

Stateline Wind Project: Oregon Wildlife Monitoring Plan

[Revised January 20, 2006]

1 This plan describes wildlife monitoring the certificate holder shall conduct during
2 operation¹ of the Stateline Wind Project facility in Oregon. The monitoring objectives are to
3 determine whether the facility causes significant fatalities of birds and bats and to determine
4 whether the facility results in a loss of habitat quality. This plan addresses the facility as
5 permitted under the Oregon site certificate, as amended.

6 The Stateline Wind Project facility² consists of:

- 7 • Stateline 1: no more than 127 wind turbines, four meteorological (met) towers
8 and other related or supporting facilities as described in the Final Order on the
9 site certificate application (September 14, 2001).³
- 10 • Stateline 2: no more than 60 wind turbines, two met towers and other related or
11 supporting facilities as described in the Final Order on Site Certificate
12 Amendment #1.
- 13 • Stateline 3: no more than 279 wind turbines, 13 met towers, a substation,
14 approximately 17 miles of aboveground 34.5-kV transmission line,
15 approximately 8.5 miles of aboveground 115-kV or 230-kV transmission line,
16 and other related or supporting facilities as described in the Final Order on
17 Amendment #2.

18 Wildlife monitoring is necessary to determine whether operation of the facility results in
19 a net loss of habitat quality. For raptors, this will require that the certificate holder obtain a
20 reasonable estimate of the effect of the project on raptors in the context of local raptor
21 populations.

22 The certificate holder shall use properly trained personnel to conduct this monitoring,
23 subject to approval by the Department of Energy as to professional qualifications. For all
24 monitoring except FPL's Wildlife Response and Reporting System (described below), the
25 certificate holder shall hire an independent third party (not employees of the certificate holder) to
26 perform monitoring tasks.

27 The Oregon Wildlife Monitoring Plan for the Stateline Wind Project includes the
28 following components:

- 29 1) Fatality monitoring program involving:
 - 30 a) Removal trials
 - 31 b) Searcher efficiency trials

¹ This plan does not address pre-construction wildlife surveys that FPL Energy carried out in support of its application for a site certificate for the Stateline project.

² As used herein "facility" includes Stateline 1, 2 and 3.

³ The Final Order authorized construction of 127 turbines. However, only 126 were actually built. The Final Order described the four Stateline 1 permanent met towers as "guyed masts set in concrete foundations" (Final Order page 12). However, the certificate holder now plans to use unguyed, concrete met towers for both Stateline 1 and 2. Nevertheless, if any permanent guyed met towers are used, the certificate holder shall comply with the provisions in this plan that address guyed met towers.

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- 1 c) Standardized carcass searches
- 2 2) Established monitoring transect searches
- 3 3) Raptor nesting surveys
- 4 4) Burrowing owl surveys
- 5 5) FPL's Stateline Wind Project Wildlife Response and Reporting System

6 Following is a discussion of the components of the monitoring plan, statistical analysis
7 methods for fatality data and data reporting.

8 **1. Definitions and Methods**

9 Seasons

10 This plan uses the following dates for defining seasons:

Season	Dates
Spring Migration	March 16 to May 15
Summer/Breeding	May 16 to August 15
Fall Migration	August 16 to October 31
Winter	November 1 to March 15

11 Search Plot Selection

12 The certificate holder shall conduct standardized carcass searches within search plots.
13 The certificate holder, in consultation with the Oregon Department of Fish and Wildlife
14 (ODFW), shall select search plots based on a systematic sampling design (in general, every other
15 plot is sampled in a monitoring year). Turbine strings will be broken into rectangular search plots
16 that contain two to four turbines each. The edge of plots will be no closer than 63 meters from
17 the nearest turbine or, if guyed meteorological (met) towers are used, no closer than 63 meters
18 from the nearest guyed met tower. The certificate holder shall provide maps of the search plots to
19 the Department of Energy before beginning fatality monitoring at the facility. The certificate
20 holder shall use the same search plots for each search conducted during a monitoring year.

21 Scheduling and Sampling Frequency

22 The certificate holder will begin monitoring in Oregon upon the beginning of operation
23 of the facility. For Stateline 1, the first "monitoring year" commenced January 1, 2002. For
24 Stateline 2, the first monitoring year will commence January 1, 2003. For Stateline 3, the first
25 monitoring year will commence January 1, 2008.

26 Within each monitoring year for Stateline 1 and 2, the certificate holder will conduct
27 standardized carcass searches at the rates of frequency shown below. Over the course of one
28 monitoring year, the certificate holder would conduct 16 searches. The total number of searches
29 per season is based on applying the rate to the number of months in the season (as defined
30 above).

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Season	Frequency
Spring Migration	2 searches per month (4 searches)
Summer/Breeding	1 search per month (3 searches)
Fall Migration	2 searches per month (5 searches)
Winter	1 search per month (4 searches)

1 For Stateline 3, the certificate holder shall conduct 9 searches, beginning approximately
2 March 15. Subsequent searches shall be done approximately the 15th of each month, ending on
3 November 15.

4 Sample Size for Standardized Carcass Searches

5 For the standardized carcass searches described below, the sample size is the number of
6 turbines searched per monitoring year. Because the number of turbines per search plot varies
7 from two to four (as described above), the number of search plots will be less than the sample
8 size (total number of turbines searched per year).

9 The determination of the sample size is based primarily on the expected precision in the
10 fatality estimates for the entire Stateline Wind Project in Oregon and Washington.

11 Stateline 1 sample size: The certificate holder shall search a minimum of 123
12 turbines during the first monitoring year, of which at least 63 are in Oregon. The
13 certificate holder shall search a minimum of 123 turbines during the second monitoring
14 year, of which at least 63 are in Oregon. Over the first two monitoring years, all 126
15 Oregon turbines will be searched for at least 12 months. In addition, if guyed met towers
16 are used, all permanent guyed met towers will be searched during each monitoring year.

17 Stateline 2 sample size: The certificate holder shall search a minimum of 30
18 turbines in 2003. The certificate holder shall search a minimum of 15 turbines in 2006.
19 The certificate holder shall select the 15 turbines in consultation with ODFW and the
20 Department of Energy. In addition, if guyed met towers are used, all permanent guyed
21 met towers will be searched during each year of fatality monitoring.

22 Stateline 3 sample size: The certificate holder shall search 56 turbines in 2008.
23 The certificate holder shall select the turbines in consultation with ODFW and the
24 Department of Energy from the following turbine strings: BG-A, D-A, D-C, D-D, G-A,
25 G-B, SH-A, SH-B, SH-C, V-A, WAY-A, WAY-B and WAY-C. If fewer than 56 turbines
26 in these strings are built by December 31, 2007, then the certificate holder shall search all
27 turbines in these strings that are built.

28 Duration of Fatality Monitoring

29 Stateline 1: The certificate holder may terminate fatality monitoring of Stateline 1
30 turbines on December 31, 2003, subject to the approval of the Department of Energy.

