. 2 and USFWS 2013c.

Section 7 of the ESA requires federal agencies to use their legal authorities to promote the conservation purposes of the ESA and to consult with USFWS, as appropriate, to ensure that effects of actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of listed species. During consultation the "action" agency receives a "biological opinion" or concurrence letter addressing the proposed action. BLM consulted with USFWS under section 7 of the ESA for the CCSM Project. The biological opinion for the CCSM Project is included in BLM's ROD. *See BLM 2012a at App. F.* As noted in section 1.3.2, "[t]he USFWS concurrence [for Phase I] is dependent on PCW submitting a complete application for an eagle take permit, including an ECP and [BBCS] that has all the USFWS required components and is adequate for review of the application." *See BLM 2014a at p. 4.*

Section 9 of the ESA prohibits take of federally-listed species. Take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." *See 16 U.S.C. §1532.* The term "harm" is defined as "an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering." *See 50 C.F.R. §17.3.* The ESA imposes civil and criminal penalties for violations of the statute or its regulations.

2.4 U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines[10]

To reduce impacts to migratory birds, bats, and their habitats from wind energy facilities, USFWS advises wind energy project developers to follow the voluntary USFWS Land-Based Wind Energy Guidelines (USFWS Wind Energy Guidelines). *See USFWS 2012a*. The Wind Energy Guidelines were developed by USFWS working with the Department of the Interior Wind Turbine Guidelines Advisory Committee, a federal advisory committee consisting of representatives of the wind energy industry, conservation groups, state wildlife agencies, and USFWS. They replace interim voluntary guidance issued by USFWS in 2003.

The final voluntary USFWS Wind Energy Guidelines provide a structured, scientific process for addressing wildlife conservation concerns at all stages of land-based wind energy development. They also promote effective communication among wind energy developers and federal, state, and local conservation agencies and tribes. When used in concert with appropriate regulatory tools, the USFWS Wind Energy Guidelines form the best practical approach for conserving species of concern. The USFWS Wind Energy Guidelines discuss various risks to "species of concern" from wind energy projects, including collisions with wind turbines and associated infrastructure; loss and degradation of habitat from wind turbines and infrastructure; fragmentation of large habitat blocks into smaller segments that may not support sensitive species; displacement and behavioral changes; and indirect effects such as increased predator populations or introduction of invasive plants. *See USFWS 2012a at p. 7.* The USFWS Wind Energy Guidelines assist developers in identifying species of concern that may potentially be affected by their proposed project, including migratory birds; bats; bald and golden eagles and other

[10]Drawn from USFWS2012a at vi and vii.

birds of prey; prairie grouse and sage-grouse; and listed, proposed, or candidate endangered and threatened species. *See USFWS 2012a at p. 7.*

The USFWS Wind Energy Guidelines recommend a "tiered approach" for assessing potential adverse effects to species of concern and their habitats. The tiered approach is an iterative decision-making process for collecting information in increasing detail; quantifying the possible risks of proposed wind energy projects to species of concern and their habitats; and evaluating those risks to make siting, construction, and operation decisions. During pre-construction tiers (Tiers 1, 2, and 3), developers work to identify, avoid and minimize risks to species of concern. During post-construction tiers (Tiers 4 and 5), developers assess whether actions taken in earlier tiers to avoid and minimize impacts are successfully achieving the goals and, when necessary, take additional steps to compensate for impacts. Subsequent tiers refine and build upon issues raised and efforts undertaken in previous tiers. Each tier offers a set of questions to help developers evaluate the potential risk associated with developing a project at the given location.

The tiered approach provides the opportunity for evaluation and decision-making at each stage, enabling a developer to abandon or proceed with project development, or to collect additional information if required. This approach does not require that every tier, or every element within each tier, be implemented for every project. Instead, the tiered approach allows efficient use of developer and agency resources with increasing levels of effort. The USFWS Wind Energy Guidelines also provide Best Management Practices (BMPs) for site development, construction, retrofitting, repowering, and decommissioning.

The USFWS Wind Energy Guidelines include a Communications Protocol that provides guidance to both developers and USFWS personnel regarding appropriate communication and documentation. Adherence to the USFWS Wind Energy Guidelines is voluntary and does not relieve any individual, company, or agency of the responsibility to comply with laws and regulations. However, USFWS recommends that a BBCS be prepared in accordance with the USFWS Wind Energy Guidelines. USFWS has informed PCW that this Phase I BBCS should be prepared for Phase I in accordance with its Wind Energy Guidelines and that both the Phase I BBCS and Phase I ECP should be stand-alone documents. *Region 6, USFWS, personal communication, 2013*.

2.5 Wyoming Game and Fish Department State Wildlife Action Plan[11]

State Wildlife Action Plans (SWAPs) are comprehensive wildlife conservation strategies to maintain the health and diversity of wildlife within a state, including species with low and declining populations. *See WGFD 2010 at p. I-1-1.* They contain broad-based strategies to meet this goal, including conservation strategies aimed at preventing the need for listing additional species under the ESA. Special emphasis is given in the Wyoming SWAP to addressing wildlife species that have historically received less conservation attention, including those that are not hunted or fished. *See WGFD 2010 at p. I-2-1.*

[11] Drawn from WGFD 2010.

According to the Wyoming SWAP, conserving Wyoming's wildlife species is heavily dependent upon the future quantity and quality of available habitat, both terrestrial and aquatic. *See WGFD 2010 at p. I-2-2.* In turn, the amount and condition of available wildlife habitat is influenced by the success in developing strategies to address the issues which are having the greatest impact on wildlife and habitat resources. Accordingly, to develop conservation strategies, the Wyoming SWAP identifies: (1) the five leading conservation challenges in the state; (2) the terrestrial habitats and aquatic basins within the state; and (3) the wildlife species of greatest conservation need. The Wyoming SWAP then recommends appropriate conservation actions and strategies for these habitats and species.

The Wyoming SWAP addresses many of the migratory bird and bat species that are the subject of this Phase I BBCS. Further, the Wyoming SWAP specifically designates energy development, including wind energy, as one of five leading wildlife conservation challenges in Wyoming. *See WGFD 2010 at p. II-i-1.* To proactively address the wildlife conservation challenges identified in the Wyoming SWAP while balancing the interest in and opportunity to develop Wyoming's wind energy, the WGFC developed recommendations for wind energy development that incorporate many of the conservation actions included in the 2010 SWAP. *See WGFC 2010.*

2.6 Wyoming Game and Fish Commission Wildlife Protection Recommendations for Wind Energy Development in Wyoming

The WGFC serves as the policy-making board of the WGFD and through the WGFD, the WGFC provides a system of control, propagation, management, protection, and regulation for all wildlife in Wyoming. *See W.S. § 23-1-301:303 & W.S. § 23-1-401.* The WGFC Wind Energy Recommendations are "the result of a decision by the WGFC to address the need to protect wildlife resources while wind energy is developed in the state." *See WGFC 2010 at p. i.* The recommendations are a proactive step toward balancing Wyoming's desire to develop its wind energy resources "while affording adequate protection of the state's wildlife resources from activities associated with development of a wind industry." *See WGFC 2010 at p. i.*

The WGFC Wind Energy Recommendations provide recommendations for: (1) collecting baseline data prior to wind turbine siting to avoid potential conflicts with wildlife; (2) construction and operation monitoring; and (3) mitigating impacts to affected wildlife. *See WGFC 2010 at p. ii.* The WGFC Wind Energy Recommendations recognize that not all of the recommendations in the document are applicable to all wind energy projects and states that the recommendations are intended to be applied based on site-specific project characteristics. Therefore, the WGFC Wind Energy Recommendations advise early consultation with WGFD to determine applicability and develop site-specific recommendations. *See WGFC 2010 at p. 31.* As noted in the WGFC Wind Energy Recommendations, the recommendations contained in the document are voluntary and the role of WGFC and WGFD is consultative. *See WGFC 2010 at p. i.* This Phase I BBCS documents PCW's coordination with WGFD on the CCSM Project and its adoption of the applicable provisions of the WGFC Wind Energy Recommendations consistent with the site-specific characteristics of Phase I.

