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2  
3 **GOLDEN HILLS WIND PROJECT**  
4 **DRAFT-FINAL AMENDED WILDLIFE MONITORING AND MITIGATION PLAN**  
5 **MARCH 2021**

6 This plan describes wildlife monitoring that the certificate holder shall conduct during  
7 operation of the Golden Hills Wind Project (GHWP).<sup>1</sup> The monitoring objectives are to  
8 determine whether operation of the facility causes significant fatalities of birds and bats and to  
9 determine whether the facility results in a loss of habitat quality. ~~The GHWP Golden Hills wind~~  
10 ~~power project~~ consists ~~of 51 total turbines arranged in~~ of a number of turbine strings. ~~Two~~  
11 ~~turbine types will be present with the GHWP, with up to 125 turbines, including 41 Vestas V150~~  
12 ~~4.3-megawatt (MW) turbines having a hub height of 105 meters (m) and rotor diameter of 150~~  
13 ~~m and 10 GE 2.5-MW turbines having a hub height of 90 m and rotor diameter of 116 m. Two~~  
14 permanent meteorological (met) towers will be built. ~~The turbines will be linked by access~~  
15 ~~roads and a 34.5-kV transmission line. The 62-mile-long power collection system will be largely~~  
16 ~~underground, but might be overhead in some locations.~~

17  
18 The certificate holder shall use experienced personnel to manage the monitoring  
19 required under this plan and properly trained personnel to conduct the monitoring. ~~subject to~~  
20 ~~approval by the Oregon Department of Energy (Department) as to professional qualifications.~~  
21 For all components of this plan except the Raptor Nesting Surveys and ~~Operational~~ the Wildlife  
22 ~~Incident Response and Handling System Monitoring~~, the certificate holder shall direct a qualified  
23 independent third-party biological monitor, ~~as approved by the Department,~~ to perform  
24 monitoring tasks.

25  
26 The Wildlife Monitoring and Mitigation Plan for the GHWP has the following  
27 components:

- 28  
29 1) Fatality Monitoring Program including:  
30 a) Removal Trials  
31 b) Searcher Efficiency Trials  
32 c) Fatality Monitoring Search Protocol  
33 d) Statistical Analysis  
34 2) Raptor Nesting Surveys  
35 ~~3) Avian Use and Behavior Surveys~~  
36 ~~4) Operational Wildlife Incident Response and Handling System Monitoring~~

37  
38 Following is a discussion of the components of the monitoring plan, statistical analysis  
39 methods for fatality data, data reporting and potential mitigation.  
40

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<sup>1</sup> This plan is incorporated by reference in the site certificate for the GHWP and must be understood in that context. It is not a “stand-alone” document. This plan does not contain all mitigation required of the certificate holder.

1 The selection of the mitigation actions that the certificate holder may be required to  
2 implement under this plan should allow for flexibility in creating appropriate responses to  
3 monitoring results that cannot be known in advance. If the Department determines that  
4 mitigation is needed, the certificate holder shall propose appropriate mitigation actions to the  
5 Department and shall carry out mitigation actions approved by the Department, subject to  
6 review by the Oregon Energy Facility Council (Council).

7  
8 **1. Fatality Monitoring**

9  
10 (a) Definitions and Methods

11  
12 Seasons

13  
14 This plan uses the following dates for defining seasons:

15

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

16  
17 Search Plots

18  
19 The certificate holder shall conduct fatality monitoring within circular search plots. The  
20 certificate holder, in consultation with the Oregon Department of Fish and Wildlife (ODFW), will  
21 select search plots based on a systematic sampling design that ensures the selected search  
22 plots are representative of the habitat in different parts of the site. -Each search plot will  
23 contain one turbine. ~~Search plots will be square or circular.~~ Circular search plots will be  
24 centered on the turbine location and will have a radius equal to the maximum blade tip height  
25 of the turbine contained within the plot. "Maximum blade tip height" is the turbine hub-height  
26 plus one-half the rotor diameter. ~~Square search plots will be of sufficient size to contain a~~  
27 ~~circular search plot as described above.~~

28  
29 The certificate holder shall provide maps of the search plots to the Department and  
30 ODFW before beginning fatality monitoring at the facility. The certificate holder will use the  
31 same search plots for each search conducted during each monitoring year, unless a switch to a  
32 road and pad search methodology is deem warranted for a portion of the monitoring year (see  
33 Road and Pad Search Methodology section below). During the second monitoring year, new  
34 search plots will be selected from the turbines not sampled during the first monitoring year.

35  
36 Sample Size

1 The sample size for fatality monitoring is the number of turbines searched per  
2 monitoring year. The certificate holder shall conduct fatality monitoring during ~~the~~ each  
3 monitoring year in search plots at 1/~~23~~ of the GHWP's 51 turbines, for a sample size of 26  
4 turbines per monitoring year. If fewer than 150 turbines are built, GHWF shall monitor a  
5 minimum of 50 turbines.