31 Stateline 2: The certificate holder may terminate the fatality monitoring of
32 Stateline 2 turbines after completing two monitoring years of those turbines, subject to
33 the approval of the Department of Energy.

34 Stateline 3: The certificate holder may terminate the fatality monitoring of
35 Stateline 3 turbines after completing one monitoring year, subject to the approval of the
36 Department of Energy.

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1 For both Stateline 1 and Stateline 2, the certificate holder shall use a worst-case analysis
2 to resolve any uncertainty in the results based on the first two years of data and to determine
3 whether the first two years of data indicate that mitigation is required.⁴ In lieu of approving the
4 termination of the fatality monitoring program for either Stateline 1 or Stateline 2 after two
5 years, the Department of Energy may require additional, targeted monitoring if the first two
6 years of data indicate the potential for unexpected impacts of a type that cannot be resolved
7 appropriately by worst-case analysis and appropriate mitigation.

8 For Stateline 3, the certificate holder shall use a worst-case analysis to resolve any
9 uncertainty in the results and to determine whether mitigation is required. In lieu of approving
10 the termination of the fatality monitoring program for Stateline 3 after one year, the Department
11 of Energy may require additional, targeted monitoring if the data indicate the potential for
12 unexpected impacts of a type that cannot be resolved appropriately by worst-case analysis and
13 appropriate mitigation.

14 **2. Removal Trials**

15 The objective of the removal trials is to estimate the length of time avian and bat
16 carcasses remain in the search area. Carcass removal studies will be conducted during each
17 season in the vicinity of the search plots. Estimates of carcass removal will be used to adjust
18 carcass counts for removal bias. “Carcass removal” is the disappearance of a carcass from the
19 search area due to predation, scavenging or other means such as farming activity.

20 The certificate holder shall conduct carcass removal trials within each of the seasons
21 defined above for Stateline 1 and 2 in those years in which the certificate holder performs fatality
22 monitoring.⁵ This monitoring plan does not require removal trials for Stateline 3. Planted
23 carcasses will not be placed in the carcass search plots because they might be confused with
24 wind turbine-related fatalities, especially if they have been scavenged. Planted carcasses will be
25 placed in the vicinity of search plots but not so near as to attract scavengers to the search plots
26 themselves. The planted carcasses will be located randomly within the carcass removal trial
27 plots.

28 Each season, approximately 10 carcasses of birds of two size classes (20 total carcasses)
29 will be distributed in each of two habitat types (grassland/shrub-steppe and cultivated
30 agriculture).⁶ The total number of trial carcasses may vary. Small carcasses (e.g., house
31 sparrows, starlings, commercially available game bird chicks) will simulate passerines and large
32 carcasses (e.g., raptor carcasses provided by agencies, commercially available adult game birds
33 or cryptically colored chickens) will simulate large birds such as raptors, game birds and
34 waterfowl. If fresh bat carcasses are available, they may also be used.

35 The certificate holder shall conduct ten removal trials per monitoring year: two in the
36 spring season, three in summer, two in fall and three in winter.⁷ In each trial in the spring and
37 fall, at least five carcasses from each size class (10 total carcasses) will be placed in each of the

⁴ The certificate holder shall make this determination separately for Stateline 1 and 2; that is, based on two years of data on the Stateline 1 turbines and, separately, based on two years of data on the Stateline 2 turbines.

⁵ Except that removal trials are not required in 2006 for Stateline 2.

⁶ This means that approximately 160 trial carcasses would be used in carcass removal trials during one monitoring year.

⁷ For Stateline 1 and Stateline 2 monitoring years.

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1 two habitat types. In each trial in the summer and winter, at least three carcasses from each size
2 class (6 total carcasses) will be placed in each of the two habitat types. Trials will be spread
3 throughout the year to incorporate the effects of varying weather, climatic conditions, farming
4 practices and scavenger densities.

5 Carcasses will be placed in a variety of postures to simulate a range of conditions. For
6 example, birds will be: 1) placed in an exposed posture (e.g., thrown over the left shoulder), 2)
7 hidden to simulate a crippled bird (e.g., placed beneath a shrub or tuft of grass), and, 3) partially
8 hidden.

9 It is expected that carcasses will be checked as follows, although actual intervals may
10 vary. Carcasses will be checked for a period of 40 days to determine removal rates. They will be
11 checked every day for the first 4 days, and then on day 7, day 10, day 14, day 20, day 30 and day
12 40. This schedule may vary depending on weather and coordination with the other survey work.
13 At the end of the 40-day period, the trial carcasses will be removed. Trial carcasses will be
14 marked discreetly (markers to be determined) for recognition by searchers and other personnel.
15 Trial carcasses will be left at the location until the end of the carcass removal trial. The entire
16 carcass may be marked with a substance that fluoresces under a black light as some carcasses
17 may be reduced to feather spots.

18 Carcass searchers can check carcasses during their regular schedule of searches and
19 additionally on days they are not conducting the searches. Properly trained personnel will
20 conduct the removal trials.

21 **3. Searcher Efficiency Trials**

22 The objective of searcher efficiency trials is to estimate the percentage of bird and bat
23 fatalities that searchers are able to find.

24 The certificate holder shall conduct searcher efficiency trials in the same area in which
25 carcass searches occur in both grassland/shrub-steppe and cultivated agriculture habitat types.
26 Trials will be conducted in each season for Stateline 1 and 2 in those years in which the
27 certificate holder performs fatality monitoring.⁸ The certificate holder will conduct searcher
28 efficiency trials for Stateline 3 during the spring, summer and fall seasons. Searcher efficiency
29 will be estimated by habitat type and season. Estimates of searcher efficiency will be used to
30 adjust the number of carcasses found, correcting for detection bias.

31 Each season, approximately 10 carcasses of birds of two size classes (20 total carcasses)
32 will be distributed in each of two habitat types (grassland/shrub-steppe and cultivated
33 agriculture).⁹ The certificate holder shall conduct ten searcher efficiency trials per monitoring
34 year for Stateline 1 and 2: two in the spring season, three in summer, two in fall and three in
35 winter.¹⁰ In each trial in the spring and fall, at least five carcasses from each size class (10 total
36 carcasses) will be placed in each of the two habitat types. In each trial in the summer and winter,
37 at least three carcasses from each size class (6 total carcasses) will be placed in each of the two

⁸ Except that searcher efficiency trials are not required in 2006 for Stateline 2.

⁹ This means that approximately 160 trial carcasses would be used in searcher efficiency trials during one monitoring year.

¹⁰ For Stateline 1 and Stateline 2 monitoring years.

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1 habitat types. For Stateline 3, the certificate holder shall conduct searcher efficiency trials as
2 described in this paragraph, except for the winter season.

3 Personnel conducting searches will not know when trials are conducted; nor will they
4 know the location of the trial carcasses. If suitable trial carcasses are available, trials during the
5 fall season will include several small brown birds to simulate bat carcasses. Legally obtained bat
6 carcasses will be used if available.