2.7 Avian Power Line Interaction Committee (APLIC) Guidance

The Avian Power Line Interaction Committee (APLIC) leads the electric utility industry in protecting avian resources while ensuring reliable electric energy delivery. Since its inception in 1989, APLIC has addressed a variety of avian interactions with electric facilities including electrocutions, collisions, nests, and avian impacts associated with construction activities. At present, APLIC membership includes over 50 electric utilities, the Edison Electric Institute, USFWS, National Rural Electric Cooperative Association, and Rural Utilities Service.

APLIC provides electric utilities, wildlife agencies, and other stakeholders with suggested practices, guidance, and recommendations for reducing bird electrocutions and collisions with electric power lines based on the most current information. APLIC has issued guidance designed to reduce operational and avian risks by identifying minimization methods for avian electrocutions and collisions, including its Suggested Practices for Avian Protection of Power Lines: State of the Art in 2006 (2006 Suggested Practices) and Mitigating Bird Collisions with Power Lines: The State of the Art in 2012 (Collision Manual). *See APLIC 2006; APLIC 2012.* In addition, APLIC released national APP Guidelines in conjunction with USFWS in 2005. *See APLIC 2005.* The measures outlined in the APP Guidelines, the 2006 Suggested Practices, and the Collision Manual are designed to avoid and minimize risk to migratory birds.

3.0 Project Description and Environmental Setting

This BBCS is limited in scope to Phase I of the CCSM Project. Phase II of the CCSM Project will have a separate BBCS; however, portions of this chapter describe the CCSM Project as a whole to provide context.

The CCSM Project, as described in this chapter, represents the culmination of more than eight years of data collection, planning, and design, considering the environmental analysis completed by BLM, and collaboration and communication with USFWS, various non-governmental organizations, and state and local agencies, such as WGFD.

3.1 Phase I Description

PCW is developing the CCSM Project in two phases. *See Figure 3.1.* The proposed CCSM Project consists of 1,000 wind turbines capable of generating up to 3,000 MW of clean, renewable wind energy. Phase I consists of 500 wind turbines located in the western portions of two Wind Development Areas (WDAs) referred to as "Chokecherry" and "Sierra Madre" and associated infrastructure including the Road Rock Quarry, West Sinclair Rail Facility and Phase I Haul Road and Facilities. Phase I consists of 849 acres of long-term surface disturbance within the 74,066 acre Phase I Development Area.[12] *See Section 3.2.* Phase II will include 500 wind turbines and associated infrastructure located in the eastern portions of the Chokecherry and Sierra Madre WDAs. The significance of the WDAs is that these are the only areas in which PCW will install wind turbines.

[12] Surface disturbance is used to define project areas and is not intended to represent the full range of direct and indirect impacts to migratory birds and bats. *See Section 1.1*.

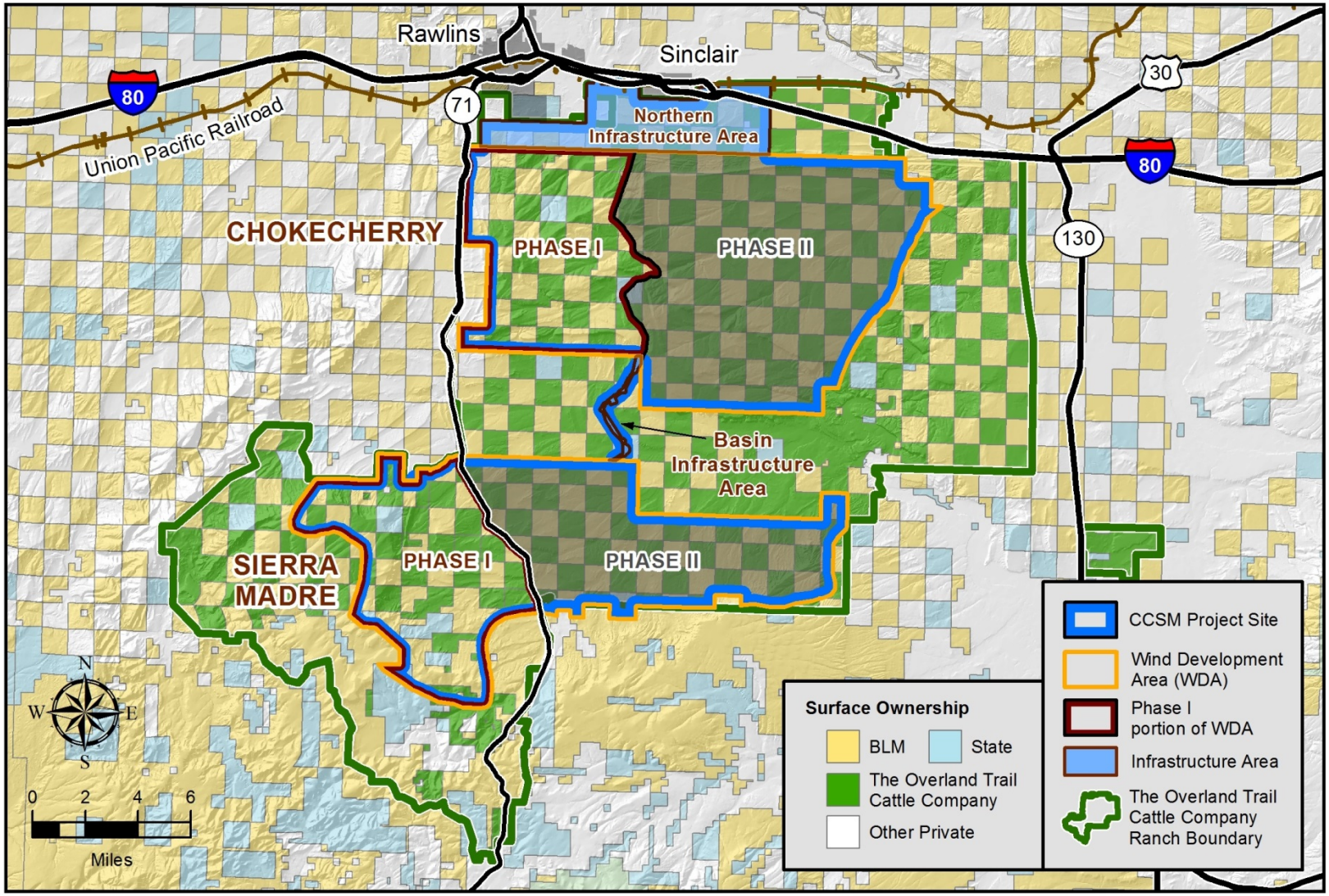

Figure 3.1. CCSM Project Overview.

As shown on Figure 3.2, Phase I within the Chokecherry WDA primarily includes the area west of the Haul Road. Within the Sierra Madre WDA, Phase I includes the area west of Highway 71/County Road 401. PCW submitted site-specific PODs to BLM for each component of Phase I. *See PCW 2014b; PCW 2014c; PCW 2014d; PCW 2015b*. As described in section 1.3.2, BLM issued its final Decision Record approving the Phase I Infrastructure Components (Phase I Haul Road and Facilities, West Sinclair Rail Facility, and Road Rock Quarry) on December 23, 2014, and is currently analyzing the Phase I Wind Turbine Development. The Phase I components included in each site-specific POD are summarized below and shown on Figure 3.2.

- **Phase I Haul Road and Facilities.** The Phase I Haul Road and Facilities include the Haul Road, certain arterial and facility access roads, water facilities, and laydown yards. *See PCW 2014c.* The Haul Road begins at the northern entrance to the CCSM Project where it connects to County Road [CR] 407. The Haul Road then travels west connecting to the West Sinclair Rail Facility and then south through the center of the Chokecherry WDA and finally through the Sierra Madre WDA.
- **West Sinclair Rail Facility (Rail Facility).** The West Sinclair Rail Facility consists of a rail connection to the Union Pacific Railroad main line between Rawlins and Sinclair and an associated laydown yard to receive, temporarily stage, and deliver components and construction-related materials. *See PCW 2014d.* The Rail Facility connects with the CCSM Project and is designed to minimize impacts on public roadways, provide more cost-effective transportation, and promote efficient project construction activities. The approximately 23 kilometers (14 miles) of track feature a wye, a lead track, a running track, a loop track, and several unloading areas. Vehicle access to the Rail Facility is from Interstate 80 (I-80), Exit 221 via the Haul Road.
- **Road Rock Quarry (Quarry).** Situated on private land within the CCSM Project Site at the location of an existing quarry approximately 3 kilometers (2 miles) south of Rawlins, the Road Rock Quarry will provide road construction material for the CCSM Project. *See PCW 2014b.* The Quarry will improve the efficiency of the CCSM Project by decreasing the number of train and truck trips from offsite quarries to the CCSM Project necessary for road base aggregate. The Quarry will be accessed via the Haul Road. Activities at the Quarry will involve surface rock mining and processing of sandstone and shale. The Quarry includes the excavation area, material processing area, materials storage piles, and the quarry access road (approximately 8 kilometers [5 miles] long).
- **Phase I Wind Turbine Development.** The Phase I Wind Turbine Development includes 500 wind turbines and associated elements for the CCSM Project such as roads, electrical lines, substations, operation and maintenance buildings, meteorological towers, utilities, and temporary construction features. *See PCW 2015b.* The Phase I Wind Turbine Development includes 202 wind turbines in the Chokecherry WDA and 298 wind turbines in the Sierra Madre WDA. The areas within the Phase I portions of the WDAs in which wind turbines will be constructed are referred to as Turbine Build Areas.

