

EXHIBIT Q

THREATENED AND ENDANGERED SPECIES

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Q.1 INTRODUCTION

OAR 345-021-0010(1)(q) *Information about threatened and endangered plant and animal species that may be affected by the proposed facility, providing evidence to support a finding by the Council as required by OAR 345-022-0070. The applicant shall include:*

Response: The U.S. Fish and Wildlife Service (USFWS) and the Oregon Natural Heritage Information Center (ORNHIC) were recently queried for information on listed and sensitive species within the 5-mile analysis area. Federal Species of Concern, State Sensitive species and other non-listed, rare species are addressed in Exhibit P; this Exhibit addresses all state and federal listed, candidate and proposed species. Candidate and proposed species are included in Exhibit Q due to their potential for listing during the project application process.

Based upon the database results received from USFWS and ORNHIC (ORNHIC 2007), as well as additional contacts and references consulted during the prefield review, a total of twelve federal and state listed and candidate plant and wildlife species have the potential to exist within the analysis area. The database results identified three species and six Evolutionarily Significant Units (ESUs) of federal listed, proposed, and candidate anadromous fish that occur within the analysis area, including steelhead (three ESUs), sockeye salmon (one ESU), and chinook salmon (two ESUs). All of the state and federal listed species that will be addressed within this Exhibit are listed in Table Q-1.

Table Q- 1. State and Federal Listed, Candidate, and Proposed Species with the Potential to Occur Within the Analysis Area of the Golden Hills Facility

Species	Federal Status ¹	State Status ¹	ORNHIC List ²	Occurrence	Impacts
Birds					
Bald Eagle (<i>Haliaeetus leucocephalus</i>)		LT	4	Potential	Potential
Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)	C	--	--	No	No
American Peregrine Falcon (<i>Falco peregrinus anatum</i>)	--	LE	2	Potential	Potential
Mammals					
Washington Ground Squirrel	C	LE	1	No	No
Fish					
Steelhead – Mid-Columbia River ESU, summer run (<i>Oncorhynchus mykiss</i>)	LT	SV	2,3	Yes	No
Steelhead – Snake River Basin ESU	LT	--	2,3	Yes	No
Steelhead – Upper Columbia River ESU	LE	--	--	Yes	No
Sockeye Salmon – Salmon River Tributary to the Snake River (<i>Oncorhynchus nerka</i>)	LE	--	--	Yes	No

Species	Federal Status ¹	State Status ¹	ORNHIC List ²	Occurrence	Impacts
Chinook Salmon – Snake River ESU, spring/summer and fall runs (<i>Oncorhynchus tshawytscha</i>)	LT	LT	1	Yes	No
Chinook Salmon – Upper Columbia River ESU	LE	--	--	Yes	No
Plants					
Northern wormwood (<i>Artemisia campestris</i> var. <i>wormskioldii</i>)	C	LE	1-ex		No
Henderson's needlegrass (<i>Achnatherum hendersonii</i>)	SOC	C	2		No
Dwarf suncup (<i>Camissonia pygmaea</i>)	SOC	C	1		No
Vernal pool mousetail (<i>Myosurus sessilis</i>)	SOC	C	1		No
Whitehead navarretia (<i>Navarretia leucocephala</i>)	LE	--	--		No
Laurence's milkvetch (<i>Astragalus collinus</i> var. <i>laurentii</i>)	SOC	LT	1		No
Disappearing monkeyflower (<i>Mimulus evanescens</i>)	SOC	C	1		No
Liverwort monkeyflower (<i>Mimulus jungermannioides</i>)	SOC	LT	1		No

¹ State and Federal Status Definitions

LE – Listed Endangered. Taxa listed by the USFWS or National Marine Fisheries Service (NMFS) as Endangered under the Endangered Species Act (ESA), or by the Departments of Agriculture (ODA) and Fish and Wildlife (ODFW) of the state of Oregon under the Oregon Endangered Species Act of 1987 (OESA). Endangered taxa are those which are in danger of becoming extinct within the foreseeable future throughout all or a significant portion of their range.

LT – Listed Threatened. Taxa listed by the above agencies as Threatened; defined as those taxa likely to become endangered within the foreseeable future.

PE – Proposed Endangered. Taxa proposed by the above agencies to be listed as endangered.

PT – Proposed Threatened. Taxa proposed by the above agencies to be listed as threatened.

C – Candidate. Candidate taxa for which NMFS or USFWS have sufficient information to support a proposal to list under the ESA, or which is a candidate for listing by the ODA under the OESA.

SoC – Species of Concern. Former Category 2 candidates for which additional information is needed in order to propose as threatened or endangered under the ESA; these species are under review for consideration as Candidates for listing under the ESA.

SC – State Sensitive-Critical. Species for which listing is pending; or those for which listing may be appropriate if immediate conservation activities are not taken. Also considered critical are some peripheral species which are at risk throughout their range, and some disjunct populations.

SV – State Sensitive-Vulnerable. Species for which listing as threatened or endangered is not believed to be imminent and can be avoided through continued or expanded use of adequate protective measures and monitoring. In some cases the population is sustainable, and protective measures are being implemented; in others, the population may be declining and improved protective measures are needed to maintain sustainable populations over time.