7 On the day of a standardized carcass search (described below) but before the beginning of
8 the search, efficiency trial carcasses will be placed at random locations within areas to be
9 searched. If scavengers appear attracted by placement of carcasses, the carcasses will be
10 distributed before dawn.

11 Efficiency trials will be spread over the entire season to incorporate effects of varying
12 weather and vegetation growth. Carcasses will be placed in a variety of postures to simulate a
13 range of conditions. For example, birds will be: 1) placed in an exposed posture (thrown over the
14 left shoulder), 2) hidden to simulate a crippled bird, and 3) partially hidden. Each carcass will be
15 discreetly secured at its location to discourage removal by scavengers.

16 Each non-domestic carcass will be discreetly marked so that it can be identified as an
17 efficiency trial carcass after it is found. The number and location of the efficiency trial carcasses
18 found during the carcass search will be recorded. The number of efficiency trial carcasses
19 available for detection during each trial will be determined immediately after the trial by the
20 person responsible for distributing the carcasses.

21 If new searchers are brought into the search team, additional detection trials will be
22 conducted to insure that detection rates incorporate searcher differences.

23 **4. Standardized Carcass Searches**

24 The objective of the standardized carcass searches (“fatality monitoring”) is to estimate
25 the number of bird and bat fatalities that are attributable to facility operation. The goal of bird
26 and bat fatality monitoring is to obtain a precise estimate of the fatality rate and associated
27 variances.

28 On an annual basis, the certificate holder shall report an estimate of fatalities in six
29 categories: 1) all birds, 2) small birds, 3) large birds, 4) raptors, 5) bats and 6) grassland birds.
30 The certificate holder shall base these estimates on search data from the entire Stateline Wind
31 Project in Oregon and Washington. In addition, the certificate holder shall report fatalities of
32 Washington ground squirrels observed during the carcass searches and shall record and
33 document detections of Washington ground squirrels (scat, holes and live detections).

34 The certificate holder shall estimate the number of avian and bat fatalities attributable to
35 operation of the facility based on the number of avian and bat fatalities found at the facility site
36 whose death appears related to facility operation. All carcasses located within areas surveyed,
37 regardless of species, will be recorded and, if possible, a cause of death determined based on
38 blind necropsy results. Total number of avian and bat carcasses will be estimated by adjusting for
39 removal and searcher efficiency bias. If the cause of death is not apparent, the mortality will be
40 attributed to facility operation.

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1 The certificate holder shall conduct two years of fatality monitoring for Stateline 1 area
2 and two years of fatality monitoring for Stateline 2.¹¹ For Stateline 3, the certificate holder shall
3 conduct three seasons (spring, summer and fall) of fatality monitoring. If analysis of the fatality
4 data collected after any two monitoring years¹² indicates that a significant impact on wildlife and
5 wildlife habitat has occurred, the certificate holder shall implement appropriate mitigation,
6 subject to the approval of the Department of Energy. Mitigation is discussed in Section 12
7 below.

8 Personnel trained in proper search techniques (“the searchers”) will conduct the carcass
9 searches by walking parallel transects. The searchers will search rectangular search plots with the
10 long axis of the plot centered on the turbine string. All area within a minimum of 63 meters from
11 turbines or permanent guyed met towers will be searched. Transects will be initially set at 6
12 meters apart in the area to be searched. A searcher will walk at a rate of approximately 45 to 60
13 meters per minute along each transect searching both sides out to three meters for casualties.
14 Search area and speed may be adjusted by habitat type after evaluation of the first searcher
15 efficiency trial. It should take approximately 45 to 90 minutes to search each turbine (each search
16 plot contains multiple turbines), depending on the habitat type.

17 The searchers will record the condition of each carcass found, using the following
18 condition categories:

- 19 ▪ Intact – a carcass that is completely intact, is not badly decomposed and shows no
20 sign of being fed upon by a predator or scavenger
- 21 ▪ Scavenged – an entire carcass that shows signs of being fed upon by a predator or
22 scavenger, or portions of a carcass in one location (e.g., wings, skeletal remains,
23 legs, pieces of skin, etc.)
- 24 ▪ Feather Spot – 10 or more feathers at one location indicating predation or
25 scavenging

26 All carcasses (avian and bat) found during the standardized carcass searches will be
27 photographed, recorded and labeled with a unique number. Each carcass will be bagged and
28 frozen for future reference and possible necropsy. A copy of the data sheet for each carcass will
29 be kept with the carcass at all times. For each carcass found, searchers will record species, sex
30 and age when possible, date and time collected, location, condition (e.g., intact, scavenged,
31 feather spot) and any comments that may indicate cause of death. Searchers will photograph each
32 carcass as found and will map the find on a detailed map of the search area showing the location
33 of the wind turbines and associated facilities. The certificate holder shall coordinate collection of
34 state endangered, threatened or protected species with the Oregon Department of Fish and
35 Wildlife (ODFW). The certificate holder shall coordinate collection of federal endangered,
36 threatened or protected species with the U.S. Fish and Wildlife Service (USFWS). The certificate
37 holder shall obtain appropriate collection permits from ODFW and USFWS.

38 The searchers might discover carcasses incidental to formal carcass searches (e.g., while
39 driving within the project area). If the incidentally discovered carcasses are found at turbines that
40 are not part of the formal search sample, the searchers will identify, photograph and collect the

¹¹ Years may run concurrently.

¹² After three seasons (spring, summer and fall) for Stateline 3.

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1 carcasses as is done for carcasses within the formal search sample during scheduled searches. If
2 the incidentally discovered carcasses are within the formal search plots, the searchers will leave
3 the carcasses undisturbed, unless the carcass is a state or federally threatened or endangered
4 species. The certificate holder shall coordinate collection of state endangered, threatened or
5 protected species with ODFW. The certificate holder shall coordinate collection of federal
6 endangered, threatened or protected species with the USFWS. The searchers will record the
7 location of all incidentally discovered carcasses or injured birds on a detailed map of the study
8 area showing the location of wind turbines and associated facilities such as power lines and met
9 towers. Any injured native birds found will be carefully captured by a trained Project Biologist
10 or technician and transported to Blue Mountain Wildlife Center in Pendleton in a timely fashion.
11 The certificate holder shall follow a protocol for handling injured birds that has been developed
12 with Lynn Thompkins of Blue Mountain Wildlife.

13 **5. Established Monitoring Transect Surveys**

14 The objective of surveys of established monitoring transects is to determine whether the
15 operation of the facility results in a loss of habitat quality. A reduction in use by grassland/steppe
16 avian species near the facility would indicate a loss of habitat quality.

17 Stateline 1 transects: The certificate holder has established 20 transects
18 perpendicular to the turbine strings in non-agricultural grassland steppe and CRP
19 habitats.¹³

20 Stateline 2 transects: No additional transects could be established because the
21 turbine strings are located in cultivated land.