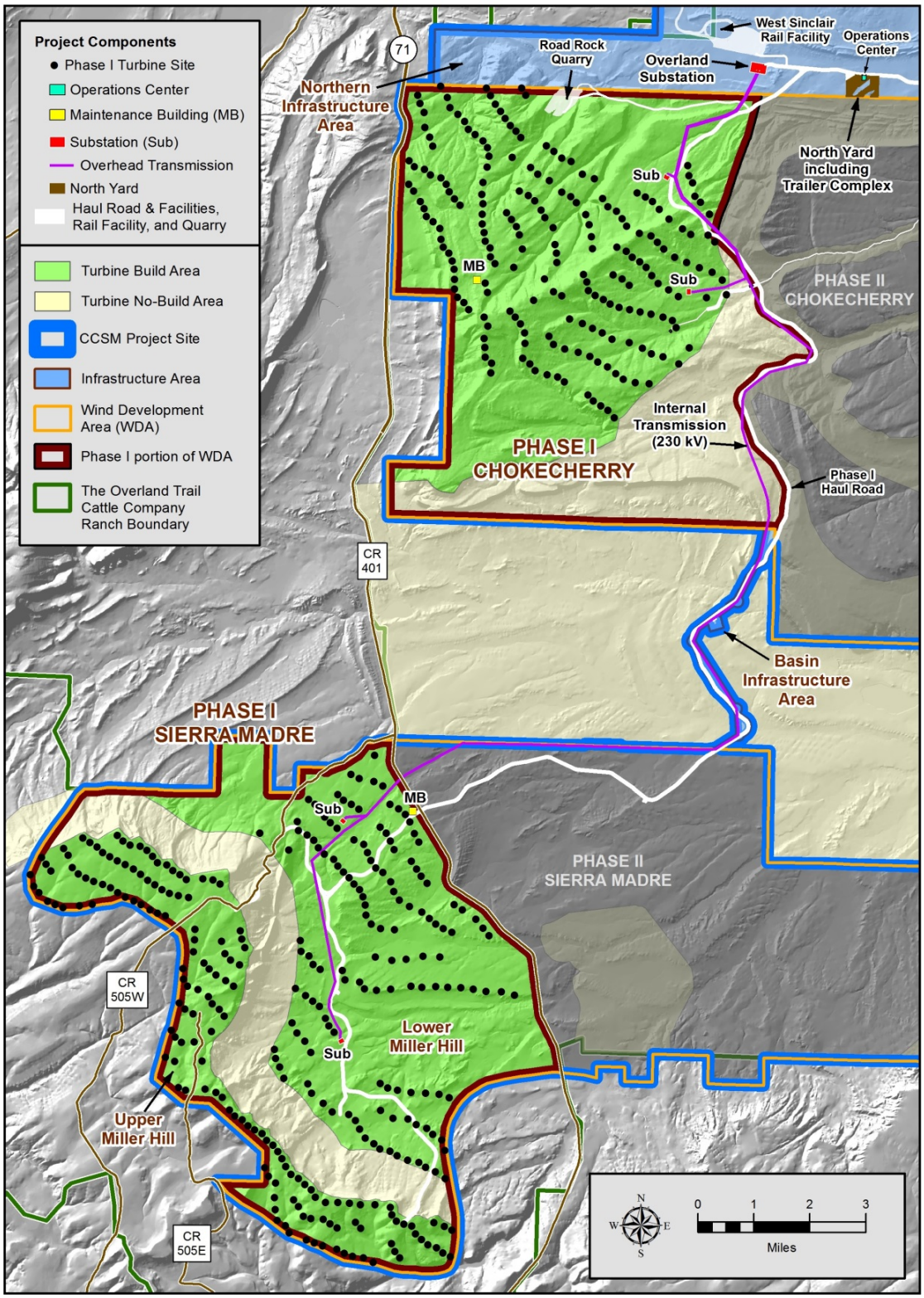

Figure 3.2. Phase I Layout.

3.1.1 Design

The Phase I Wind Turbine Development layout was developed in coordination with BLM, USFWS and WGFD using detailed site-specific information. The layout was designed to meet PCW's goals and objectives for the CCSM Project and Phase I while complying with BLM's ROD and guidance from USFWS and WGFD to avoid and minimize environmental impacts. The ROD considered and adopted numerous environmental constraints, applicant-committed measures, and mitigation measures to avoid or minimize environmental impacts. *See BLM 2012a at p. 3-13*. In addition, the USFWS Wind Energy Guidelines and the WGFC Wind Energy Recommendations recommend extensive measures including collecting site-specific survey data and the application of avoidance and minimization measures. *See USFWS 2012a; WGFC 2010.* In compliance with the ROD and the USFWS and WGFC guidance, PCW collected site-specific data and used a rigorous micrositing process to design the Phase I Wind Turbine Development.

As an initial matter, PCW's ability to site wind turbines was constrained to the WDAs as designated by BLM in the ROD. Within these designated WDAs, PCW used a four-step process to microsite the wind turbines for the Phase I Wind Turbine Development layout:

1. Gather technical data;
2. Complete field review;
3. Gather resource data; and
4. Incorporate agency input.

The Phase I wind turbine layout and infrastructure design went through numerous iterations. This process is described in more detail in chapter 4.0 of this Phase I BBCS. Figure 3.2 shows the Phase I wind turbine layout resulting from the design process, including PCW's consultation with USFWS and WGFD as described in this Phase I BBCS.

3.1.2 Wind Turbines

Wind turbines are designed according to industry standards to meet a range of wind and site conditions. For utility-scale wind turbines such as those required for the CCSM Project, vendors will review the Project's wind data and offer a model(s) that meets the requirements of the observed and predicted wind conditions. PCW is still evaluating wind turbine options for Phase I; however, all wind turbine models under consideration have the same general configuration, i.e. single-rotor, three-bladed upwind horizontal-axis design on a tubular tower. PCW will select wind turbine model(s) to maximize wind energy development potential while meeting the specifications identified as part of BLM's site-specific NEPA analyses and the specifications identified in this Phase I BBCS.

As analyzed in the BLM FEIS, all wind turbine models under consideration for the CCSM Project have a maximum tower height of 100 meters (328 feet) from ground level to the wind turbine hub and a maximum rotor diameter of 120 meters (394 feet). *See Figure 3.3 & Table 3.1.* While these dimensions represent the largest wind turbine dimensions under consideration, wind turbines that are presently being evaluated by PCW range in height from 80 meters (262 feet) to 85 meters (279 feet) with rotor diameters of 101 meters (331 feet) to 112 meters (367 feet). The area between the top of the rotor plane and the bottom of the rotor plane is referred to as the rotor swept zone (RSZ). Any wind turbine model selected by PCW will be painted the standard manufacturer color (approximately 5% grey) unless otherwise specified by BLM and approved by the Federal Aviation Administration (FAA).