6  
7 The post-construction monitoring plan for GHWP will sample 26 of the 51 turbines at  
8 the facility over each monitoring year in order to produce annual facility-wide estimates of bird  
9 and bat mortality. Additionally, because this facility is composed of two different turbine  
10 types/sizes (2.5-MW and 4.3-MW), an additional analysis will be performed to statistically  
11 compare bird and bat mortality between the two turbine types. To achieve a statistically robust  
12 sample to allow such a comparison, the 26-turbine sample will include all 10 of the 2.5-MW  
13 turbines and the remainder of the sample (16) will be 4.3-MW turbines. The sample of ~~2-5~~4.3-  
14 MW turbines will be selected using a systematic sampling design (as described above in the  
15 Search Plot section), such that the 16 sampled turbines are representative of the land cover and  
16 topographies throughout the site. Carcass searches at these two different turbine types, along  
17 with measurements of searcher bias and an appropriate area correction, will provide the  
18 necessary components to calculate a fatality rate and 90% confidence interval for each turbine  
19 type. For the purposes of this study, rates will be considered different if their confidence  
20 intervals do not overlap.~~If the final design of GHWP includes more than one wind turbine~~  
21 ~~model, then GHWF shall, before beginning fatality monitoring, consult with an independent~~  
22 ~~expert with experience in statistical analysis of avian fatality data to determine whether it~~  
23 ~~would be possible to design a 50-turbine sample with a sufficient number of turbines in each~~  
24 ~~size class to allow statistical comparison of fatality rates for all birds as a group. GHWF shall~~  
25 ~~submit the expert's written analysis to the Department. If the analysis shows that a comparison~~  
26 ~~study is possible and if the Department approves, GHWF shall sample the appropriate number~~  
27 ~~of turbines in each class and conduct the comparison study. GHWF may choose to sample more~~  
28 ~~than 50 turbines in a each monitoring year, if a larger sample size would allow the comparison~~  
29 ~~study to be done; however, the monitored turbines shall include representation from each~~  
30 ~~turbine model option used at the facility in order to compare, as possible, fatalities between~~  
31 ~~turbine models.~~

### 32 33 Scheduling and Sampling Frequency

34  
35 Fatality monitoring will begin upon the commencement of commercial operation of the  
36 facility.

37  
38 The first fatality monitoring year will commence on the first day of the month following  
39 the commercial operation date of the facility and will conclude twelve months later (for  
40 example, if commercial operation begins in ~~October-December~~ of 20~~10~~~~8~~, the monitoring year  
41 will commence on ~~November-January 11~~, 20~~12~~~~08~~, and conclude on ~~October-December~~ 31,  
42 20~~22~~~~09~~). Subsequent monitoring years will follow the same schedule (for example, the second  
43 monitoring year would begin November 1 of the year in which monitoring is performed, and  
44 conclude October 31 of the following year)

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In each monitoring year, the certificate holder shall conduct fatality-monitoring searches at all sampled turbines~~the rates of frequency~~ twice per month for the duration of the one-year monitoring period. This is a more frequent search schedule during the summer and winter seasons than recommended by the previous (October 2018) version of the WMMP, which prescribed a monthly search interval for summer and winter, and is expected to provide for more precise fatality estimation. Given the sensitivity of fatality rates to carcass persistence, the certificate holder may increase or decrease search frequency based on carcass persistence bias trials over the monitoring period but will do no fewer searches than the twice monthly searches described in the WMMP~~shown below.~~ Following this schedule, ~~o~~ver the course of one monitoring year, the certificate holder would conduct ~~2446~~ 2416 searches<sup>2</sup>, as follows:

Season	Frequency
Spring Migration	2 searches per month (4 searches)
Summer/Breeding	<del>24</del> <u>21</u> searches per month ( <del>63</del> searches)
Fall Migration	2 searches per month (5 searches)
Winter	<del>24</del> <u>21</u> searches per month ( <del>94</del> searches)

Duration of Fatality Monitoring

~~GHWF~~ The certificate holder shall perform ~~one fatality complete~~ complete monitoring ~~cycle~~ during ~~the~~ its first two full years of operation (Year 1 and Year 2). At the end of ~~the first~~ each full year of monitoring, ~~GHWF~~ the certificate holder will report the annual results for joint evaluation by ~~ODOE~~ the Department, ~~GHWF~~ and ODFW. In the evaluation, results for GHWP will be compared with the threshold table in section 1(g) of this plan, and with analogous fatality monitoring results for Klondike III, Biglow Canyon, Combine Hills, Nine Canyon, Hopkins Ridge, Montague, and, if available, Leaning Juniper. Fatality monitoring results from other wind power facilities in the Columbia Basin may also be included, if available. For the purpose of determining whether a threshold has been exceeded, the certificate holder shall calculate the average annual fatality rate for the species groups after the first two years of monitoring. If fatality results for the first year of monitoring at GHWP do not exceed any of the thresholds of concern and are within the range of all results from the facilities listed above, then GHWF will perform its second year of monitoring in year 5 of operations.

If fatality rates for the combined first two years of monitoring at the GHWP exceed any of the thresholds of concern or exceed the range of fatality rates found at other wind power facilities in the region, the certificate holder ~~Otherwise, GHWF~~ shall propose additional mitigation within 6 months, for ~~ODOE~~ Department and ODFW review and approval. ~~Alternately, GHWF may opt to perform a second year of fatality monitoring immediately if it believes that the results of year 1 monitoring were anomalous. If GHWF takes this option, then it will still perform the monitoring in year 5 of operations described above.~~

<sup>2</sup> GHWF may omit the searches on some turbines, if searches are not possible due to safety reasons .