22 Stateline 3 transects: The certificate holder shall establish six new transects (four
23 on turbine strings BG-A, BG-B or BG-C, and two on turbine string G-B).¹⁴

24 The transects will be a maximum of 1000 feet (300 meters) long, but, if no alternative
25 exists, some transects may be shorter due to access problems or a change of habitat type from
26 non-agricultural habitats to cultivated agricultural habitats. The certificate holder will provide to
27 the Department of Energy a map or other clear indication of locations where landowners refuse
28 access and a map of the locations of the established monitoring transects before beginning the
29 monitoring transect surveys for Stateline 1.

30 A qualified observer will walk the pre-established transects and record observations of
31 grasshopper sparrows (singing males and perched birds), long-billed curlews and other
32 grassland/steppe avian species. The approximate distance along the transect will be recorded for
33 each detection, and the habitat type will be recorded for each 50 meter (m) segment of the
34 transect (6 segments).

35 Three searches will be conducted between mid-April and late June. The searches will
36 occur at times spread throughout the period, and the same timing of searches will be used for

¹³ The original Oregon Wildlife Monitoring Plan (9/14/01) required the certificate holder to survey 24 transects that had been established before construction of Stateline 1. However, due to changes in project layout between the initial monitoring plan and the final layout as shown in the site certificate and changes in habitat due to landowner uses, the number of suitable transects for this survey has been reduced to 20.

¹⁴ Transects on turbine strings BG-A, BG-B and BG-C were surveyed in 2001 or 2002. In 2003, the certificate holder shall conduct pre-construction surveys of all six transects that will be used for post-construction surveys.

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1 each monitoring year. Observers will record observations of grassland/steppe avian species
2 within 50 m on either side of the transect. Numbers of individual birds (if possible to determine)
3 for each species will be recorded for each transect. Observers will map the locations where
4 individual birds are first observed. During each transect search, observers will record detections
5 of Washington ground squirrels (scat, holes and live detections).

6 The certificate holder shall conduct a gradient analysis, using regression analysis or other
7 appropriate statistical methods, to determine the relationship between density of grassland/steppe
8 avian species and distance from turbines. A “gradient analysis” means an analysis that assesses
9 whether a significant or a biologically substantial relationship exists between distance from
10 project structures and abundance or use of the area.

11 The certificate holder shall conduct post-construction established transect surveys on the
12 20 Stateline 1 transects in 2002 and 2006. If any Stateline 3 turbines are built, the certificate
13 holder shall conduct an additional year of transect surveys on the 20 Stateline 1 transects and
14 shall survey the six Stateline 3 turbines in 2010. The Department of Energy may require a second
15 year of transect surveys on the Stateline 3 transects if first-year data suggest effects inconsistent
16 with the results of the Stateline 1 transect surveys.

17 Based on the results of the Stateline 1 and Stateline 3 transect surveys, the certificate
18 holder shall determine whether the gradient analysis indicates that the energy facility structures
19 are causing reduced wildlife use of nearby habitat. If the analysis indicates any displacement of
20 grassland/steppe avian species has occurred, the certificate holder shall implement appropriate
21 mitigation, subject to the approval of the Department of Energy. If the gradient analysis suggests
22 that displacement has occurred but lacks statistical power, the certificate holder shall make the
23 worst-case assumption that displacement has occurred to the extent demonstrated in available
24 scientific literature (Leddy et al. 1999) and shall mitigate accordingly. Such mitigation may
25 include the enhancement of an amount of habitat necessary to support the estimated number of
26 grasshopper sparrows and other grassland nesting passerines displaced by the wind turbines and
27 the protection of that enhanced habitat for the life of the facility. The certificate holder shall
28 estimate the displacement effect and distance using the gradient analysis described above.

29 The Department of Energy may require additional, targeted surveys if the data from
30 transect surveys indicate the potential for unexpected impacts of a type that cannot be resolved
31 appropriately by worst-case analysis and appropriate mitigation.

32 **6. Raptor Nest Surveys**

33 The objectives of raptor nest surveys are to estimate the size of the local breeding
34 populations of tree-nesting raptor species in the vicinity of the facility and to determine whether
35 operation of the facility results in a reduction of nesting activity or nesting success in the local
36 populations of “target raptor species”: Swainson’s hawk, ferruginous hawk, golden eagle and
37 prairie falcon.

38 Aerial and ground surveys will be used to gather nest success statistics on active nests,
39 nests with young and young fledged. The certificate holder will share the data with state and
40 federal biologists.

41 During each survey year, the certificate holder shall conduct at least one helicopter
42 survey and additional surveys as described in this section. All nests will be given identification
43 numbers, and nest locations will be recorded on U.S. Geological Survey 7.5-minute quadrangle

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1 maps. Global positioning system coordinates will be recorded for each nest. Locations of
2 inactive nests will also be recorded as they may become occupied during future years. All new
3 nests not previously mapped, whether active or inactive, will be given an identification number
4 and their locations (coordinates) will be recorded. Ground surveys are subject to access.

5 For Stateline 1, the certificate holder conducted aerial surveys between May 5 and 17,
6 2002, and between June 8 and 28, 2002. Surveys were conducted within a 5-mile buffer of the
7 Stateline 1 turbines. In addition, active ferruginous hawk and Swainson's hawk nests within two
8 miles of Stateline 1 turbines were surveyed from the ground to determine nesting success.

9 In 2003, the certificate holder shall conduct an aerial survey within a 2-mile buffer of
10 Stateline 1 and 2 turbines to determine nest occupancy. In addition, the certificate holder shall
11 conduct a minimum of one ground survey to determine species, number of young and nesting
12 success. "Nesting success" means that the young have successfully fledged (the young are
13 independent of the core nest site). In the ground surveys, the certificate holder shall target
14 Swainson's hawk and ferruginous hawk nests and any nests of the target raptor species not
15 observed during the aerial survey.

16 In 2006, the certificate holder shall conduct an aerial survey to determine nest occupancy
17 and a minimum of one ground survey to determine species, number of young and nesting
18 success. The survey area will be within a 2-mile buffer around Stateline 2 turbines. However, if
19 any Stateline 3 turbines are built, the survey area will cover a 2-mile buffer around all Stateline
20 1, 2 and 3 turbines. In the ground surveys, the certificate holder shall target Swainson's hawk
21 and ferruginous hawk nests and any nests of the target raptor species not observed during the
22 aerial survey.

23 In 2010, if any Stateline 3 turbines are built, the certificate holder shall conduct an aerial
24 survey within a 2-mile buffer of Stateline 1, 2 and 3 turbines to determine nest occupancy by
25 ferruginous hawks. In addition, the certificate holder shall conduct a minimum of one ground
26 survey of ferruginous hawk nests to determine number of young and nesting success.