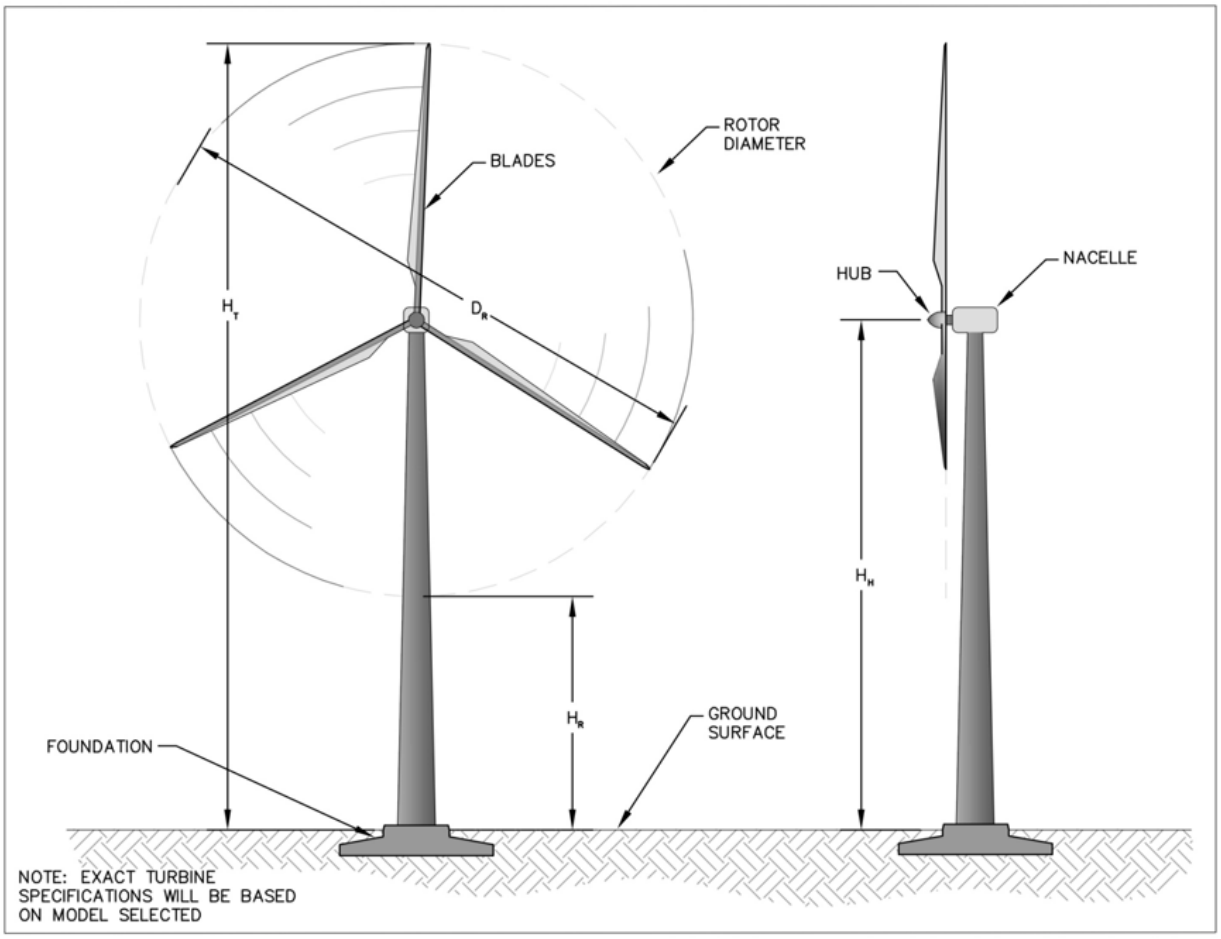

Figure 3.3. Wind Turbine Schematic.

Table 3.1. Phase I Wind Turbine Attributes.

Turbine Attribute	Expected Range
Rated Power	1.5 – 3.0 MW
Rotor Diameter (D_R)	253 – 394 ft. (77 – 120 m)
Tower Height (H_H)	256 – 328 ft. (78 – 100 m)
Top of Rotor Plane (H_T)	383 – 525 ft. (117 – 160 m)
Bottom of Rotor Plane (H_R)	130 – 197 ft. (40 –60 m)
Tower Type	Tubular Steel
Turbine Color	RAL 7035 (roughly 5% gray) or similar
Cut-In Wind Speed	7 – 9 mph (3 – 4 m/s)
Nominal Wind Speed	27 – 34 mph (12 – 15 m/s)
Cut-Out Wind Speed	48 – 56 mph (20 – 25 m/s)
Rotor Speed	4 – 20 RPM

3.1.3 Overhead Electrical System

The Phase I wind turbines are electrically connected via a 34.5kV electric collection system. The electric collection system transmits electricity from the individual wind turbines via overhead power lines to four collection substations. The Phase I 230 kV overhead transmission lines then connect to the collection substations and transfer the electrical generation from the collection substations to the interconnection substation where the electricity enters the regional electric grid. Detailed information on the Phase I electric collection and transmission system design is included in the Phase I Wind Turbine Development site-specific POD. *See PCW 2015b.*

The major equipment of the Phase I electric substations includes power transformers, aluminum and steel buswork and structures, circuit breakers and other protective devices, relaying and control instrumentation, area lighting, and a control house. The electric collection and transmission systems connect to the substations and wind turbines using a combination of underground cables and overhead lines. The design of the Phase I electric systems, including overhead electric line structure types and where underground and overhead lines are used, is based on the wind turbine and substation locations as well as a wide range of technical, environmental, and economic factors. Drawings of the Phase I overhead electric line structures and an example of a collection substation layout are included in Appendix C.

3.1.4 Surface Disturbance

This section discusses the types and extent of the Phase I surface disturbance. Surface disturbance is used to define project areas and is not intended to represent the full range of direct and indirect impacts to migratory birds and bats. Therefore, this discussion is not intended to provide the impacts analysis and disclosures required of federal agencies under the National Environmental Policy Act (NEPA). As describe in section 1.3.2, both the USFWS and BLM have prepared NEPA documentation to analyze the impacts of Phase I to migratory birds and bats and their habitats. This Phase I BBCS references these impact analyses where appropriate to evaluate risks to migratory birds and bats from Phase I.

Phase I surface disturbance includes initial surface disturbance, long-term surface disturbance, and activity areas. Initial surface disturbance is the total area that will be disturbed for construction of Phase I. Initial surface disturbance is inclusive of long-term surface disturbance, which consists of areas that will remain disturbed during operation of Phase I. Finally, activity areas are defined areas where activities may occur that do not require surface disturbance (would not be cleared or graded), e.g. locations for personnel to walk holding taglines that stabilize wind turbine component during lifts. Thick vegetation higher than one foot in activity areas may be trimmed to allow for safe vehicle access and minimize fire potential. Table 3.2 shows the estimated initial and long-term surface disturbance, as well as activity areas for Phase I by site-specific POD and cumulatively.

Table 3.2. Phase I Surface Disturbance and Activity Area Estimates.

Site-specific Plan of Development	Initial Surface Disturbance (acres)	Long-Term Surface Disturbance (acres)	Activity Area (acres)
Phase I Haul Road and Facilities	875	225	0
West Sinclair Rail Facility	370	121	0
Road Rock Quarry	184	18	0
Phase I Wind Turbine Development	3,035	485	440
Total Surface Disturbance	**4,464**	**849**	**N/A**

3.1.5 Schedule

Phase I construction is anticipated to begin in 2016 and be complete by 2020 as shown in Table 3.3. The Phase I schedule is designed to first open the site to road and rail access, then establish the on-site quarry, and finally proceed with wind turbine construction. In accordance with PCW's objective to develop the highest wind energy potential areas first, the Phase I portion of the Sierra Madre WDA will be constructed first followed by the Phase I portion of the Chokecherry WDA. PCW anticipates the installation of 229 wind turbines in 2019 and another 271 wind turbines in 2020. Following construction, Phase I has a proposed life of 30 years after which, subject to market conditions, it may be repowered as necessary to continue its operations.

Table 3.3. Phase I Construction Schedule.

Facility	2016	2017	2018	2019	2020[1]
Phase I Haul Road and Facilities					
Roads	Construct	Construct			
Laydown yards	Construct	Construct	Operate	Operate	Operate
Water facilities	Construct	Construct	Operate	Operate	Operate
West Sinclair Rail Facility					
Rail Facility		Construct	Construct	Operate	Operate
Access road	Construct				
Laydown yards		Construct	Construct	Operate	Operate
Road Rock Quarry					
Quarry	Construct	Mobilize & Operate	Operate	Operate	Operate
Access road	Construct				
Phase I Wind Turbine Development					
Roads			Construct	Construct	Construct
Wind turbine sites			Construct	Construct	Construct
Wind turbines				Construct/Operate[2]	Construct/Operate[2]
Substations and Transmission				Construct	Construct
Facilities		Construct	Construct	Construct	Construct

Notes:

1. Reclamation activities associated with Phase I construction will begin concurrent with construction in 2016 and may extend beyond 2020.
2. Wind turbines will be brought online as they are constructed. For purposes of this Phase I BBCS, commencement of commercial operation is considered to be the date that all 500 Phase I wind turbines are brought online and are available for dispatch. This is anticipated to occur at the end of the 2020 construction season.