1 Meteorological Towers

2  
3 The facility must be built using non-guyed meteorological towers. Based on data from  
4 other wind energy facilities, non-guyed towers are generally known to cause little if any bird  
5 and bat mortality. The met towers at the GHWP will be 105 m in height, rather than the 123-m  
6 towers approved in Amendment 5 which have not been well-studied with respect to impacts to  
7 birds and bats. Because the certificate holder has opted to use the smaller met towers, fatality  
8 monitoring is not required. ; however, if the certificate holder uses the largest meteorological  
9 tower option (123 m) approved in Amendment 5, due to the lack of installed towers of this  
10 height and any data on avian and bat fatalities associated with those towers, the monitoring  
11 studies shall include all permanent meteorological towers built at 123 m.

12  
13 Data from other wind facilities has shown that shorter towers are unlikely to cause bird  
14 and bat mortality, and if the certificate holder uses towers under 123 m, monitoring is not  
15 required at such towers.

16  
17 Use of Road and Pad Sampling Methodology

18  
19 The certificate holder requests the ability to use a road and pad (R&P) sampling method  
20 as an alternative to full plot (FP) searches if tall vegetation (i.e., wheat) results in poor searcher  
21 efficiency. Tall wheat can obscure detection of bird and bat carcasses and result in low carcass  
22 detection, and consequently the fatality estimates are skewed upward to account for  
23 potentially missed carcasses. A R&P method defines the search plot as the high visibility areas  
24 (typically graveled areas along roads and around turbine bases) within 150-180 m (depending  
25 on max turbine tip height) of each turbine, and excludes areas with low visibility (tall wheat).  
26 The search area at each turbine will be less for the road and pad searches, however, a larger  
27 sample of turbines will be searched rather than the 26 turbines searched under a FP sampling  
28 method such that the total proportion of area beneath turbines will be similar between R&P  
29 and FP searches. While the amount of high visibility area for each R&P search plot will vary  
30 between turbines, it is estimated that the search area will comprise between 20% and 40% of  
31 the area encompassed by the full 150-m to 180-m radius plot. For the R&P method, the number  
32 of fatalities found will be adjusted to account for fatalities potentially occurring in the  
33 unsearched (low visibility) portions of the plot, and therefore, missed by searchers. Huso and  
34 Dalthorp (2014) present one such method of adjusting fatality estimates to account for  
35 unsearched portions of the sampling plot. Their method uses models relating carcass density to  
36 distance from turbine to estimate the proportion of carcasses expected to fall in searched areas  
37 and evaluates the statistical costs of restricting searches to high visibility areas (Huso and  
38 Dalthorp 2014). A R&P sampling methodology is often employed at certain times of the year  
39 during PCFM studies conducted at facilities within agricultural landscapes, particularly in the  
40 Midwest, when crops become too tall or dense to effectively detect carcasses.

41 At GHWP, a R&P sampling method would be used only within sampling plots containing  
42 cropland, and only if/when vegetation becomes tall enough to impede detection of fatalities.  
43 The certificate holder is negotiating with landowners to not plant wheat in the sample plots

1 during monitoring years but some landowners may not agree as the sample plots are large and  
2 typically located the middle of fields.

3  
4 (b) Removal Trials

5  
6 The objective of the removal trials is to estimate the length of time avian and bat  
7 carcasses remain in the search area. Carcass removal studies will be conducted during each  
8 season in the vicinity of the search plots. Estimates of carcass removal rates will be used to  
9 adjust carcass counts for removal bias. “Carcass removal” is the disappearance of a carcass  
10 from the search area due to predation, scavenging or other means such as farming activity.  
11 Removal rates will be estimated by size class, habitat-visibility class/cover type, and season.

12  
13 ~~During the first year, the~~The certificate holder shall conduct carcass removal trials  
14 within each of the seasons defined above during the years in which fatality monitoring occurs.  
15 During the first year in which fatality monitoring occurs, trials will occur in at least eight  
16 different calendar weeks in a year, with at least one calendar week between starting dates.  
17 Trials will be spread throughout the year to incorporate the effects of varying weather, farming  
18 practices and scavenger densities. At least two trials will be started in each season. Each trial  
19 will use at least 6 carcasses. For each trial, 3 small bird carcasses, and 3 large bird carcasses will  
20 be distributed in cultivated agriculture ~~cover types~~habitat and 3 small bird carcasses and 3 large  
21 bird carcasses will be distributed in non-cultivated ~~cover~~ habitat (grassland/shrub-steppe and  
22 CRP). During the spring, summer, and fall removal trials, bat carcasses (or bat surrogates) will  
23 also be distributed in both cultivated and non-cultivated cover types (at least 6 carcasses per  
24 season). In a year, approximately ~~6648~~ carcasses will be placed in cultivated agriculture and  
25 ~~6648~~ carcasses in non-cultivated grassland/shrub-steppe and CRP for a total of about ~~13296~~  
26 trial carcasses. The number of removal trials may be adjusted up or down during the second  
27 year of fatality monitoring, subject to approval by the Department, if the certificate holder can  
28 demonstrate that the calculation of fatality rates will continue to have statistical validity with  
29 the new sample size.

30  
31 The “small bird” size class will use carcasses of house sparrows, starlings, commercially  
32 available game bird chicks or legally obtained native birds to simulate passerines. The “large  
33 bird” size class will use carcasses of ~~raptors provided by agencies,~~ commercially available adult  
34 game birds ~~or cryptically colored chickens to simulate raptors, game birds and waterfowl.~~ If  
35 fresh carcasses of native birds are found during the study, they may also be left in place and  
36 monitored for carcass removal. If fresh bat carcasses are available, they may also be used,  
37 otherwise brown mice or small brown birds will be used to simulate bats during the spring,  
38 summer, and fall seasons.