27 Given the very low buteo nesting densities in the area, statistical power to detect a
28 relationship between distance from a wind turbine and nesting parameters (e.g., number of
29 fledglings per reproductive pair) will be very low. Therefore, impacts may have to be judged
30 based on trends in the data, results from other wind energy facility monitoring studies and
31 literature on what is known regarding the populations in the region.

32 If analysis of the raptor nesting data indicates any reduction in nesting success by the
33 target raptor species within two miles of the facility, the certificate holder shall implement
34 appropriate mitigation, subject to the approval of the Department of Energy. At a minimum, if
35 the surveys reveal that a target raptor species has abandoned a nest or territory within ½ mile of
36 the facility, or has not fledged any young over any two survey years, the certificate holder shall
37 assume the abandonment or unsuccessful fledging is the result of the project unless another cause
38 can be demonstrated conclusively. Based on that assumption, the certificate holder shall
39 implement appropriate mitigation. In addition, if the data indicate clear evidence of displacement
40 or disturbance of target raptor nesting species between ½ mile and 2 miles from the facility, the
41 certificate holder shall implement appropriate mitigation.

42 For ferruginous hawks, appropriate mitigation may include creation, maintenance and
43 monitoring of nesting platforms; specifically, eight nesting platforms would be created a

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1 minimum of 2 miles away from turbines for every ferruginous hawk nest assumed or shown to
2 be affected.

3 Due to the difficulty in replacing nesting habitat for Swainson's hawks, appropriate
4 mitigation may include determining the status of the tree structures currently supporting
5 Swainson's hawks within three miles of the turbines and, with landowner approval,
6 implementing protection measures to retain those structures and to protect existing nest trees.
7 This may include fencing to protect existing trees or spraying black locust trees for insect
8 infestation. It may be appropriate to recruit native tree species.

9 **7. Burrowing Owl Surveys**

10 The objectives of owl surveys are to estimate the size of the local breeding population of
11 burrowing owls in the vicinity of the facility and to determine whether operation of the facility
12 results in a reduction of nesting activity or nesting success in the local burrowing owl population.

13 Given the expected small sample size of active burrowing owl nests within 1000 feet of
14 the facility, impacts may have to be judged based on trends in the data, results from other wind
15 energy facility monitoring studies and literature on what is known regarding the populations in
16 the region. No burrowing owls were observed within 1000 feet of the proposed Stateline 1
17 turbines during the 2001 spring pre-construction surveys. Therefore, there is no ability to make
18 any statistical or descriptive inferences on burrowing owl displacement or disturbance impacts to
19 burrowing owls in Oregon.

20 For Stateline 1 and 2 facilities, the certificate holder shall conduct burrowing owl surveys
21 during the breeding season within suitable grassland habitat in association with the fatality
22 monitoring described above in section 4. For each monitoring year, the certificate holder shall
23 conduct a minimum of two surveys for burrowing owls to obtain estimates of burrowing owl nest
24 density near the turbines. For these surveys, the certificate holder shall follow a protocol
25 developed in consultation with ODFW. Taped burrowing owl vocalizations will be played to
26 enhance the ability to detect burrowing owls. Two historic nest sites within the Oregon project
27 area will be checked for use. The burrow and an adjacent 100 meters will be surveyed for sign of
28 activity and alternate nest sites. Based on the results of these surveys after any two years¹⁵ and
29 data from the standardized carcass searches, the Department of Energy may require the
30 certificate holder to conduct additional burrowing owl nest surveys or other related surveys (e.g.,
31 radio-tagging owls) or to provide mitigation. During the burrowing owl surveys, observers shall
32 record and document detections of Washington ground squirrels (scat, holes and live detections).

33 For Stateline 3 facilities, the certificate holder shall conduct a burrowing owl survey in
34 2008 for known active or historic burrowing owl nests and any newly discovered nests within
35 1000 feet of the Stateline 3 wind turbines.

36 **8. Avian Use Surveys**

37 During each standardized carcass search, as described in section 4 above, observers will
38 record birds detected in a ten-minute period at approximately one-third of the turbines within the
39 carcass search plots (e.g., one point count station per carcass search plot which may consist of two
40 to four turbines) using standard variable circular plot point count survey methods. Additional

¹⁵ For Stateline 1 or 2.

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1 observations of species of concern will be made if observed during the carcass searches, but
2 collecting this information is secondary to the actual searching for carcasses so the searchers are not
3 distracted from their main task of finding carcasses.

4 For Stateline 3, observers shall record observations of birds perching on aboveground
5 transmission line conductors and support structures in the vicinity of the turbines being searched.
6 Observers shall document number of perching birds observed, species, location and whether the
7 perching was on a pole or a conductor. Observers shall report any fatalities observed below or near
8 transmission lines.

9 **9. FPL's Stateline Wind Project Wildlife Response and Reporting System**

10 FPL's Stateline Wind Project Wildlife Response and Reporting System is a monitoring
11 program set up for searching for and handling avian and bat casualties found by maintenance
12 personnel. A description of this system and associated data forms used for the Vansycle Ridge
13 Wind Project are found in FPL's application for a site certificate (Attachment P-6, Appendices B
14 and C).

15 This system has been in place at the Vansycle project since early 2000, and a similar
16 system is in place for Stateline 1 and Stateline 2. Construction and maintenance personnel will be
17 trained in the methods. This monitoring program includes both reporting of carcasses discovered
18 incidental to construction and maintenance operations ("incidental finds") and reporting of
19 carcasses discovered under a standardized search protocol for an area within approximately 50
20 meters of the turbines, measured from the base of the tower ("protocol searches").

21 For Stateline 1, a sample of approximately 45 turbines not included in the standardized
22 carcass searches will be chosen to be included in protocol searches in each Stateline 1
23 monitoring year. The certificate holder shall select this sample from the overall Stateline Wind
24 Project in Oregon and Washington, with at least 13 of the sampled turbines located in Oregon.

25 For Stateline 2, the certificate holder shall select a sample of seven Stateline 2 turbines
26 not included in the standardized carcass searches to include in protocol searches in each Stateline
27 2 monitoring year.

28 For Stateline 3, the certificate holder shall select a sample of approximately 15 percent of
29 the Stateline 3 turbines that are built by December 31, 2007, and that are not included in the
30 standardized carcass searches.

31 All carcasses discovered by maintenance personnel will be photographed and recorded. If
32 maintenance personnel find carcasses within the search plots for protocol searches, they will
33 notify a project biologist who will collect the carcasses. If maintenance personnel discover
34 incidental finds at turbines that are not within search plots for the standardized carcass searches
35 described in section 4, they will notify a project biologist who will collect the carcasses. If
36 maintenance personnel discover carcasses within search plots for the standardized carcass
37 searches described in Section 4, they will leave the carcasses undisturbed, unless the carcass is a
38 state or federally threatened or endangered or otherwise protected species. The certificate holder
39 shall coordinate collection of state endangered, threatened or protected species with ODFW. The
40 certificate holder shall coordinate collection of federal endangered, threatened or protected
41 species with the USFWS.