3.2 Land Ownership

Phase I is located in Carbon County, Wyoming, within the bounds of the Ranch and the CCSM Project Site. The Ranch and CCSM Project Site boundaries are discussed below because they provide context for the environmental setting of Phase I and the conservation measures that will be discussed in subsequent chapters. As previously described, Phase I consists of 4,464 acres of initial surface disturbance, 849 acres of long-term surface disturbance, and 440 acres of activity areas over the approximately 74,066-acre Phase I Development Area.[13] *See Sections 3.2.3 & 3.2.4.*

3.2.1 Overland Trail Ranch

Since the 1990s, PCW affiliate TOTCO has owned and operated the Ranch, one of the largest cattle ranching operations in the West. Located south of the City of Rawlins and Town of Sinclair in Carbon County, Wyoming, the Ranch encompasses approximately 320,000 acres or 500 square miles. *See Figure 3.1.* As described in chapter 1.0, the Ranch is located in Wyoming's "checkerboard" country. The checkerboard consists of alternating square miles of private land, largely owned by TOTCO, and federal land managed by BLM and leased to TOTCO for grazing, along with a small portion of Wyoming State Land Board and WGFD-managed land.

3.2.2 CCSM Project Site

The CCSM Project Site is located within the Ranch boundary but excludes the western most portions of the Ranch on top of Miller Hill and areas east of the North Platte River. *See Figure 3.1.* The CCSM Project Site expressly excludes any part of: (1) designated greater sage-grouse Core Areas identified by the State of Wyoming under the Governor's Executive Order 2011-5 (EO 2011-5 Version 3 map); and (2) the Red Rim-Grizzly Wildlife Habitat Management Area (WHMA) identified by BLM in the FEIS.

3.2.3 Phase I Development Area

The Phase I Development Area consists of the Phase I portions of the Chokecherry and Sierra Madre WDAs and two infrastructure areas, the Northern and Basin Infrastructure Areas. *See Figure 3.2.* The Phase I portion of each WDA is further divided into Turbine Build Areas and Turbine No-build Areas as designated in chapter 4.0 and shown in Figure 3.2. Table 3.4 shows the total acreage and land ownership within the Phase I Development Area.

[13] Surface disturbance is used to define project areas and is not intended to represent the full range of direct and indirect impacts to migratory birds and bats. *See Sections 1.1 and 3.1.4*.

Table 3.4. Phase I Development Area Land Ownership.

	Private Land (acres)	Federal Land (acres)	State Land (acres)	Total (acres)
Turbine Build Area	23,401	21,558	1,968	46,927
Turbine No-Build Area	6,665	7,020	1,475	15,160
Infrastructure Components	5,955	4,612	1,412	11,979
Phase I Development Area	**36,021**	**33,190**	**4,855**	**74,066**

3.2.4 Phase I

Phase I is defined as the initial surface disturbance, long-term surface disturbance and activity areas contained within the Phase I Development Area.[14] *See Section 3.1.3.* Phase I surface disturbance and activity area estimates are shown in Table 3.2 and are further broken down by land ownership in Table 3.5.

Table 3.5. Phase I Land Ownership.

	Private Land (acres)	Federal Land (acres)	State Land (acres)	Total (acres)
Initial Surface Disturbance	1,568	1,346	121	**3,035**
Long-term Surface Disturbance	256	211	18	**485**
Activity Areas	264	153	23	**440**

3.3 Environmental Setting

The environmental setting of Phase I is described in the context of either the Ranch or the CCSM Project Site to provide perspective on the siting decisions and avoidance and minimization measures described in chapter 4.0. This section focuses on those elements of the environmental setting most relevant to migratory birds and bats. The environmental setting for other resources, such as air quality, soils, noxious and invasive weeds, range resources, cultural resources, paleontological resources, visual resources and socioeconomics for the CCSM Project are described in detail in BLM's FEIS and tiered EAs.

[14] Surface disturbance is used to define project areas and is not intended to represent the full range of direct and indirect impacts to migratory birds and bats. *See Sections 1.1 and 3.1.4*.

3.3.1 Land Use

Land use and land management affects migratory birds and bats. Current land use in Phase I and across the Ranch consists of agricultural operations, including cattle grazing and hay production. The Ranch includes the entire Pine Grove/Bolten grazing allotment as well as portions of 11 other grazing allotments. TOTCO manages the Ranch and each allotment to provide periodic growing season rest from grazing by decreasing stocking density and shortening the grazing period. *See BLM 2008a*. There are two areas of summer and winter range on the Ranch, and multiple potential grazing rotations across the Ranch. The grazing rotations allow rest for upland communities in spring and early summer, and late summer rest for riparian communities. Stocking rates and movement between various pastures within the allotments fluctuate yearly based on forage availability and resource conditions. According to BLM, since TOTCO has owned and operated the Ranch, the grazing management in the Bolten Ranch/Pine Grove allotment has been greatly improved; further, BLM has recognized that TOTCO's grazing management plan provides for a well-managed grazing program. *See BLM 2008a*.

In 2014, the BLM Rawlins Field Office once again recognized TOTCO for its environmental stewardship and range management initiatives across three of the BLM grazing allotments that TOTCO manages in Carbon County. Citing TOTCO's significant investments in range and water improvements on the Ranch, BLM found that all three allotments meet all six Rangeland Health Standards, including those that benefit wildlife such as migratory birds and bats. According to BLM, TOTCO's planned grazing rotations ensure all pastures receive growing season rest every other year, which has improved vegetation composition, condition and vigor while reducing bare ground. BLM cited improved grazing management as resulting in narrowed stream channels, increased woody plant composition and reduced sedimentation in streams. BLM also recognized TOTCO for its cooperative grazing management of the Grizzly allotment in conjunction with its three allotments, broadening benefits for wildlife habitat "on an even larger landscape level." *See BLM 2014c.*

3.3.2 Physiographic Setting

The Ranch, including the CCSM Project Site, is dominated by three topographic features, Chokecherry Plateau, Miller Hill, and Sage Creek Rim, separated by the Sage Creek Basin. As previously described, the CCSM Project Site is divided into two WDAs, Chokecherry to the north and Sierra Madre to the south. Each WDA is further divided into Phase I and Phase II. *See Figure 3.4.*

To the north, Chokecherry Plateau consists of ridges and rolling hills that generally slope northeasterly down toward the North Platte River. Approximately 40 kilometers (25 miles) of the North Platte River flow along the eastern edge of Chokecherry, with the vast majority occurring outside of the Chokecherry WDA. Most of the northern portion of Chokecherry is defined by a small, east/west ridge commonly known as a hogback, which is approximately 16 kilometers (10 miles) long, and the southern portion is defined by a cliff edge commonly referred to as the Bolten Rim, which is approximately 32 kilometers (20 miles) long. In addition, a prominent north/south ridge known as the Interior Chokecherry Rim bisects Chokecherry for approximately 19 kilometers (12 miles), and is cut by three ephemeral

drainages, Smith Draw, Hugus Draw, and Iron Springs Draw. Phase I is located entirely west of the Interior Chokecherry Rim.

The southwestern portion of the Ranch is dominated by a steep-sloped mesa commonly known as Miller Hill. This predominant feature slopes gently toward the south and southwest, with relatively level terrain near the edge of the rim and becoming increasingly undulated towards the southwest. Phase I includes Upper Miller Hill and Lower Miller Hill within the Sierra Madre WDA. *See Figure 3.4.*

The southeastern portion of the Ranch includes Sage Creek Rim, which has similar characteristics to Miller Hill, although this feature is not as large or high. Development areas on the Sage Creek Rim are included in Phase II of the CCSM Project.

The area between the Chokecherry and Sierra Madre WDAs is a high desert basin transected by Sage Creek and several smaller ephemeral tributaries. The majority of this basin is outside the WDAs; however, the Haul Road and internal transmission lines included in Phase I will traverse the Sage Creek Basin and connect the WDAs. Larger waterbodies, which include the Teton, Kindt, Rasmussen, and Sage Creek Reservoirs, are interspersed throughout this arid landscape outside of Phase I.