39  
40 To avoid confusion with turbine-related fatalities, planted carcasses will not be placed in  
41 fatality monitoring search plots. Planted carcasses will be placed in the vicinity of search plots  
42 but not so near as to attract scavengers to the search plots. The planted carcasses will be  
43 located randomly within the carcass removal trial plots.



1 Carcasses will be placed in a variety of postures to simulate a range of conditions. For  
2 example, birds will be: 1) placed in an exposed posture (e.g., thrown over the shoulder), 2)  
3 hidden to simulate a crippled bird (e.g., placed beneath a shrub or tuft of grass) and, 3) partially  
4 hidden. Trial carcasses will be marked discreetly for recognition by searchers and other  
5 personnel. Trial carcasses will be left at the location until the end of the carcass removal trial.  
6

7 It is expected that carcasses will be checked as follows, although actual intervals may  
8 vary. Carcasses will be checked for a period of 40 days to determine removal rates. They will be  
9 checked about every day for the first 4 days, and then on day 7, day 10, day 14, day 20, day 30  
10 and day 40. This schedule may vary depending on weather and coordination with the other  
11 survey work. At the end of the 40-day period, the trial carcasses and scattered feathers will be  
12 removed.  
13

#### 14 (c) Searcher Efficiency Trials 15

16 The objective of searcher efficiency trials is to estimate the percentage of bird and bat  
17 fatalities that searchers are able to find. The certificate holder shall conduct searcher efficiency  
18 trials on the fatality-monitoring search plots in both grassland/shrub-steppe and cultivated  
19 agriculture ~~habitat cover~~ types. Searcher efficiency will be estimated by size class, ~~habitat~~  
20 ~~visibility class/cover~~ type, and season. Estimates of searcher efficiency will be used to adjust  
21 carcass counts for detection bias.  
22

23 Searcher efficiency trials will be conducted in each season as defined above, during the  
24 years in which the fatality monitoring occurs. Trials will be spread throughout the year to  
25 incorporate the effects of varying ~~weather, farming practices and scavenger densities. site~~  
26 ~~conditions (e.g., weather, vegetation) which may affect the searcher's ability to detect~~  
27 ~~carcasses~~. At least two trials will be conducted in each season. Each trial will use about ~~1512~~  
28 carcasses, although the number will be variable so that the searcher will not know the total  
29 number of trial carcasses being used in any trial. For each trial, both small bird and large bird  
30 carcasses will be used in about equal numbers, ~~and during spring, summer, and fall trials, an~~  
31 ~~equal number of bat carcasses (or bat surrogates) will also be used~~. "Small bird", ~~and~~ "large  
32 bird", ~~and~~ "bat" size classes and carcass selections are as described above for the removal trials.  
33 An equal proportion of the trial carcasses will be distributed in cultivated agriculture habitat  
34 and in non-cultivated habitat (grassland/shrub steppe and CRP). In a year, about ~~6048~~ carcasses  
35 will be placed in cultivated agriculture and about ~~6048~~ in non-cultivated grassland/shrub steppe  
36 and CRP for a total of about ~~12096~~ trial carcasses. The number of searcher efficiency trials may  
37 be reduced to one per season during the second year of fatality monitoring, subject to approval  
38 by the Department, if the certificate holder can demonstrate that the calculation of fatality  
39 rates will continue to have statistical validity with the reduced sample size.  
40

41 Personnel conducting searches will not know in advance when trials are conducted; nor  
42 will they know the location of the trial carcasses. ~~If suitable trial carcasses are available, trials~~  
43 ~~during the fall season will include several small brown birds to simulate bat carcasses. Legally~~  
44 ~~obtained bat carcasses will be used if available.~~

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1  
2 On the day of a standardized fatality monitoring search (described below) but before the  
3 beginning of the search, efficiency trial carcasses will be placed at random locations within  
4 areas to be searched. If scavengers appear attracted by placement of carcasses, the carcasses  
5 will be distributed before dawn.

6  
7 ~~Searcher efficiency trials will be spread over the entire season to incorporate effects of varying~~  
8 ~~weather and vegetation growth.~~ Carcasses will be placed in a variety of postures to simulate a  
9 range of conditions. For example, birds will be: 1) placed in an exposed posture (thrown over  
10 the shoulder), 2) hidden to simulate a crippled bird and 3) partially hidden.

11  
12 Each non-domestic carcass will be discreetly marked so that it can be identified as an  
13 efficiency trial carcass after it is found. The number and location of the efficiency trial carcasses  
14 found during the carcass search will be recorded. The number of efficiency trial carcasses  
15 available for detection during each trial will be determined immediately after the trial by the  
16 person responsible for distributing the carcasses.

17  
18 If new searchers are brought into the search team, additional detection trials will be  
19 conducted to ensure that detection rates incorporate searcher differences. If GHWF does not  
20 perform a second year of monitoring until the 5<sup>th</sup> year of operation, then searcher efficiency  
21 and removal trials shall be repeated to ensure that the removal and detection rates used to  
22 estimate overall fatalities account for new searchers and changed predation or scavenger  
23 behavior patterns.