SU – State Sensitive-Undetermined Status. Animals in this category are species whose status is unclear. They may be susceptible to population decline of sufficient magnitude that they could qualify for endangered, threatened, critical or vulnerable status, but scientific study would be required before a judgment can be made.

² ORNHIC Definitions

List 1 - Taxa that are threatened with extinction or presumed to be extinct throughout their entire range.

List 2 – Taxa threatened with extirpation or presumed extirpated from Oregon; often peripheral or disjunct species which are of concern considering species diversity within Oregon; can be very significant in

protecting the genetic diversity of the taxon; ONHP regards extreme rarity as a significant threat and has included species which are very rare in Oregon on this list.

List 3 – Taxa for which more information is needed before status can be determined, but which may be threatened or endangered in Oregon or throughout their range.

List 4 – Taxa which are of conservation concern but not currently threatened or endangered; including taxa that are very rare but considered secure as well as those declining in numbers or habitat but still too common to be proposed as threatened or endangered; these taxa require continued monitoring.

Ex – Presumed extirpated or extinct

There is no suitable habitat for listed fish species within the site boundary and no aquatic habitat will be impacted by project construction or operation (see Exhibit P). There are dry channels located in the project vicinity that may eventually lead to the Columbia River. However, these channels will not be impacted by the Project. The ORNHIC results for the Washington ground squirrel referenced a siting from 1979; however, their range has been dramatically reduced since then and the Washington ground squirrel's current range is limited to areas east of the John Day River (NEDC et al. 2000). The yellow-billed cuckoo and northern wormwood are considered extirpated from the state and are, therefore, not anticipated to occur within the project vicinity. Because there are no anticipated impacts to fish, the Washington ground squirrel, the yellow-billed cuckoo or northern wormwood, these species will not be addressed further within this Exhibit.

The standard also calls for a description of the nature, extent, locations, and timing of each species occurrence in the analysis area and how the facility might adversely affect each listed, proposed or candidate species (OAR 345-021-0010(q)(B)). The descriptions and evaluation of potential impacts on these species are included in Section Q.4. The measures proposed to avoid and/or reduce the potential impacts are presented in Section Q.5. Sections Q.6 and Q.7 document the likelihood of the Project causing a significant reduction in the likelihood of survival or recovery of the listed species, and Section Q.8 addresses the proposed monitoring approach.

Q.2 ANALYSIS AREA

This section describes the analysis area with regard to threatened and endangered species. The analysis area for threatened and endangered species is defined as the area within the site boundary and five miles from the site boundary (OAR 345-001-0010(53)(b)). For purposes of the Project, the site boundary is defined as:

- 900 feet-wide turbine corridors. Turbine strings consist of access road, collector system, and turbines, with the turbine defining the center.
- 30 feet from the centerline of existing county roads that will be graveled and/or will contain a portion of the underground collector system. All county roads in the area are within a right-of-way of a minimum of 60 feet.
- 60 feet from the centerline of proposed overhead line and proposed underground collector system not in the road prism.
- Proposed laydown areas.
- Proposed O & M facility.
- Proposed substation facilities.

Description of Analysis Area:

The analysis area for threatened and endangered plants and wildlife is illustrated in Appendix Q-1. It is requested that the Site Certificate authorize micro-siting “corridors” as described in Exhibit C. Turbines will be placed within a defined corridor rather than at specific points, in order to retain flexibility to microsite turbines at the optimal locations for wind capture, impact avoidance, and geotechnical conditions at the project site. Because micro-siting corridors, for ease of description and depiction, are generally regularly shaped polygons, certain micro-siting corridors overlap with patches of Category 1 habitats (see Exhibit P for a description of Category 1 habitat). However, the Applicant will site all permanent facilities outside Category 1 habitat when finalizing the layout. No permanent facilities will be located within Category 1 habitat such as active raptor nest sites.

Threatened and endangered wildlife:

For threatened and endangered animal species the analysis area is within the site boundary and five miles from the site boundary (OAR 345-001-0010(53)(b)). The initial database search was conducted within five miles of the lease boundary. If suitable habitat existed, all areas within 750 feet of the site boundary were surveyed during the spring/summer. Methods for wildlife surveys are described in Exhibit P.

Threatened and endangered plants:

For threatened and endangered plant species the analysis area is within the site boundary and five miles from the site (OAR 345-001-0010(53)). An initial database search was conducted within five miles of the lease boundary. The proposed rare plant survey corridors are designed to take in all ground potentially disturbed by the Project. If suitable habitat exists (generally non-agricultural), ground surveys were conducted within at least 150 feet of the micro-siting corridors. For non-linear facilities, the entire proposed disturbance footprint was surveyed, as well as an additional 150 feet on all sides. General methods for plant surveys are described in Attachment P-1 of Exhibit P. Detailed pre-field methods are described below in Q.2.3. A botanist also performed at least one survey round for threatened, endangered, and sensitive wildlife species in areas 750 feet from micro-siting corridor edges, and kept records of any notable common or rare plant species.