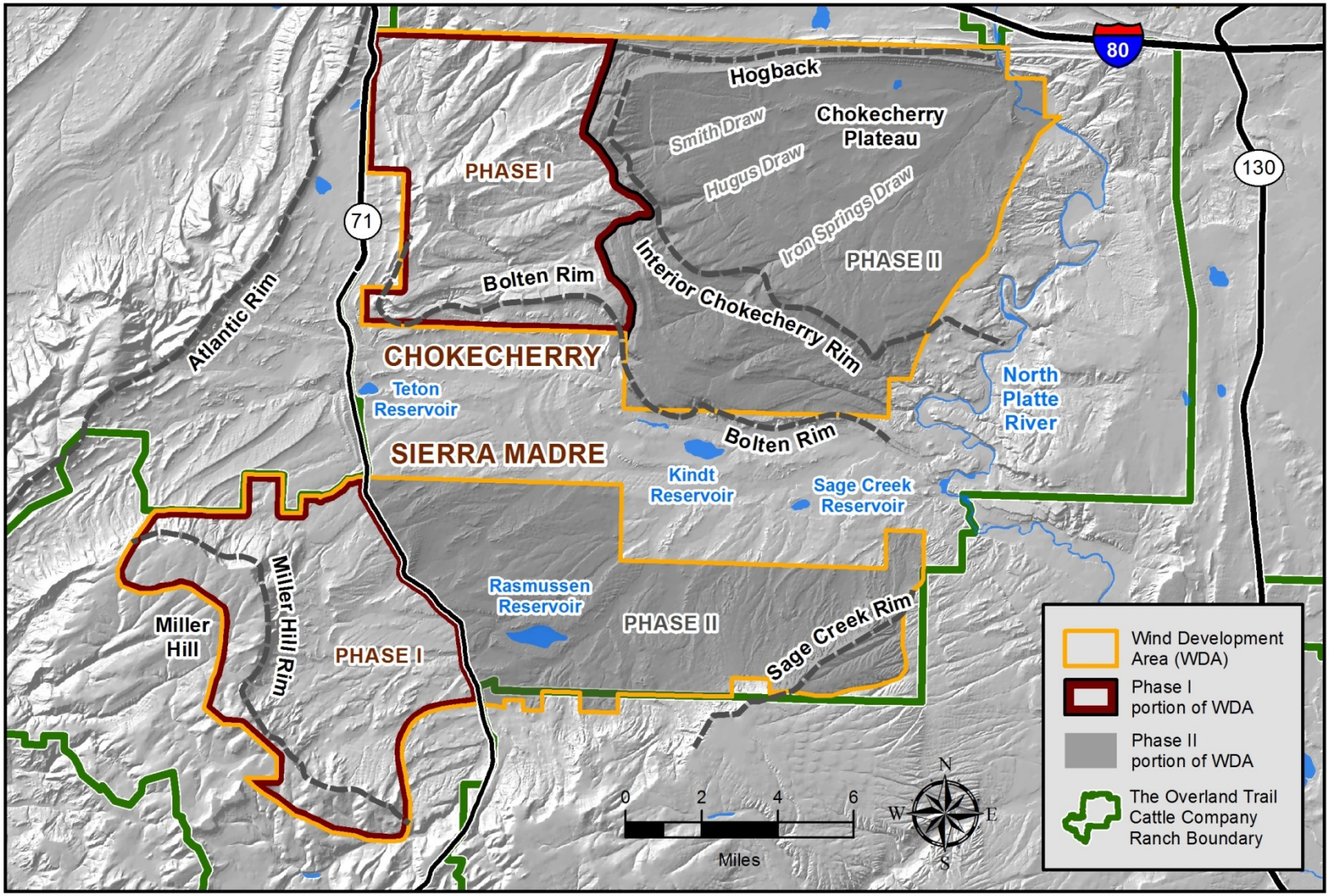

Figure 3.4. CCSM Project Physiographic Features.

3.3.3 Vegetation

Vegetation cover within the CCSM Project Site is typical of Wyoming Basin and Southern Rockies ecoregions, defined by rolling sagebrush steppe, salt-desert shrub basins, and foothill shrublands (Chapman *et al.* 2004). Rolling sagebrush steppe communities are dominated by various densities of Wyoming big sagebrush (*Artemisia tridentata ssp. wyomingensis*) and mountain big sagebrush (*Artemisia tridentata ssp. vaseyana*) at higher elevations, with areas of silver sagebrush (*Artemisia cana*) in the lowlands and black sagebrush (*Artemisia nova*) and low sagebrush (*Artemisia arbuscula*) in exposed, rocky soils. *See Figure 3.5 & Figure 3.6.*

Sagebrush steppe communities are interspersed with bunchgrass/rhizomatous grass communities and allied shrubs, and generally have relatively low forb cover. Salt-desert shrub basins are characterized by sparse vegetation cover of cushion plant communities with dominant shrub cover of Gardner's saltbush (*Atriplex gardneri*), shadscale (*Atriplex confertifolia*), and black greasewood (*Sarcobatus vermiculatum*). Perennial streams throughout salt-desert shrub basins are typically surrounded by basin big sagebrush (*Artemisia tridentata ssp. tridentata*) and riparian communities dominated by willows (*Salix spp*.), sedges (*Carex spp.*), and rushes (*Juncus spp.*). Foothill shrubland communities are dominated by montane deciduous shrubland consisting of mountain big sagebrush, snowberry (*Symphoricarpos spp.*), serviceberry (*Amelanchier spp.*), and mountain mahogany (*Cercocarpus spp.*), surrounded by extended groves of quaking aspen (*Populus tremuloides*), low-growing common juniper (*Juniperus communis*), and patches of limber pine (*Pinus flexilis*). *See Section 4.3.1.*

Table 3.6 summarizes the vegetation community distribution within the Phase I surface disturbance and activity areas. Additional detail on vegetation communities within Phase I can be found in the site-specific PODs for Phase I of the CCSM Project. *See PCW 2014b; PCW 2014c; PCW 2014d; PCW 2015b*.

Table 3.6. Phase I Vegetation Communities.

Vegetation Community[1,2]	Total Acreage within Phase I Development Area	Initial Surface Disturbance (acres)	Long-term Surface Disturbance (acres)	Activity Areas (acres)
Agriculture/Pasture	408	18	4	11
Aspen-Mixed Conifer Woodland	2,564	19	3	2
Barren/Developed	1,052	211	55	7
Lowland Mesic Zone	1,413	42	6	4
Mixed Conifer Woodland	6	0	0	0
Montane Shrubland	2,593	45	5	9
Open Water	37	0	0	0
Sagebrush Steppe	36,888	2,355	403	255
Sagebrush Steppe - Dense	9,133	335	60	41
Salt-Desert Shrub	9,681	822	200	52
Sparsely Vegetated	2,653	114	30	11
Upland Grassland	7,638	503	83	48
Total	**74,066**	**4,464**	**849**	**440**

Notes:
1. As defined in the site-specific PODs for Phase I. *See PCW 2014b; PCW 2014c; PCW 2014d; PCW 2015b*.
2. See Section 4.3.1 for vegetation community descriptions