#### 24 25 (d) Coordination with the other Wind Projects

26  
27 It is anticipated that other wind projects in Sherman County may be monitored at the  
28 same time that Golden Hills is monitored. If these projects are permitted through EFSE~~C~~, they  
29 will require similar wildlife monitoring. Subject to the approval of both certificate holders and  
30 the Department, the number of trials at each site and the number of trial carcasses used at  
31 each site can be reduced by combining the removal data and efficiency data from multiple  
32 facilities, if the certificate holder can demonstrate that the calculation of fatality rates will  
33 continue to have statistical validity for both facilities and that combining the data will not affect  
34 any other requirements of the monitoring plans for either facility.

#### 35 36 (e) Fatality Monitoring Search Protocol

37  
38 The objective of fatality monitoring is to estimate the number of bird and bat fatalities  
39 that are attributable to facility operation and associated variances. The certificate holder shall  
40 conduct fatality monitoring using standardized carcass searches.

41  
42 ~~The certificate holder shall use a worst case analysis to resolve any uncertainty in the~~  
43 ~~results and to determine whether the data indicate that additional mitigation should be~~  
44 ~~considered. The Department may require additional, targeted monitoring if the data indicate~~

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1 ~~the potential for significant impacts that cannot be addressed by worst-case analysis and~~  
2 ~~appropriate mitigation.~~

3  
4 The certificate holder shall estimate the number of avian and bat fatalities attributable  
5 to operation of the facility based on the number of avian and bat fatalities found at the facility  
6 site. All carcasses located within areas surveyed, regardless of species, will be recorded and, if  
7 possible, a cause of death determined based on blind necropsy results. If a different cause of  
8 death is not apparent, the fatality will be attributed to facility operation. The total number of  
9 avian and bat carcasses will be estimated by adjusting for removal and searcher efficiency bias.

10  
11 Personnel trained in proper search techniques (“the searchers”) will conduct the carcass  
12 searches by walking parallel transects within the search plots.<sup>3</sup> Transects will be initially set at 6  
13 meters apart in the area to be searched. A searcher will walk at a rate of about 45 to 60 meters  
14 per minute along each transect searching both sides out to three meters for casualties. Search  
15 area and speed may be adjusted by habitat type after evaluation of the first searcher efficiency  
16 trial. The searchers will record the condition of each carcass found, using the following  
17 condition categories:

- 18  
19
- 20 ■ Intact – a carcass that is completely intact, is not badly decomposed and shows no  
21 sign of being fed upon by a predator or scavenger
  - 22 ■ Scavenged – an entire carcass that shows signs of being fed upon by a predator or  
23 scavenger, or portions of a carcass in one location (e.g., wings, skeletal remains, legs,  
24 pieces of skin, etc.)
  - 25 ■ Feather Spot – 10 or more feathers at one location indicating predation or  
26 scavenging or 2 or more primary feathers

27 All carcasses (avian and bat) found during the standardized carcass searches will be  
28 photographed as found, recorded and labeled with a unique number. Distance from observer to  
29 the carcass will be measured (to the nearest 0.25 meters), as will the perpendicular distance  
30 from the transect line to the carcass. ~~While the certificate holder does not hold a federal SPUT~~  
31 ~~Permit to allow collection of most native bird carcasses, the investigators conducting the~~  
32 ~~fatality monitoring study may possess an ODFW Scientific Taking Permit to allow salvage of bat~~  
33 ~~carcasses found during the study. If this is the case, any bat carcass found during the study~~ Each  
34 ~~carcass~~ will be bagged and frozen for future reference and possible necropsy. A copy of the  
35 data sheet for each bat carcass will be kept with the carcass at all times. For each bird and bat  
36 carcass found, searchers will record species, sex and age when possible, date and time collected  
37 ~~(if allowed by permit)~~, location, condition (e.g., intact, scavenged, feather spot) and any  
38 comments that may indicate cause of death. Searchers will map the find on a detailed map of  
39 the search area showing the location of the wind turbines and associated facilities such as  
40 power lines. The certificate holder shall coordinate collection of state endangered, threatened,  
41 sensitive or other state protected species with ODFW. The certificate holder shall coordinate  
42 collection of federally-listed endangered or threatened species ~~and Migratory Bird Treaty Act~~

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<sup>3</sup> Where search plots are adjacent, the search area may be rectangular.

1 ~~protected avian species~~ with the U.S. Fish and Wildlife Service (USFWS). ~~The certificate holder~~  
2 ~~shall obtain appropriate collection permits from ODFW and USFWS.~~

3  
4 The searchers might discover carcasses incidental to formal carcass searches (e.g., while  
5 driving within the project area). For each incidentally discovered carcass, the searcher shall  
6 identify, photograph, record data and collect (if allowable by permit) the carcass as would be  
7 done for carcasses within the formal search sample during scheduled searches.

8  
9 If the incidentally discovered carcass is found within a formal search plot, but outside of the  
10 scheduled survey period, the fatality data will be included in the calculation of fatality rates  
11 under the assumption that it would have been found during the next scheduled search. If the  
12 incidentally discovered carcass is found outside a formal search plot, the data will be reported,  
13 but not included in the calculation of fatality rates separately.

14  
15 The certificate holder shall coordinate collection of incidentally discovered state endangered,  
16 threatened, sensitive or other state protected species with ODFW. The certificate holder shall  
17 coordinate collection of incidentally discovered federally-listed endangered or threatened  
18 species ~~and Migratory Bird Treaty Act protected avian species~~ with the USFWS.