Q.2.1 Description of Project Vicinity

The vast majority of the project vicinity is under dry land wheat production. Very little acreage of native plant communities remain within the project site, occurring predominantly along the plateau margins and steep side slopes of the Grass Valley. These communities consist of sage and rabbit brush dominated shrub lands and native bunchgrass grasslands, each with varying degrees of invasive species present. Agricultural areas that are enrolled under the Conservation Reserve Program (CRP) are located throughout the analysis area, occurring as narrow strips in previously plowed drainageways, and as large blocks in other areas. CRP areas have been planted with a

mix of native and non-native bunchgrasses with the primary intent of increasing wildlife habitat in the area.

Q.3 METHODOLOGY

OAR 345-021-0010(q)(A) *Based on appropriate literature and field study, identification of all threatened or endangered species listed under ORS 496.172(2), ORS 564.105(2) or 16 USC § 1533 that may be affected by the proposed facility;*

Response: See sections Q.3.1 through Q 3.3, below.

Q.3.1 General

Letters were written to USFWS and the ORNHIC requesting information on threatened, endangered and sensitive species within the analysis area (i.e., the area within the site boundary and five miles beyond the site boundary). The results of these database searches provide the basis for the species included in this Exhibit.

Field surveys were conducted for threatened and endangered plants and wildlife in 2006 and 2007.

Q.3.2 Wildlife

Existing literature and scientific data were reviewed and agency and other biologists contacted to determine species distribution and habitat requirements (Keith Kohl, ODFW, personal communication, Frank Isaacs, pers. comm.). The ORNHIC database and USFWS were queried for documented and projected occurrences of threatened, endangered and sensitive (TES) plant and wildlife species in the proposed project area, as well as within the analysis area. Wildlife surveys were conducted by qualified biologists in late April 2004 (raptor nest surveys), March 2004 – March 2005 (avian use surveys), July 2006 – June 2007 and spring 2006 and 2007 (TES surveys and habitat mapping) to document occurrence and habitat of within the analysis area. Threatened and endangered species' occurrence and wildlife habitats were investigated during all of the field surveys. Methods are described in Exhibit P.

Q.3.3 Plants

Rare plant surveys were conducted by trained botanists during peak flowering and/or fruiting periods when target species are best identified. Study corridors included turbine development corridors as well as other facility features: new access roads, overhead and underground collector lines, substations, O&M facility, and laydown areas. Development corridors were intensely scrutinized from a GIS/GPS established centerline with a 150-ft buffer on either side of the corridor. Surveys were conducted during the spring season, 2007. During surveys, botanists followed meandering transects effectively zigzagging back and forth across the survey corridor. Botanists maintained a list of all vascular plants encountered, and if needed made informal collections of unknown species for later identification using *Flora of the Pacific Northwest* (Hitchcock and Cronquist 1973). A botanist also performed at least one survey round for threatened, endangered, and

sensitive wildlife species in areas 750 feet from the micro-siting corridors, and kept records of any notable common or rare plant species. Additional information collected included general plant associations, land use patterns, and notes on unusual habitats.

Q.3.3.1 Target Species

For the rare plant survey, the target species included all plant taxa listed as ‘Endangered’ or ‘Threatened’ by the USFWS under the Endangered Species Act (ESA) that potentially occur in the project area (Table Q-1). In addition, taxa that have been formally proposed or are candidate species for federal listing, or taxa listed as ‘species of concern’ that potentially occur within the project area were also considered as target species (Table Q-1). The ‘species of concern’ status is an unofficial status for species that appear to be in jeopardy, but information is insufficient to support listing. Target species also included all plant taxa defined as ‘Endangered’, ‘Threatened’, ‘Sensitive’, ‘Review’, or ‘Extirpated’ by the Oregon Natural Heritage Program (ONHP) that potentially occur within the project area (Attachment P-2 of Exhibit P). The ONHP maintains the most complete database available for state-listed species. Taxa meeting the above criteria were targeted by the investigation to determine their presence or absence within the study area. Determinations of status for rare plant species were based on information provided by the USFWS and the ONHP’s list of tracked plant species (Attachment P-3 and P-2, respectively in Exhibit P).

Q.3.3.2 Prefield Review

As part of the investigation, a review of available literature and other sources was conducted to identify the rare plant species potentially found within the project area. As per Section 7(c)(1) of the Endangered Species Act (ESA), a letter was sent to the USFWS requesting a list of federally listed taxa that have potential to occur within the project area. In addition, the ONHP was contacted to obtain element occurrence records for any known rare plant populations in the project vicinity. To supplement the information provided by the above agencies, a number of other sources were consulted. These sources provided additional information such as habitat preferences, morphological characteristics, phenologic development timelines, and species ranges. Sources included taxonomic keys and species guides (USFWS, 2001; Cronquist et al. 1977; Hitchcock and Cronquist, 1973) and online database searches of common and rare plant species (e.g., ONHP; USDA, 2006).