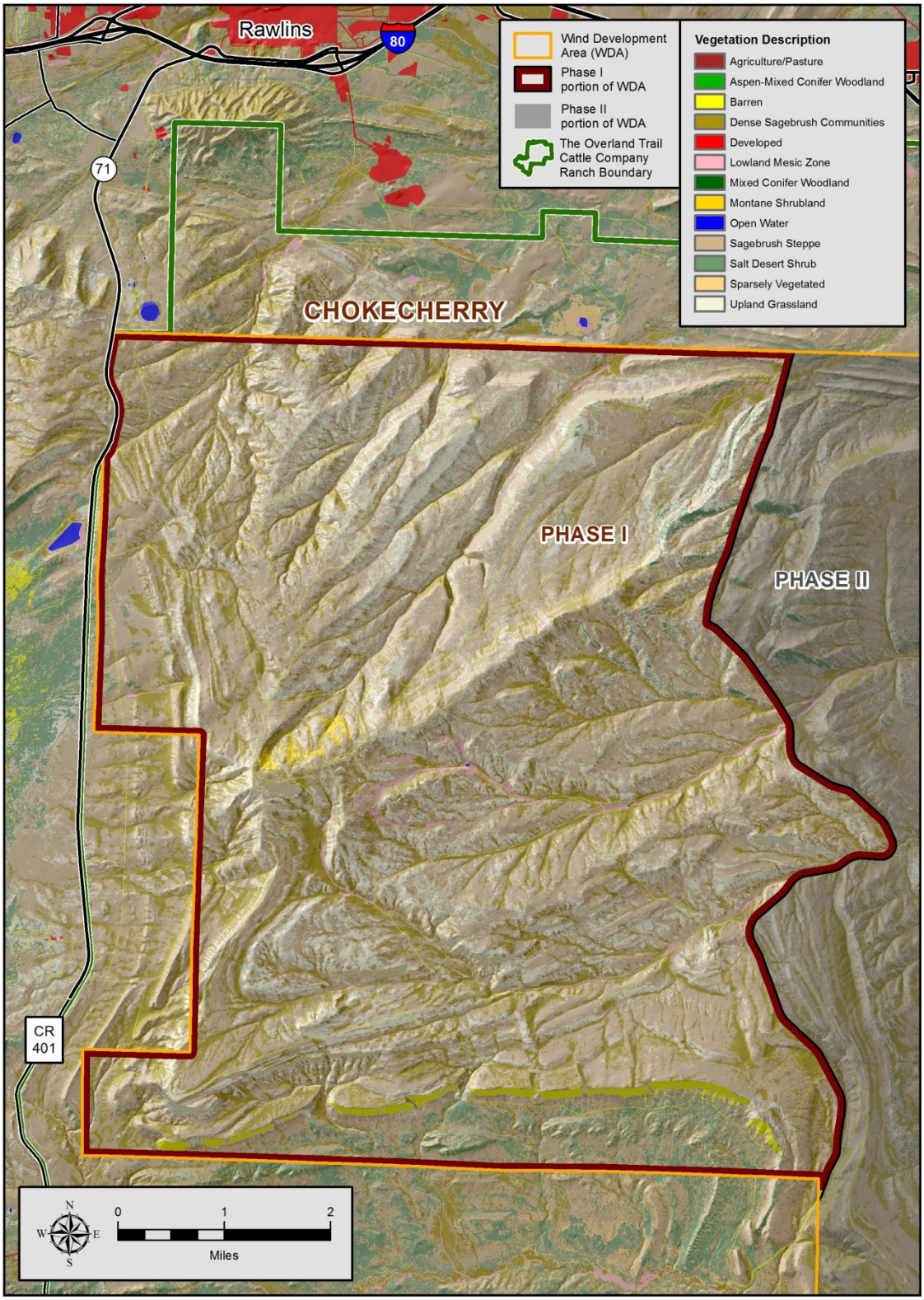

Figure 3.5. Phase I Chokecherry WDA Vegetation Cover.

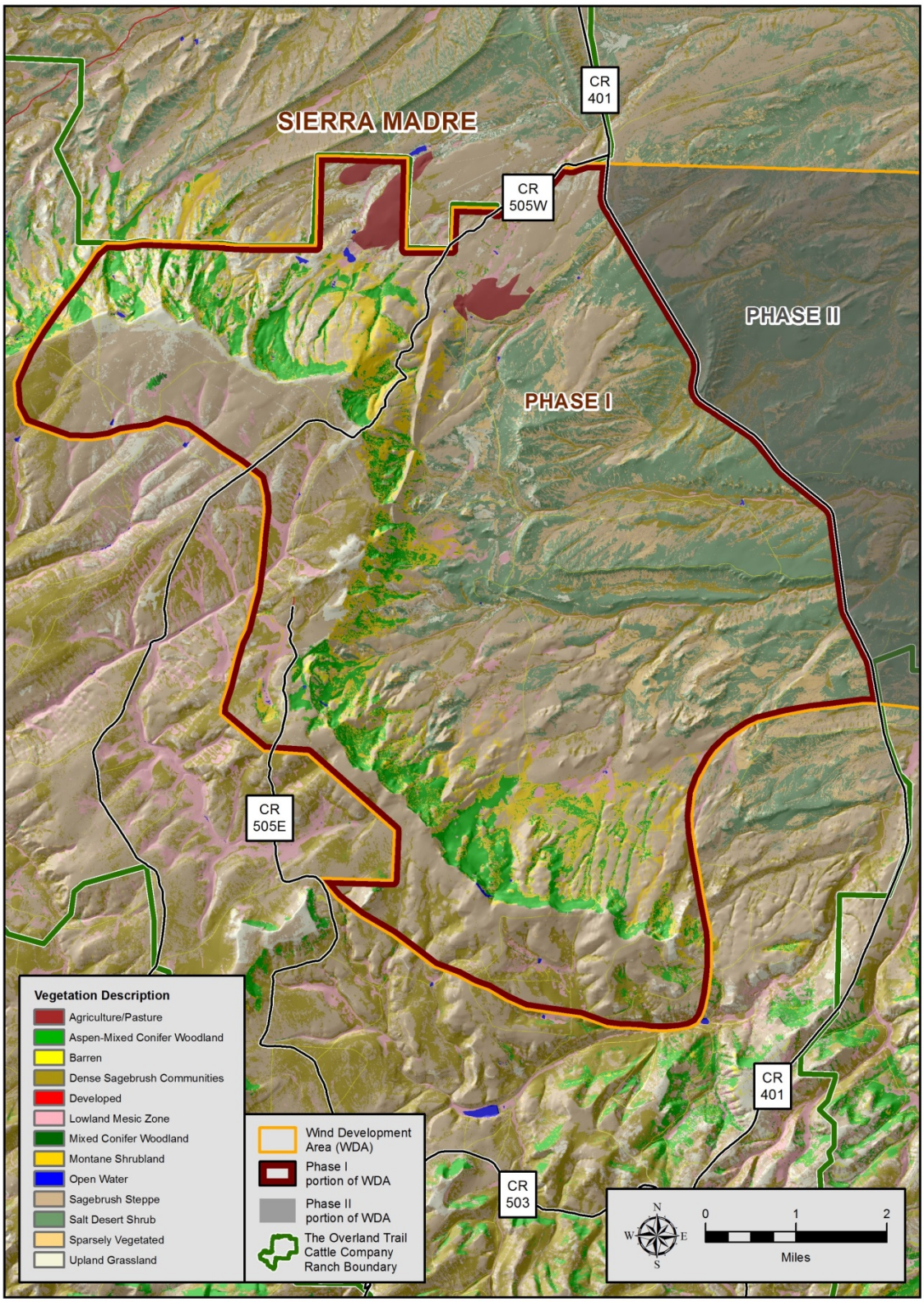

Figure 3.6. Phase I Sierra Madre WDA Vegetation Cover.

3.3.4 Water Resources

The surface water resources on the Ranch include the North Platte River, as well as several streams including Sage Creek, Miller Creek, and Rasmussen Creek in the North Platte River Basin and McKinney Creek, Grove Creek, and Stony Creek in the Yampa-White River Basin. *See Figure 3.7 & Figure 3.8.* In addition, several small ephemeral streams and a few isolated springs are located throughout the Ranch. There are also numerous stock ponds and some larger reservoirs in the vicinity including Teton, Kindt, Rasmussen, and Sage Creek Reservoirs. During the spring, summer, and fall seasons these irrigation reservoirs support use by waterfowl, primarily ducks and geese, with infrequent use by small groups of shorebirds and pelicans.

Water resources within Phase I include several named and unnamed ephemeral and perennial drainages. Within the Chokecherry WDA, the headwaters of Smith Draw and Hugus Draw flow east toward the North Platte River, and multiple other unnamed drainages cross through the area. In the Upper Miller Hill area, the headwaters of Grove Creek and McKinney Creek trend southwest from the Miller Hill Rim. In Lower Miller Hill, Deadman Creek, Lone Tree Creek, Rasmussen Creek, and several unnamed drainages flow east toward the Sage Creek Basin. No large waterbodies or reservoirs occur within Phase I.

Additional detail on water resources within Phase I can be found in the site-specific plans of development for Phase I of the CCSM Project. *See PCW 2014b; PCW 2014c; PCW 2014d; PCW 2015b*.