19  
20 The certificate holder shall develop and follow a protocol for handling injured birds. Any  
21 injured native birds found on the facility site will be carefully captured by a trained project  
22 biologist or technician and transported to Jean Cypher (wildlife rehabilitator) in The Dalles, the  
23 Blue Mountain Wildlife Rehabilitation Center in Pendleton or the Audubon Bird Care Center in  
24 Portland in a timely fashion.<sup>4</sup> The certificate holder shall pay costs, if any are charged, for time  
25 and expenses related to care and rehabilitation of injured native birds found on the site, unless  
26 the cause of injury is clearly demonstrated to be unrelated to the facility operations.

27  
28 (f) Statistical Methods for Fatality Estimates

29  
30 ~~The estimate of the total number of wind facility-related fatalities is based on:~~

31  
32 ~~(1) The observed number of carcasses found during standardized searches during the~~  
33 ~~two monitoring years for which the cause of death is attributed to the facility.<sup>5</sup>~~

34  
35 ~~(2) Searcher efficiency expressed as the proportion of planted carcasses found by~~  
36 ~~searchers.~~

37  
38 ~~(3) Non-removal rates expressed as the estimated average probability a carcass is~~  
39 ~~expected to remain in the study area and be available for detection by the searchers~~  
40 ~~during the entire survey period.~~

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<sup>4</sup> The people and centers listed here may be changed with Department approval.

~~<sup>5</sup> If a different cause of death is not apparent, the fatality will be attributed to facility operation.~~

1  
2 Definition of Variables

3  
4 The following variables are used in the equations below:

5  $c_i$  — the number of carcasses detected at plot  $i$  for the study period of interest (e.g.,  
6 one year) for which the cause of death is either unknown or is attributed to the  
7 facility

8  $n$  — the number of search plots

9  $k$  — the number of turbines searched (includes the turbines centered within each  
10 search plot and a proportion of the number of turbines adjacent to search plots  
11 to account for the effect of adjacent turbines on the 90-meter search plot buffer  
12 area)

13  $\bar{c}$  — the average number of carcasses observed per turbine per year

14  $s$  — the number of carcasses used in removal trials

15  $s_e$  — the number of carcasses in removal trials that remain in the study area after 40  
16 days

17  $se$  — standard error (square of the sample variance of the mean)

18  $t_i$  — the time (days) a carcass remains in the study area before it is removed

19  $\bar{t}$  — the average time (days) a carcass remains in the study area before it is removed

20  $d$  — the total number of carcasses placed in searcher efficiency trials

21  $p$  — the estimated proportion of detectable carcasses found by searchers

22  $t$  — the average interval between searches in days

23  $\hat{\pi}$  — the estimated probability that a carcass is both available to be found during a  
24 search and is found

25  $m_i$  — the estimated annual average number of fatalities per turbine per year, adjusted  
26 for removal and observer detection bias

27  $C$  — nameplate energy output of turbine in megawatts (MW)

28  
29 Observed Number of Carcasses

30  
31 The estimated average number of carcasses ( $\bar{c}$ ) observed per turbine per year is:

32  
33 
$$\bar{c} = \frac{\sum_{i=1}^n c_i}{k} \tag{1}$$

34  
35 Estimation of Carcass Removal

36  
37 Estimates of carcass removal are used to adjust carcass counts for removal bias. Mean  
38 carcass removal time ( $\bar{t}$ ) is the average length of time a carcass remains at the site before it is  
39 removed:  
40

$$\bar{t} = \frac{\sum_{i=1}^s t_i}{s - s_c} \quad (2)$$

This estimator is the maximum likelihood estimator assuming the removal times follow an exponential distribution and there is right-censoring of data. Any trial carcasses still remaining at 40 days are collected, yielding censored observations at 40 days. If all trial carcasses are removed before the end of the trial, then  $s_c$  is 0, and  $\bar{t}$  is just the arithmetic average of the removal times. Removal rates will be estimated by carcass size (small and large) and season.

### Estimation of Observer Detection Rates

Observer detection rates (i.e., searcher efficiency rates) are expressed as  $p$ , the proportion of trial carcasses that are detected by searchers. Observer detection rates will be estimated by carcass size and season.

### Estimation of Facility-Related Fatality Rates

The estimated per turbine annual fatality rate ( $m_t$ ) is calculated by:

$$m_t = \frac{\bar{c}}{\hat{\pi}} \quad (3)$$

where  $\hat{\pi}$  includes adjustments for both carcass removal (from scavenging and other means) and observer detection bias assuming that the carcass removal times  $t_i$  follow an exponential distribution unless a different assumption about carcass removal is made with the approval of the Department. Under these assumptions, this detection probability is estimated by:

$$\hat{\pi} = \frac{\bar{t} \cdot p}{I} \left[ \frac{\exp\left(\frac{I}{\bar{t}}\right) - 1}{\exp\left(\frac{I}{\bar{t}}\right) - 1 + p} \right] \quad (4)$$

The estimated per MW annual fatality rate ( $m$ ) is calculated by:

$$m = \frac{m_t}{C} \quad (5)$$

The certificate holder shall calculate fatality estimates for: (1) all birds, (2) small birds, (3) large birds, (4) raptors, (5) target grassland birds, (6) nocturnal avian migrants, (7) avian State Sensitive Species listed under OAR 635-100-0040, and (8) bats. The final reported estimates of  $m$ , associated standard errors and 90% confidence intervals will be calculated using