Using data collected during the pre-field review, a list of rare plant species potentially occurring in the project area was compiled (Table Q-1). Habitat preferences and identification periods were derived from the literature for each potential species. Using this information, along with topographic maps of the project area, a field survey plan was developed to guide the timing and intensity of the field surveys.

Q.3.3.3 Field Investigation

Pedestrian surveys for rare plant species were conducted on May 17 through June 18, 2007. Surveys were performed by a qualified WEST botanist, Jerry Baker, from Athena,

Oregon. The surveys were timed to locate as many target species as possible, particularly those most likely to occur in the affected habitats (sagebrush steppe and grassland). The survey was accomplished by conducting meander pedestrian transects, zigzagging back and forth across the survey corridor. The intensity of the systematic search and speed the surveyor walked was variable, and depended upon: structural complexity of the habitat, visibility of target species, and probability of sensitive species occurrence in a given area. In habitats of low visibility with high probability of sensitive species occurrence, a tighter grid pattern was walked (transects and zigzagging were often crosschecked with GPS reference coordinates for a given corridor to ensure complete coverage). Care was taken to thoroughly search all unique features and habitats encountered with high probability of occurrence of sensitive species. Aerial photographs with mapped habitats and project layout features, and 7.5' USGS topographic maps of the site were used as well. A list of vascular plant species encountered during the rare plant surveys was maintained.

Q.4 EXISTING CONDITIONS AND POTENTIAL IMPACTS TO STATE AND FEDERAL LISTED, CANDIDATE AND PROPOSED SPECIES

OAR 345-021-0010(1)(q)(B) *For each species identified under (A), a description of the nature, extent, locations and timing of its occurrence in the analysis area and how the facility might adversely affect it;*

Response: Table Q-1 outlines those fish, wildlife and plant species that are either known to occur or considered to have the potential to occur within the analysis area, based on habitat suitability and information received from the USFWS and ORNHIC. Table Q-1 also addresses the potential occurrence of each species within the analysis area and its potential for impacts from the construction and operation of the proposed project based upon the evaluation of fish and wildlife habitats in the analysis area.

The following section describes the “...*nature, extent, location and timing...*” (OAR 345-021-0010(q)(B)) of each of the listed species that has the potential to occur within the analysis area or that may be affected by the proposed project. This section also addresses how the construction and operation of the project might affect these species (OAR 345-021-0010(q)(B)).

Q.4.1 Wildlife

Bald Eagle

Species Description and Habitat Characteristics

In 1978, the USFWS listed the bald eagle throughout the lower 48 states as endangered except in Michigan, Minnesota, Wisconsin, Washington, and Oregon, where it was listed as threatened (USFWS 1978). In 1995, the bald eagle was reclassified from endangered to threatened in all of the lower 48 states (USFWS 1995b). In July 1999, the USFWS proposed de-listing bald eagle (USFWS 1999). In June 2007, the USFWS delisted the bald eagle. To date, the bald eagle has not been removed from the list of threatened species. The species has been doubling its breeding population every 6-7 years in the

lower 48 states since the late 1970's (USFWS 1995b). In 1963, a National Audubon Society survey reported only 417 active nests in the lower 48 states, with an average of 0.59 young produced per active nest. In 1994, about 4,110 occupied breeding territories were monitored with an estimated average of 1.17 young per active nest (USFWS 1995b).

Life History and Habitat Characteristics

The nesting chronology of bald eagles is variable based on latitude. For more northern populations such as Oregon and Washington, nest maintenance and construction occurs during winter months, January and February (Buehler 2000). Eggs are laid between late February and late April, with peak laying during March. Fledging dates vary accordingly with most young leaving the nest between 8 and 14 weeks after hatching (Harmata and Oakleaf 1992, Buehler 2000). Nest production is usually between 1-3 young per year. Little is known of post-fledging behavior; however, bald eagles do not reach sexual maturity until 4-5 years and may live up to 20-30 years (Buehler 2000).

Wintering bald eagles in Oregon are primarily found along major waterways, with some found on upland wintering areas. During migration and at wintering sites, eagles that concentrate on locally abundant food tend to roost communally. Roost sites form critical habitat for wintering birds with some roosts used regularly by large numbers of eagles (Buehler 2000). Bald eagle migration varies by populations and may extend over several months (Buehler 2000). In the Pacific Northwest, bald eagle migrations coincide with salmon runs and both immature and adult bald eagles will move north in the late summer to take advantage of fall run salmon as far north as southern Alaska. These birds and more northern birds will then return south over the fall, arriving on the wintering grounds in November and December (Hodges *et al.* 1987, Hansen *et al.* 1986). Open water and food availability dictate areas of use throughout the winter months. Upland areas may receive considerable use when carrion is available. Important prey includes salmonids, carrion, waterfowl, and small mammals.