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10. Statistical Analysis Methods for Fatality Data

The estimate of the total number of wind facility-related fatalities will be based on:

- (1) Observed number of carcasses found during standardized carcass searches for which the cause of death is either unknown or is attributed to the facility.
- (2) Searcher efficiency expressed as the proportion of planted carcasses found by searchers
- (3) Non-removal rates expressed as the length of time a carcass is expected to remain in the study area and be available for detection by the searchers

Definition of Variables

The following variables are used in the equations below:

c_i	the number of carcasses detected at plot i for the study period of interest ¹⁶ for which the cause of death is either unknown or is attributed to the facility
n	the number of search plots
k	the number of turbines searched (includes the turbines centered within each search plot and a proportion of the number of turbines adjacent to search plots to account for the effect of adjacent turbines on the 63-meter search plot buffer area)
\bar{c}	the average number of carcasses observed per turbine per year
s	the number of carcasses used in removal trials
s_c	the number of carcasses in removal trials that remain in the study area after 40 days
se	standard error (square of the sample variance of the mean)
t_i	the time (days) a carcass remains in the study area before it is removed
\bar{t}	the average time (days) a carcass remains in the study area before it is removed
d	the total number of carcasses placed in searcher efficiency trials
p	the estimated proportion of detectable carcasses found by searchers
I	the interval between searches in days
$\hat{\pi}_i$	the estimated probability that a carcass is both available to be found during a search and is found ($i = 1$ and 2 ; two estimators)
m_i	the estimated annual average number of fatalities per turbine per year, adjusted for removal and observer detection bias ($i = 1$ and 2 ; two estimators)

¹⁶ The study period is one year, except for fatality monitoring of Stateline 3 turbines. For Stateline 3, the study period includes only the spring, summer and fall seasons.

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1 Observed Number of Carcasses

2 The estimated average number of carcasses (\bar{c}) observed per turbine (or guyed met
3 tower) is:

4
$$\bar{c} = \frac{\sum_{i=1}^n c_i}{k}$$

5 The final estimate of \bar{c} and its standard error are to be calculated using bootstrapping
6 (Manly *et al.* 1997¹⁷). Bootstrapping is a computer simulation technique that is useful for
7 calculating point estimates, variances and confidence intervals for complicated test statistics. The
8 certificate holder shall calculate the mean of at least 5000 bootstrap estimates. The standard
9 deviation of the bootstrap estimates of \bar{c} is the estimated standard error of \bar{c} (that is, $se(\bar{c})$).

10 Estimation of Carcass Removal

11 Estimates of carcass removal are used to adjust carcass counts for removal bias. Mean
12 carcass removal time (\bar{t}) is the average length of time a carcass remains at the site before it is
13 removed:

14
$$\bar{t} = \frac{\sum_{i=1}^s t_i}{s - s_c}$$

15 This estimator is the maximum likelihood estimator assuming that the removal times
16 follow an exponential distribution and that there is right-censoring of data. Any trial carcasses
17 still remaining at 40 days are collected, yielding censored observations at 40 days. If all trial
18 carcasses are removed before the end of the trial, then s_c is 0, and \bar{t} is just the arithmetic average
19 of the removal times.

20 The certificate holder shall use bootstrapping to calculate the final estimate of \bar{t} , the
21 estimated standard error and 90% confidence limits. At least 5000 bootstrap iterations will be
22 used. The standard deviation of the bootstrap estimates of \bar{t} is the estimated standard error of
23 \bar{t} (that is, $se(\bar{t})$). Removal rates will be estimated by major habitat, carcass size (large and small)
24 and season.

25 Estimation of Searcher Efficiency

26 Searcher efficiency rates (that is, the rate of observer detection) are expressed as p , the
27 proportion of trial carcasses that are detected by searchers. The standard error (square of variance
28 of mean) and 90% confidence limits will be calculated by bootstrapping. At least 5000 bootstrap
29 iterations will be used. Observer detection rates will be estimated by major habitat, carcass size
30 and season.

31 Estimation of Total Number of Facility-Related Fatalities

32 The certificate holder shall provide two estimators for the mean number of fatalities per
33 turbine per year. Both estimators adjust the observed number of fatalities by dividing the number
34 of observed carcasses by an estimate of the probability that a carcass is available to be picked up

¹⁷ Manly, B.F.J., *Randomization, Bootstrap and Monte Carlo Methods in Biology* (2nd edition), Chapman and Hall, New York (1997).

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1 during a fatality search (i.e., the probability the carcass is not removed by a scavenger) and is
2 observed (the probability of detection).

3 The first estimator of total number of annual facility-related fatalities (m_1) is calculated
4 by:

$$5 \quad m_1 = \frac{\bar{c}}{\hat{\pi}_1}$$

6 where

$$7 \quad \hat{\pi}_1 = \begin{cases} \frac{\bar{t} * p}{I} & \text{if } I > \bar{t} \\ p & \text{if } I \leq \bar{t} \end{cases}$$

8 This first estimator appears to provide an underestimate of true mortality when the
9 interval between searches is similar to the mean carcass removal time. For this reason, the
10 certificate holder shall calculate the mean number of fatalities per turbine per year¹⁸ using a
11 second estimator, as follows:

$$12 \quad m_2 = \frac{\bar{c}}{\hat{\pi}_2} \text{ where } \hat{\pi}_2 \text{ includes adjustments for both observer detection and scavenging bias}$$

13 and assuming that the carcass removal times t_i follow an exponential distribution.

14 This second estimator does not underestimate true mortality when the mean removal time
15 is similar to or larger than the interval between searches. This estimator will be used when
16 comparisons are made to determine if mitigation should be implemented as described in Section
17 12.

18 The certificate holder shall calculate this estimate separately for each of five categories:
19 1) all birds, 2) small birds, 3) large birds, 4) raptors, 5) bats and 6) grassland birds.¹⁹ Estimates
20 will be provided separately for turbines and any permanent guyed met towers. The certificate
21 holder shall calculate the “all birds” estimate and the “small birds” estimate for all species and,
22 separately, for only those species protected by law. Modifications to these estimates will be made
23 to incorporate the varying search efforts by season (monthly in winter and summer, twice
24 monthly in fall and spring). In addition, the certificate holder shall estimate the number of
25 facility-related fatalities separately for turbines that are located on land that does not support
26 grassland steppe or low shrub/shrub steppe habitat and for turbines that are located on land that
27 does support grassland steppe or low shrub/shrub steppe habitat. Additional modifications may
28 be made, subject to approval by the Department of Energy.

¹⁸ In the case of Stateline 3, the calculation would be the mean number of fatalities per turbine during the study period (spring, summer and fall seasons). This will also be expressed as the mean number of fatalities per turbine per year for comparison purposes by assuming the Stateline 1 and 2 winter fatality rates apply to the Stateline 3 sampled turbines.