1 ~~bootstrapping (Manly 1997). Bootstrapping is a computer simulation technique that is useful~~  
2 ~~for calculating point estimates, variances and confidence intervals for complicated test~~  
3 ~~statistics. For each iteration of the bootstrap, the plots will be sampled with replacement, trial~~  
4 ~~carcasses will be sampled with replacement and  $\bar{c}$ ,  $\bar{t}$ ,  $p$ ,  $\hat{\pi}$  and  $m$  will be calculated. A total of~~  
5 ~~5,000 bootstrap iterations will be used. The reported estimates will be the means of the 5,000~~  
6 ~~bootstrap estimates. The standard deviation of the bootstrap estimates is the estimated~~  
7 ~~standard error. The lower 5<sup>th</sup> and upper 95<sup>th</sup> percentiles of the 5000 bootstrap estimates are~~  
8 ~~estimates of the lower limit and upper limit of 90% confidence intervals.~~

9 Carcasses included in the fatality rate estimation will be those found within the defined  
10 search areas (plots) and having an estimated time of death within the study period. The  
11 certificate holder shall calculate fatality estimates for: (1) all birds, (2) small birds, (3) large  
12 birds, (4) raptors, (5) target grassland birds, (6) nocturnal avian migrants, (7) avian State  
13 Sensitive Species listed under OAR 635-100-0040, and (8) bats. Fatality rates will be calculated  
14 for each category for each yearlong study period using GenEst (a generalized estimator of  
15 fatality; Dalthorp et al. 2018, Simonis et al. 2018). The GenEst software, available as an open  
16 source R-package, was developed through a collaborative effort led by US Geological Survey to  
17 specifically estimate the number of bird and bat fatalities at wind and solar energy facilities.  
18 GenEst estimates the size of an open population (bird and bat fatalities) when detection  
19 probabilities (searcher efficiency and carcass persistence) and search coverages are less than  
20 one. To obtain an overall estimate of mortality, each carcass included in the analysis will be  
21 adjusted for searcher efficiency, carcass persistence, a detection reduction factor (also referred  
22 to as “k”; see below), and a search area adjustment. Estimates and confidence intervals will be  
23 calculated using a parametric bootstrap (Dalthorp et al. 2018) for each individual category listed  
24 above, assuming more than five fatalities within each category are detected.

#### 25 26 Nocturnal Migrant and Bat Fatalities

27  
28 ~~Differences in observed nocturnal avian migrant and bat fatality rates for lit turbines,~~  
29 ~~unlit turbines that are adjacent to lit turbines, and unlit turbines that are not adjacent to lit~~  
30 ~~turbines will be compared graphically and statistically.~~

#### 31 32 (g) Mitigation

33  
34 Mitigation may be appropriate if analysis of the fatality data collected ~~after the first~~  
35 ~~monitoring year~~ shows fatality rates for avian species that exceed a threshold of concern. For  
36 the purpose of determining whether a threshold has been exceeded, the certificate holder shall  
37 calculate the average annual fatality rates for the species groups after the initial two years of  
38 monitoring. Based on current knowledge of the species that are likely to use the habitat in the  
39 area of the facility, the following thresholds apply to the GHWP:

Species Group	Threshold of Concern (fatalities per MW)
Raptors (All eagles, hawks, falcons and owls, including burrowing owls.)	0.09
Raptor species of special concern (Swainson’s hawk, ferruginous hawk, peregrine falcon, golden eagle, bald eagle, burrowing owl and any federal threatened or endangered raptor species.)	0.06
Target grassland birds (All native bird species that rely on grassland habitat and are either resident species, occurring year round, or species that nest in the area, excluding horned lark, burrowing owl and northern harrier.)	0.59
State sensitive avian species listed under OAR 635-100-0040 (Excluding raptors listed above.)	0.20
Bat species as a group	2.50

~~Before the end of the first monitoring year, GHWF shall form a technical advisory committee (TAC) that will include at least GHWF, the certificate holder, the Department, ODOE and ODFW. Other stakeholders, such as USFWS, may also serve on the TAC. The TAC shall consider the fatality monitoring results from Klondike III, Biglow Canyon, Nine Canyon, Leaning Juniper, Hopkins Ridge, Combine Hills, and other wind projects in Sherman County if available, and determine if the thresholds should be adjusted.~~

In addition, mitigation may be appropriate if fatality rates for individual species (especially State Sensitive Species) are higher than expected and at a level of biological concern. If the data show that a threshold of concern for a species group has been exceeded or that the fatality rate for any individual species is at a level of biological concern, mitigation shall be required if the Department determines that mitigation is appropriate based on analysis of the data and any other significant information available at the time. If mitigation is appropriate, the certificate holder, in consultation with ODFW, shall propose mitigation measures designed to benefit the affected species. This may take into consideration whether mitigation required or provided for other impacts, such as raptor nesting or grassland bird displacement, would also benefit the affected species.