Generally, bald eagles require areas in the proximity of water for nesting, and areas with abundant readily available food sources and good roost sites during winter (Harmata 1989, Buehler 2000, Cederholm *et al.* 2001). Bald eagles nest in stands of mature timber with old growth characteristics generally within a mile of large water bodies. Most nest trees are located in timber stands three acres or larger with canopy closure of less than 80 percent and on flat to moderately sloping terrain with northern aspects. Most nests are in mature or over-mature dominant or co-dominant trees (ponderosa pine, Douglas-fir, and cottonwood) with open crowns and sturdy horizontal limbs in line of sight to a lake or reservoir greater than 80 acres in size, or fourth order or larger stream (Buehler 2000, MBEWG 1986).

Wintering bald eagles tend to congregate near bodies of water where they feed on fish, carrion, and waterfowl (Buehler 2000, Cederholm *et al.* 2001). Major river drainages and large lakes constitute the majority of winter habitat use. Winter communal roosts consist of old large trees or snags where visibility is good and which have sturdy lateral limbs near the crown to provide easy entry and exit (USFS 1977, Green 1985). Roosts are

usually located in stands of mature old-growth conifer or cottonwoods and may be several miles from feeding sites.

Bald eagles have varying tolerances to human disturbance. Disturbance near winter roosts or at the nest site during egg-laying and incubation may result in abandonment of the roost or nest. However, some eagles develop considerable tolerance to human activity and several have been known to nest within the Seattle city limits (Smith *et al.* 1997). The bald eagle (*Haliaeetus leucocephalus*) is a federal and state listed threatened species. Critical habitat has not been designated for the bald eagle. The three main factors affecting distribution of nests and territories are proximity to water and availability of food; suitable trees for nesting, perching, and roosting; and the number of breeding-aged eagles (Stalmaster *et al.* 1985). The critical nesting period for the bald eagle is from January 1 to August 15 (USFWS 1986; Stalmaster *et al.* 1985). Home ranges vary, but are estimated to be within 4 miles of the nest (Brown 1982). The nearest known nest is 10 miles west of the project site along the Columbia River. No impacts to breeding bald eagles are anticipated.

Wintering bald eagles concentrate in areas where food is abundant and disturbance is minimal. The birds use perches during the day, which are selected primarily according to their proximity to a food source. Wintering bald eagles may roost communally at night near major foraging areas. Roosts typically are established in isolated areas in old growth stands that have trees taller than the surrounding trees (USFWS 1986). The key wintering period is from November 15 to March 15 (USFWS 1986; Stalmaster *et al.* 1985). ODFW and other researchers conduct winter raptor surveys within the project vicinity and they have found that bald eagles are feeding on wintering waterfowl and are, therefore, primarily found along the Columbia River corridor.

The Midwinter Bald Eagle Survey is an annual, national event coordinated by Karen Steenhof, Research Wildlife Biologist, U.S. Geological Survey, Forest and Rangeland Ecosystem Science Center, Snake River Field Station, Boise, ID. Counts are conducted during the first two weeks of January along standardized survey routes. The purpose of the survey is to determine trends in the number of bald and golden eagles wintering in the lower 48 states.

During January 2003, in Oregon, 225 observer-days covered 105 of 108 routes (97%); 684 bald eagles (526 adult, 144 immature, and 14 age unknown), and 74 golden eagles (60 adult, 12 immature, and 2 age unknown) were tallied.

Annual total bald eagle counts followed by 5-year averages, percent immatures, and 5-year averages of percent immatures, and annual total golden eagle counts are listed below. When comparing counts between years, remember that these data have not been adjusted for annual differences in weather, observers, or routes.

Bald Eagles counted during Midwinter Bald Eagle Surveys in Oregon:

1979 - 493 (% immature = 37.3)
1980 - 602 (% immature = 28.7)
1981 - 529 (% immature = 33.1)
1982 - 384 (% immature = 38.5)
1983 - 354 (5-yr ave = 472.4) (% immature = 26.8; 5-yr ave = 32.9)

1984 to 1987 - Counts were not conducted.

1988 - 386 (% immature = 44.6)
1989 - 533 (% immature = 43.9)
1990 - 704 (% immature = 34.4)
1991 - 788 (% immature = 35.5)
1992 - 582 (5-yr ave = 598.6) (% immature = 34.3; 5-yr ave = 38.5)
1993 - 676 (5-yr ave = 656.6) (% immature = 35.8; 5-yr ave = 36.8)
1994 - 677 (5-yr ave = 685.4) (% immature = 31.9; 5-yr ave = 34.4)
1995 - 704 (5-yr ave = 685.4) (% immature = 33.9; 5-yr ave = 34.3)
1996 - 648 (5-yr ave = 657.4) (% immature = 27.0; 5-yr ave = 32.6)
1997 - 677 (5-yr ave = 676.4) (% immature = 26.9; 5-yr ave = 31.1)
1998 - 843 (5-yr ave = 709.8) (% immature = 31.6; 5-yr ave = 30.3)
1999 - 611 (5-yr ave = 696.6) (% immature = 25.9; 5-yr ave = 29.1)
2000 - 599 (5-yr ave = 675.6) (% immature = 26.1; 5-yr ave = 27.5)
2001 - 756 (5-yr ave = 697.2) (% immature = 27.9; 5-yr ave = 27.7)
2002 - 805 (5-yr ave = 722.8) (% immature = 30.8; 5-yr ave = 28.5)
2003 - 684 (5-yr ave = 691.0) (% immature = 21.5; 5-yr ave = 26.4)

The Mid-Columbia route of the Midwinter bald eagle survey goes from the Cascade Locks to the Mouth of the John Day River (approximately 70 miles). Surveys conducted since 1988 during the first 2 weeks of January resulted in an average of approximately 6 bald eagles per annual count (2 to 15), or 1 eagle per 11 miles of survey. The John Day to Arlington route to the north and east of the project area typically results in no bald eagle observations with a high of 2 counted since 1988. These winter surveys have not noted any bald eagle use of the upland areas within and/or near the site boundary (Keith Kohl, ODFW, personal communication).