¹⁹ Grassland nesting species include grasshopper sparrow, savannah sparrow, vesper sparrow, short-eared owl, burrowing owl, northern harrier, horned lark, western meadowlark, long-billed curlew, ring-necked pheasant, Hungarian partridge, chukar partridge, California quail and any other resident grassland nesting bird species that is found in the area.

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1 The variance of m is difficult to estimate due to the products and ratios of random
2 variables in the equation above. The certificate holder may estimate the variance and confidence
3 intervals using the computer intensive technique of bootstrapping (Manly 1997, Barnard 2000).

4 **11. Data Reporting**

5 The certificate holder will report the monitoring data and analysis to the Council. This
6 report may be included in the annual report required under OAR 345-026-0080 or may be
7 submitted as a separate document at the same time the annual report is submitted. In addition, the
8 certificate holder shall provide to the Council any data or record generated in carrying out this
9 monitoring plan upon request by the Council.

10 The certificate holder shall notify USFWS and ODFW immediately in the event that any
11 federal or state endangered or threatened species are taken.

12 The public will have an opportunity to receive information about monitoring results and
13 to offer comment. Within 30 days after receiving the annual report of monitoring results, the
14 Department of Energy will give reasonable public notice and make the report available to the
15 public. The notice will specify a time in which the public may submit comments to the
16 Department. The Technical Advisory Committee established under the Walla Walla County
17 conditional use permit may offer comments about the results of monitoring programs in Oregon.

18 **12. Mitigation**

19 The selection of the mitigation actions that the certificate holder may be required to
20 implement under this plan should allow for flexibility in creating appropriate responses to
21 monitoring results that cannot be known in advance. If mitigation is needed, the certificate holder
22 shall propose appropriate mitigation actions to the Department of Energy and shall carry out
23 mitigation actions approved by the Department of Energy. In addition to mitigation described
24 above, possible mitigation actions include but are not limited to the measures discussed in this
25 section. No later than December 31, 2010, the Department and the certificate holder shall review
26 this plan and assess whether modification of the required mitigation is appropriate.

27 *Grassland Nesting Species*

28 Grassland nesting species include grasshopper sparrow, savannah sparrow, vesper
29 sparrow, short-eared owl, burrowing owl, northern harrier, horned lark, western meadowlark,
30 long-billed curlew, ring-necked pheasant, Hungarian partridge, chukar partridge, California quail
31 and any other resident grassland nesting bird species that is found in the area. The certificate
32 holder shall determine significant impact to grassland nesting species based on the fatality
33 monitoring program discussed above. The certificate holder shall calculate the average annual
34 fatality rate separately for turbines and, if permanent guyed met towers are used, for permanent
35 guyed met towers. If the average annual fatality rate²⁰ is greater than 1.25 fatalities per turbine or
36 guyed met tower per year for all species combined or if the average annual fatality rate is greater
37 than 0.5 fatalities per turbine or guyed met tower per year for a single grassland nesting bird
38 species, then the certificate holder shall assume that a significant impact on habitat has occurred
39 and shall implement appropriate mitigation. The certificate holder shall include in this estimate
40 any grassland nesting species fatality that is observed, even if it is observed during the non-

²⁰ The “average annual fatality rate” is the average of the two annual estimates of fatalities.

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1 nesting period. The certificate holder shall include in the estimate all carcasses unidentified as to
2 species and for which there is no evidence to rule out the carcass as one of the grassland species
3 listed above.

4 The certificate holder shall determine the need for mitigation for turbine towers and
5 guyed meteorological towers separately. If the analysis of turbine fatality data indicates that
6 mitigation for grassland nesting species is required, the certificate holder shall enhance sufficient
7 habitat to support the number of grassland nesting birds affected. The number of birds affected
8 includes the number of fatalities above the all species threshold (1.25 fatalities/turbine/year) and
9 the number of fatalities above the single species threshold (0.5 fatalities/turbine/year). The
10 certificate holder shall protect that enhanced habitat for the life of the facility. The certificate
11 holder shall propose the amount of habitat enhancement based on expected densities and habitat
12 requirements of these species as described in the literature and studies of the Stateline facility
13 and other wind energy facilities in the Northwest. If the analysis of guyed met tower fatality data
14 indicates that mitigation for grassland nesting species is required, the certificate holder shall
15 implement appropriate mitigation such as 1) enhancing sufficient habitat to support the number
16 of grassland nesting birds affected (determined as above for turbine-related fatalities), 2) moving
17 the guyed met towers associated with high fatalities or 3) changing the design of the met towers
18 to reduce fatality risk.

19 If the mitigation threshold for grassland nesting species is not met but fatalities of a
20 sensitive species, such as grasshopper sparrow, burrowing owl or long-billed curlew are at a
21 level of concern, the Department of Energy may require the certificate holder to implement
22 mitigation for that species.

23 The certificate holder reported the average annual fatality rates for grassland bird species
24 in *Stateline Wind Project Wildlife Monitoring Final Report: July 2001 - December 2003*. This
25 report analyzed two years of monitoring data collected between January 1, 2002, and December
26 31, 2003. Based on the data, the average annual fatality rate for all grassland bird species as a
27 group was 1.28 fatalities per turbine. The average annual fatality rate for horned larks was 0.89
28 fatalities per turbine, and no other single grassland species had an annual fatality rate greater than
29 0.13 fatalities per turbine per year. The reported fatality rates exceeded the “all species”
30 mitigation threshold of 1.25 fatalities per turbine per year and the “single species” threshold of
31 0.5 fatalities per turbine per year.

32 The certificate holder will collect additional data on impacts to grassland bird species.
33 The certificate holder will conduct standardized carcass searches in 2006 on a minimum of 15
34 turbines in the Stateline 2 area. In addition, the certificate holder will conduct standardized
35 searches in 2008 in the Stateline 3 area. The number of turbines to be searched in 2008 will
36 depend on the number of turbines that have been built by the end of 2007.

37 Pending analysis of additional data from future monitoring, the Council determined that
38 additional mitigation for facility impacts to grassland species is not required as of January 20,
39 2006. The basis for this determination was that the reported fatality rates were very close to
40 target levels and the most common species affected was horned lark, a species that is abundant in
41 the area and whose survival is not at risk. The Department may require the certificate holder to
42 implement additional mitigation in the future, based on an analysis of all available data.

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1 Raptors

2 The certificate holder shall determine significant impact to raptors (excluding burrowing
3 owls, short-eared owls and northern harriers, which are considered under grassland nesting
4 species) based on the fatality monitoring program data and any other raptor fatalities found. If
5 more than an average of two raptor fatalities are found per year, then the certificate holder shall
6 assume that a significant impact on raptor habitat has occurred and shall implement appropriate
7 mitigation.