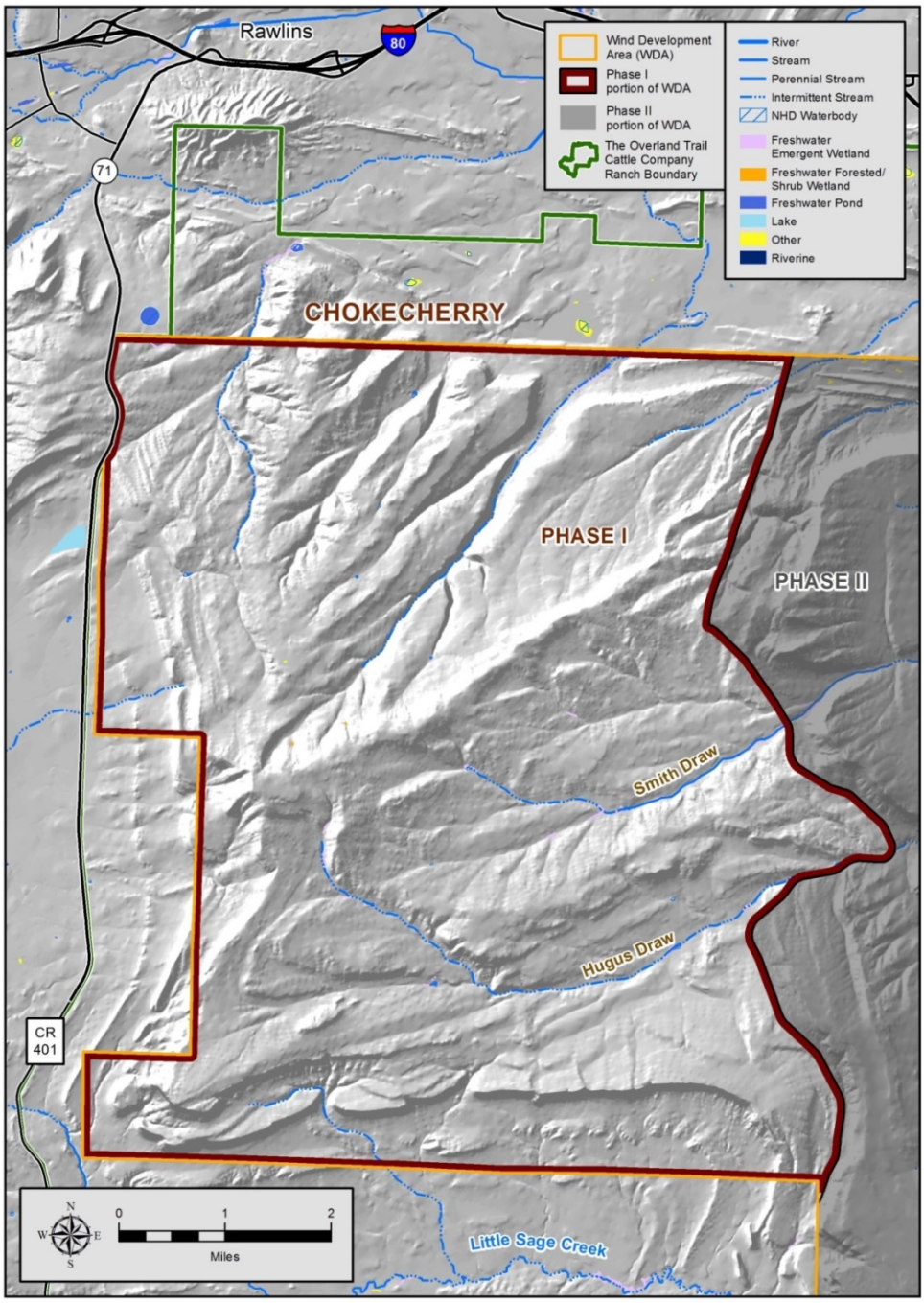

Figure 3.7. Phase I Chokecherry WDA Water Features. [15]

[15] The wetlands indicated on this figure are those mapped by the USFWS National Wetlands Inventory. A wetland delineation was completed by PCW to refine the NWI data that ultimately determined that a number of these areas are not in fact wetlands; however the delineation is limited to Phase I. The NWI data is presented in this figure to provide an overview of the wetlands that may be present within the Phase I Development Area as a whole.

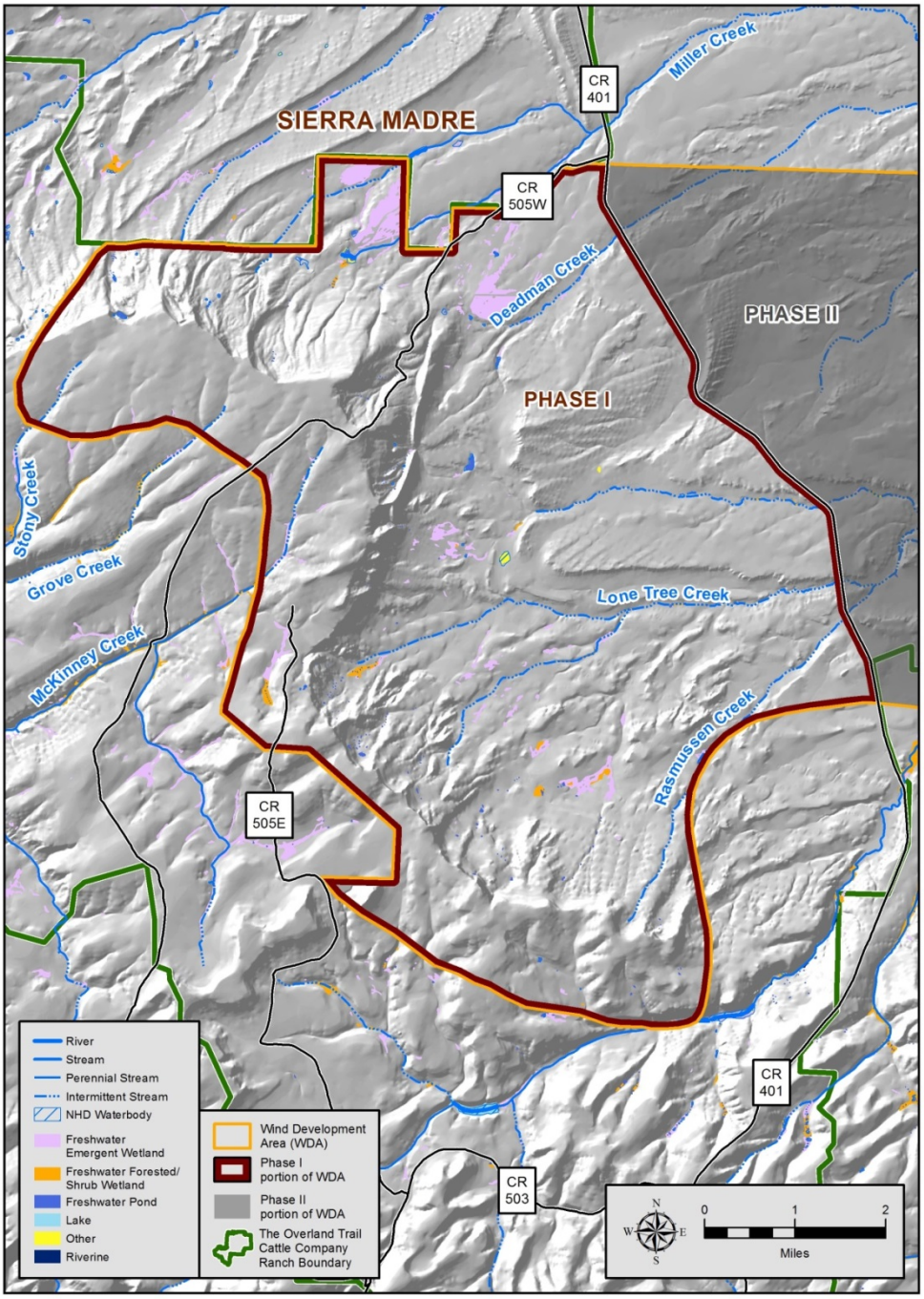

Figure 3.8. Phase I Sierra Madre WDA Water Features. [16]

[16] The wetlands indicated on this figure are those mapped by the USFWS National Wetlands Inventory. A wetland delineation was completed by PCW to refine the NWI data that ultimately determined that a number of these areas are not in fact wetlands; however the delineation is limited to Phase I. The NWI data is presented in this figure to provide an overview of the wetlands that may be present within the Phase I Development Area as a whole.