One bald eagle was observed during the avian use surveys for this Project. A few observations of bald eagles were made at the Biglow Canyon Project site along the John Day River. No bald eagles were observed during the avian use surveys at the Klondike I and II sites or the Klondike III expansion area. Bald eagles would be expected to pass through the site very infrequently during spring and fall migration or during the winter. This low level of use is consistent with bald eagle use at other existing wind projects including the other regional projects (e.g., Stateline OR/WA, Nine Canyon WA, Combine Hills OR, Klondike I, II, & III OR), and is likely lower than other existing wind projects such as Foote Creek Rim Wyoming.

Peregrine Falcon - Natural History and Occurrence in Analysis Area

The peregrine falcon (*Falco peregrinus anatum*) is a State of Oregon endangered species and has no status under the federal Endangered Species Act because it was removed from the federal list of endangered and threatened wildlife on August 25, 1999 (USFWS 1999). Peregrine falcons are limited to areas that contain suitable nesting ledges. Cliffs and bluffs typically found along river courses and other large bodies of water usually provide habitat for nesting peregrines. Peregrine falcons will also use suitable nesting ledges on man-made structures, such as bridges and buildings. Falcons prefer to nest where the concentration of prey, generally smaller birds, is high and where habitat characteristics may increase prey vulnerability. Much of the prey consists of species the size of pigeons and doves; however, avian prey ranges in size from hummingbirds to Aleutian Canada geese. Peregrine falcon courtship begins soon after the winter solstice. Peregrines lay two to four eggs from mid-February through May, and eggs hatch after an incubation period of 31 to 33 days. The young fledge between 37 and 45 days of age, and the juveniles continue to be fed and protected by the adults until they disperse, which can range from three weeks to three months (J. Pagel, USFS, personal communication).

Peregrine falcons may occur in the analysis area year-round. The nearest known eyrie is approximately 5-miles north of the Project. There are no other known eyries in the vicinity of the Project.

The analysis area provides a variety of habitat types, which provides for a diversity of avian prey species. Grain elevators within the project vicinity may be used by rock pigeons for perching and a food supply. Rock pigeons are a primary prey item for peregrines (Keith Kohl, ODFW personal communication). However, no observations have been made that document use of rock pigeons by peregrines at grain elevators. Rock pigeons are also abundant along the Columbia and John Day Rivers, especially where cliff habitats occur. These areas also provide additional peregrine forage, such as swallow species, swift species, and bat species. The cliff habitats of these rivers provide eyries that have been used for nesting by peregrines. The proposed facility is not near the rivers. However, one peregrine falcon was sighted during the study at station P, 4-miles east of the Project. No sightings have been made during avian point-counts at the Klondike I, II, or III facilities. One incidental peregrine falcon was observed in the fall season near the Biglow Canyon Project during supplemental 2006 surveys (observed on 1 November, 2006). This bird was an adult perched on a fence post apparently resting, and believed to likely be a migrant.

Potential Impacts to Bald Eagle and Peregrine Falcon

The potential for impacts to bald eagles and peregrine falcons is very low risk. To date, there are no reported bald eagle fatalities at wind projects (Erickson et al. 2001, 2002). Occasional prairie falcon fatalities have been observed at some wind projects (Erickson et al. 2001, 2002). Extremely low risk is anticipated for species only infrequently observed within the site boundaries, such as the peregrine falcon, and an anticipated negligible risk to those species not observed within the site boundaries, such as the bald eagle. The nesting ranges and locations of the peregrine falcon and bald eagle are constantly

expanding (Frank Isaacs, personal communication); therefore, the database will be reviewed again should project construction be postponed.

Q.5 DESCRIPTION OF MEASURES PROPOSED TO AVOID OR REDUCE ADVERSE IMPACTS TO SPECIES

OAR 345-021-0010(1)(q)(C) *For each species identified under (A), a description of measures proposed by the applicant, if any, to avoid or reduce adverse impact;*

Response: The following section complies with OAR 345-021-0010 by discussing the possible means by which adverse impacts to state and federal listed species from the proposed project can be avoided or minimized.

Q.5.1 Wildlife

Q.5.1.1 Bald Eagle

Turbines are sited at approximately 4-miles from both the Columbia River and the Deschutes River to, in part, avoid and minimize impacts to wildlife including bald eagles, which are much more concentrated along these features. With this mitigation, there are no anticipated impacts to the bald eagle from the construction and operation of the wind power facility; therefore, no additional mitigation is required.