8 The certificate holder reported the number of raptor fatalities in *Stateline Wind Project*
9 *Wildlife Monitoring Final Report: July 2001 - December 2003*. This report analyzed two years of
10 monitoring data collected between January 1, 2002, and December 31, 2003. Seven raptor
11 fatalities were discovered during standardized fatality searches in Oregon and one additional
12 raptor fatality was found in Oregon under the WRRS monitoring program in the two-year period.
13 Therefore, the annual average was four raptor fatalities found per year.

14 On January 20, 2006, the Council determined that additional mitigation was appropriate.
15 To mitigate the effects of the facility on raptors, the certificate holder shall implement the
16 following:

17 (a) Artificial nest structures (ANS) for ferruginous hawks: The certificate holder shall
18 provide funding for the construction, monitoring and maintenance of not less than three
19 ANS. The certificate holder, in consultation with ODFW and the Department, shall
20 determine suitable locations for the ANS and obtain landowner permission to construct
21 the ANS. Suitable locations are locations within the Columbia Basin Physiographic
22 Province in proximity to the Stateline project and on land that is expected to remain in
23 stable ownership for the life of the Stateline facility. Suitable locations are locations that
24 have adequate prey base for ferruginous hawks and that are remote from human activity.
25 If the site chosen for an ANS is on public land or land managed by The Nature
26 Conservancy, the certificate holder shall work out an appropriate agreement with the land
27 management entity for the maintenance and monitoring of the site.

28 The certificate holder shall complete construction of three ANS, using a design
29 appropriate to attract ferruginous hawks, no later than December 31, 2006. If an ANS is
30 vandalized or destroyed (by fire or other cause) during the first five years after
31 construction, the certificate holder shall pay the full cost of replacement. The Department
32 shall determine the need for ongoing maintenance of the ANS beyond the first five years
33 based on the monitoring data on the success of the ANS in attracting raptor use.

34 The certificate holder shall monitor the ANS and report annually to the Department
35 regarding the actual use of the ANS by raptor species. Annual monitoring of all ANS
36 shall continue for at least 10 years after construction of the ANS in 2006. If there has
37 been no use of an ANS by raptors during the first five years, the Department may require
38 the certificate holder to relocate the ANS or construct an ANS at an alternative suitable
39 site.

40 (b) Riparian and upland habitat fencing: The certificate holder shall contribute \$9,000 to
41 a project within the Columbia Basin that will achieve significant fencing of riparian and
42 upland habitat. The certificate holder's contribution shall fund the cost of fencing
43 materials. The certificate holder shall make this contribution for the Birch Creek

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1 Enhancement Project, if the necessary agreements between the project partners become
2 final in 2006. The Birch Creek project is a partnership between a private landowner and
3 other interested organizations to improve upland and riparian wildlife habitat at a site that
4 is within the Columbia Basin Physiographic Province about 30 miles south of the
5 Stateline facility. The project site is near an area of historic nesting sites for ferruginous
6 hawks, and it is likely that improved range conditions may enhance foraging habitat
7 quality for the species, especially during the nesting and juvenile dispersal period. It is
8 expected that other raptor species will benefit as well, including red-tailed hawks and
9 American kestrels that may nest in deciduous or coniferous trees and forage in the
10 uplands. It is anticipated that the fencing work would be initiated during the summer or
11 fall of 2006 and would be completed in 2007. The certificate holder shall provide
12 periodic reports to the Department on the progress of the Birch Creek project. At a
13 minimum, the certificate holder shall report on the project in the annual reports on the
14 Stateline facility.

15 The Birch Creek project would enclose 5,000 acres of Columbia Basin grassland and
16 riparian and upper Birch Creek conifer/grassland. Approximately 15 miles of new high-
17 tensile, wildlife-friendly fencing would be built. The goal is to exclude cattle from
18 riparian zones and upland habitats so the areas can recover from past grazing pressure.
19 The fencing would enclose uplands for raptor foraging and deciduous trees and shrubs for
20 potential raptor nesting, perching and roosting.

21 As of January 20, 2006, the necessary partnership agreements were in the process of
22 becoming final. If these agreements do not become final in 2006, the certificate holder
23 shall identify an alternative project similar to the Birch Creek project described above.
24 Subject to the approval of the Department, the certificate holder shall implement the
25 alternative project.

26 (c) Contributions to the Blue Mountain Wildlife Rehabilitation Center: The Blue
27 Mountain Wildlife Rehabilitation Center near Pendleton is a non-profit organization that
28 provides treatment and care to orphaned, injured or sick native wildlife to enable their
29 return to their natural habitat. To support the work of the Center in the rehabilitation of
30 raptors, the certificate holder shall contribute \$3,000 to the Center in 2006 and \$1,500
31 annually thereafter for four years (2007 through 2010). The certificate holder shall
32 request that the funds be dedicated to paying for food and other supplies necessary for
33 raptor rehabilitation. The certificate holder and the Department shall assess ongoing
34 mitigation activities no later than December 31, 2010, and shall determine the amount of
35 further contributions to the Center.

36 The certificate holder will collect additional data on the effects of the facility on raptors,
37 including standardized carcass searches in 2006. If Stateline 3 turbines are built, the certificate
38 holder will conduct standardized searches in 2008 in the Stateline 3 area. The Wildlife Response
39 and Reporting System will be in place for the life of the facility and will include reporting of any
40 incidental raptor fatalities found by maintenance personnel. In addition, the certificate holder will
41 conduct raptor nest surveys in 2006 and, if Stateline 3 turbines are built, additional raptor nest
42 surveys in 2010. If the mitigation threshold is not met but fatalities of a sensitive raptor species,
43 such as ferruginous hawk or Swainson's hawk are at a level of concern, the Department of
44 Energy may require the certificate holder to implement mitigation for that species.

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1 Other Bird Species and Bats

2 Mitigation measures for grassland nesting birds and for raptors, if implemented, would
3 also benefit other bird species and bats. There is no mitigation threshold for these species.
4 However, if fatalities to these species are higher than expected and are at a level of concern, the
5 Department of Energy may require the certificate holder to implement mitigation for these
6 species. The monitoring data presented in *Stateline Wind Project Wildlife Monitoring Final*
7 *Report: July 2001 - December 2003* show that fatality rates for other bird species and bats were
8 not higher than expected. The overall bat fatality rate was 1.7 fatalities per megawatt, which is
9 below the U.S. average rate of 2.1 fatalities per megawatt. Pending analysis of additional data
10 from future monitoring, the Council determined that additional mitigation for facility impacts to
11 other bird species and bats is not required as of January 20, 2006.

12 **13. Amendment of the Plan**

13 This Oregon Wildlife Monitoring Plan may be amended from time to time by agreement
14 of the certificate holder and the Council. Such amendments may be made without amendment of
15 the site certificate. The Council authorizes the Department of Energy to agree to amendments to
16 this plan and to mitigation actions that may be required under this plan. The Department of
17 Energy shall notify the Council of all amendments and mitigation actions, and the Council
18 retains the authority to approve, reject or modify any amendment of this plan or mitigation action
19 agreed to by the Department.