Q.5.1.2 Peregrine Falcon

The Project was sited at least 4-miles from both the Columbia River and the Deschutes River to, in part, avoid impacts to wildlife including peregrine falcons, which are much more concentrated along these features. With this mitigation, there are no anticipated impacts to the peregrine falcon from the construction and operation of the wind power facility; therefore, no additional mitigation is required.

Q.5.2 Plants

No species-specific mitigation measures are proposed at this time because no direct project-related impacts to any federal or state threatened, endangered, or sensitive (TES), proposed, or candidate plant species are anticipated. No TES plant species were observed, Table Q-2 presents what was observed during surveys. However, several general measures are recommended to mitigate possible indirect effects to other species of concern (if any) potentially in the vicinity, outside of the survey corridors [see (E) of Exhibit P].

Table Q-2. Vascular plant species observed at the Golden Hills Wind Project during rare plant surveys, May 17 - June 18, 2007.

Family	Scientific Name	Common Name
APIACEAE	<i>Conium maculatum</i>	poison-hemlock
	<i>Lomatium macrocarpum</i>	large-fruited lomatium
	<i>Lomatium grayi</i>	Gray's desert parsley
	<i>Lomatium nudicaule</i>	barestem lomatium
	<i>Lomatium triternatum</i>	nine-leaved lomatium
	<i>Orogenia linearifolia</i>	linear-leaved orogenia
ASTERACEAE	<i>Achillea millefolium</i>	common yarrow
	<i>Agoseris grandiflora</i>	large-flowered agoseris
	<i>Agoseris retrorsa</i>	spear-leaved agoseris
	<i>Antennaria dimorpha</i>	low pussytoes
	<i>Antennaria sp.</i>	pussytoes
	<i>Artemesia arbuscula</i>	low sagebrush
	<i>Artemisia tridentata</i>	big sagebrush
	<i>Balsamorhiza careyana</i>	Carey's balsamroot
	<i>Blepharipappus scaber</i>	blepharipappus
	<i>Centaurea diffusa</i>	diffuse knapweed
	<i>Centaurea sp.</i>	knapweed
	<i>Chaenactis douglasii.</i>	chaenactis
	<i>Chrysothamnus viscidiflorus</i>	green rabbitbrush
	<i>Cirsium arvense.</i>	Canadian thistle
	<i>Ericameria nauseosa sp. nauseosa</i>	gray rabbitbrush
	<i>Erigeron filifolius</i>	thread-leaf fleabane
	<i>Erigeron poliospermus</i>	cushion fleabane
	<i>Eriophyllum lanatum</i>	Oregon sunshine
	<i>Gaillardia aristata</i>	Gaillardia
	<i>Helianthus annus</i>	Common sunflower
	<i>Hieracium cynoglossoides</i>	hounds tongue hiercacium
	<i>Lactuca serriola</i>	prickly lettuce
	<i>Lagophylla ramossissima</i>	rabbitleaf
	<i>Madia sp.</i>	tarweed
	<i>Onopordum acanthium</i>	Scotch thistle
	<i>Senecio serra</i>	butterweed groundsel
	<i>Stenotus stenophyllus</i>	woolly goldenweed
	<i>Taraxacum officinale</i>	common dandelion
	<i>Tragopogon dubius</i>	yellow salsify
	<i>Tetradymia canescens</i>	horse-brush

Family	Scientific Name	Common Name
BORAGINACEAE	<i>Amsinckia sp.</i>	fiddleneck
	<i>Lithospermum ruderale</i>	columbia puccoon
BRASSICACEAE	<i>Cardaria chalapensis</i>	whitetop
	<i>Descurainia sp.</i>	tanseymustard
	<i>Draba verna</i>	spring witlow-grass
	<i>Erysimum asperum</i>	rough wallflower
	<i>Lepidium perfoliatum</i>	clasping peppergrass
	<i>Sisymbrium altissimum</i>	tumble mustard
CHENOPODIACEAE	<i>Salsola kali</i>	Russian thistle
CRASSULACEAE	<i>Sedum lanceolatum.</i>	stonecrop
CUPRESSACEAE	<i>Juniperus occidentalis</i>	western juniper
FABACEAE	<i>Astragalus filipes.</i>	Basalt milkvetch
	<i>Astragalus purshii</i>	wooly-pod milkvetch
	<i>Lupinus holosericeus</i>	little-flowered lupine
	<i>Lupinus sericeus</i>	silky lupine
	<i>Medicago sativa</i>	alfalfa
	<i>Melilotus officinalis</i>	yellow sweet-clover
	<i>Onobrychis viciaefloia</i>	holy-clover
	<i>Robinia pseudo-acacia</i>	black locust
	<i>Vicia vilosa</i>	wooly vetch
GERANIACEAE	<i>Erodium cicutarium</i>	filaree
HYDRANGEACEAE	<i>Philadelphus lewsii</i>	syringa
HYDROPHYLLACEAE	<i>Phacelia hastata</i>	Silver-leafed phacelia
IRIDACEAE	<i>Sisyrinchium sp.</i>	grass-widow
JUNCACEAE	<i>Juncus sp.</i>	rush
LAMIACEAE	<i>Mentha arvensis</i>	field mint
LILIACEAE	<i>Allium accuminatum</i>	Hooker onion
	<i>Calochortus macrocarpus.</i>	sagebrush mariposa
	<i>Fritillaria pudica</i>	yellow bell
	<i>Triteleia douglasii</i>	Douglas' triteleia

Family	Scientific Name	Common Name
ONOGRACEAE	<i>Epilobium sp.</i>	willow herb
PINACEAE	<i>Pinus ponderosa</i>	Ponderosa pine
	<i>Pinus sp.</i>	pine
PLANTAGINACEAE	<i>Plantago patagonica</i>	Indian-wheat
POACEAE	<i>Bromus tectorum</i>	cheatgrass
	<i>Elymus cinereus</i>	Great Basin wildrye
	<i>Festuca idahoensis</i>	Idaho fescue
	<i>Hesperostipa comata</i>	needle-and-thread grass
	<i>Hordeum jubatum</i>	foxtail barley
	<i>Poa bulbosa</i>	bulbous bluegrass
	<i>Poa pratensis</i>	Kentucky bluegrass
	<i>Poa secunda</i>	Sandberg's bluegrass
	<i>Pseudoroegneria spicata</i>	blue-bunch wheatgrass
POLEMONIACEAE	<i>Collomia grandiflora</i>	large flowered collomia
	<i>Phlox longifolia</i>	long-leaf phlox
POLYGONACEAE	<i>Eriogonum compositum</i>	northern buckwheat
	<i>Eriogonum douglasii</i>	Douglas' buckwheat
	<i>Eriogonum elatum</i>	tall buckwheat
	<i>Eriogonum nivium</i>	snow buckwheat
	<i>Rumex sp.</i>	sorrel
PRIMULACEAE	<i>Dodecatheon sp.</i>	shooting star
RANUNCULACEAE	<i>Ranunculus testiculatus</i>	hornseed buttercup
	<i>Ranunculus sp.</i>	aquatic buttercup
ROSACEAE	<i>Amelanchier alnifolia</i>	serviceberry
	<i>Holodiscus discolor</i>	ocean spray
	<i>Potentilla glandulosa</i>	sticky cinquefoil
	<i>Prunus virginiana</i>	chokecherry
	<i>Rosa woodsii</i>	Wood's rose
	<i>Sanguisorba occidentalis</i>	burnett
SALICACEAE	<i>Populus sp.</i>	poplar
	<i>Salix sp.</i>	willow
SAXIFRAGACEAE	<i>Lithophragma sp.</i>	lithophragma

Family	Scientific Name	Common Name
SCROPHULARIACEAE	<i>Mimulus gutatus</i>	seep-spring monkey-flower
	<i>Penstemon richardsonii</i>	Richardson's penstemon
	<i>Penstemon</i> sp.	penstemon
	<i>Verbascum thapsus</i>	wooly mullein
	<i>Veronica</i> sp.	speedwell
SOLANACEAE	<i>Solanum dulcamara</i>	climbing nightshade
TYPHACEAE	<i>Typha latifolia</i>	common cat-tail
ULMACEAE	<i>Celtis reticulata</i>	hackberry
URTICACEAE	<i>Urtica dioica</i>	stinging nettle

Q.6 FINDINGS THAT THE PROPOSED FACILITY WILL NOT LIKELY CAUSE A SIGNIFICANT REDUCTION IN THE LIKELIHOOD OF SURVIVAL OR RECOVERY OF THE FISH AND WILDLIFE SPECIES IDENTIFIED

OAR 345-021-0010(1)(q)(F) *For each animal species identified under (A), a description of significant potential impacts of the proposed facility on the continued existence of such species and on the critical habitat of such species and evidence that the proposed facility, including any mitigation measures, is not likely to cause a significant reduction in the likelihood of survival or recovery of the species;*

Response: In compliance with these requirements, Section Q.3 of this Exhibit described the potential impacts of the proposed facility on the continued existence of state and federal species and on the suitable habitat for these species. The mitigation measures described in Section Q.4 were designed to avoid and/or minimize any adverse impacts to the listed wildlife species. Through utilization of these mitigation measures, the construction, operation and maintenance of the proposed facility will not likely cause a significant reduction in the survival or recovery of the bald eagle or the peregrine falcon.

Q.7 MONITORING PROGRAM

OAR 345-021-0010(1)(q)(G) *The applicant's proposed monitoring program, if any, for impacts to threatened and endangered species;*

Response: Programs to monitor the potential impacts to the individual listed species will be developed in coordination with the ODFW for fish and wildlife species. This includes two years of standardized intensive fatality monitoring data, and a long-term fatality monitoring program for the documenting occurrence of fatalities and long-term trends.

Q.8 REFERENCES

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ATTACHMENT Q-1
**Threatened and Endangered Species
Analysis Area - Map**