~~The certificate holder shall implement mitigation as approved by the Council. The Department may recommend additional, targeted data collection if the need for mitigation is unclear based on the information available at the time. The certificate holder shall implement such data collection as approved by the Council.~~

Mitigation shall be designed to benefit the affected species group. Mitigation may include, but is not limited to, protection of nesting habitat for the affected group of native species through a conservation easement or similar agreement. Tracts of land that are intact and functional for wildlife are preferable to degraded habitat areas. Preference should be given to protection of land that would otherwise be subject to development or use that would diminish the wildlife value of the land. In addition, mitigation measures might include: enhancement of the

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1 protected tract by weed removal and control; increasing the diversity of native grasses and  
2 forbs; planting sagebrush or other shrubs; constructing and maintaining artificial nest structures  
3 for raptors; reducing cattle grazing; improving wildfire response; and local research that would  
4 aid in understanding more about the species and conservation needs.  
5

6 If the threshold for bats species as a group is exceeded, the certificate holder shall  
7 contribute to Bat Conservation International or to a Pacific Northwest bat conservation group  
8 (\$10,000 per year for three years) to fund new or ongoing research in the Pacific Northwest to  
9 better understand impacts to the bat species impacted by the facility and to develop possible  
10 ways to reduce impacts to the affected species.  
11

12 In addition, mitigation may be appropriate if fatality rates for a State Sensitive bat  
13 species listed under OAR 635-100-0040 are higher than expected and at a level of concern. If  
14 the data show that a threshold of concern for a species group has been exceeded or that the  
15 fatality rate for any individual species is at a level of concern, mitigation shall be required if the  
16 Department determines that mitigation is appropriate based on analysis of the data and any  
17 other significant information available at the time. If mitigation is appropriate, the certificate  
18 holder, in consultation with ODFW, shall propose mitigation measures designed to benefit the  
19 affected species. The certificate holder shall implement mitigation as approved by the Council.  
20

## 21 **2. Raptor Nest Surveys**

22

23 The objectives of raptor nest surveys are to document nesting sites of tree- or other  
24 above-ground-nesting raptor species in the vicinity of the facility. ~~estimate the size of the local~~  
25 ~~breeding populations of tree or other above-ground-nesting raptor species in the vicinity of the~~  
26 ~~facility and to determine whether operation of the facility results in a reduction of nesting~~  
27 ~~activity or nesting success in the local populations of the following raptor species: Swainson's~~  
28 ~~hawk, ferruginous hawk and golden eagle. The certificate holder shall direct a qualified~~  
29 ~~biologist, approved by the Department, to conduct the raptor nest surveys. The certificate~~  
30 ~~holder may select other qualified biologists to conduct the raptor nest surveys, subject to~~  
31 ~~Department approval.~~  
32

### 33 (a) Survey Protocol

34

35 For the species listed above, aerial and ground surveys will be used to gather nest  
36 success data on active nests, nests with young and young fledged. The certificate holder will  
37 share the data with state and federal biologists ODFW and ODOE. The certificate holder shall  
38 conduct two years of post-construction raptor nest surveys for the completed facility during the  
39 sensitive nesting and breeding season. One year of post-construction surveys will be done in  
40 the first nesting season after construction is completed. The second year of post-construction  
41 surveys will be done at a time recommended by the certificate holder and approved by the  
42 Department. The certificate holder may collaborate with other certificate holders in the vicinity  
43 of the facility in the development of useful information about future impacts on raptor nesting  
44 activity and nesting success.

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1  
2 Prior to the raptor nesting surveys, the certificate holder shall review the locations of  
3 known raptor nests based on the GHWP, the Biglow Canyon Wind Farm and Klondike Wind  
4 Project pre-construction surveys as well as any nest survey data collected after construction. All  
5 known nest sites and any new nests observed within the ~~GCWF-GHWP~~ site and within two miles  
6 of the GHWP site will be given identification numbers. Nest locations will be recorded on U.S.  
7 Geological Survey 7.5-minute quadrangle maps. Global positioning system coordinates will be  
8 recorded for each nest and integrated with the baseline database. Locations of inactive nests  
9 will also be recorded as they may become occupied during future years.

10  
11 During each raptor nesting monitoring year, the certificate holder shall conduct a  
12 minimum of one helicopter survey in late May or early June within the GHWP site and a 2-mile  
13 zone around the turbines to determine nest occupancy. Determining nest occupancy will likely  
14 require two visits to each nest: The second visit may be done by air or by ground as  
15 appropriate. For occupied nests of the species identified above, the certificate holder shall  
16 determine nesting success by a minimum of one ground visit to determine species, number of  
17 young and nesting success. "Nesting success" means that the young have successfully fledged  
18 (the young are independent of the core nest site). Nests that cannot be monitored due to the  
19 landowner denying access will be checked from a distance where feasible.

20  
21 ~~(b) Mitigation~~

22  
23 ~~The certificate holder shall analyze the raptor nesting data collected after two five~~  
24 ~~monitoring years to determine whether a reduction in either nesting success or nest use has~~  
25 ~~occurred in the vicinity of the GHWP. If the analysis indicates a reduction in nesting success by~~  
26 ~~Swainson's hawk, ferruginous hawk or golden eagle within two miles of the facility (including~~  
27 ~~the area within the GHWP site), then the certificate holder shall propose appropriate mitigation~~  
28 ~~and shall implement mitigation as approved by the Council. At a minimum, if the analysis shows~~  
29 ~~that any of these species has abandoned a nest territory within the facility site or within ½ mile~~  
30 ~~of the facility site, or has not fledged any young over the two survey years within the facility site~~  
31 ~~or within ½ mile of the facility site, the certificate holder shall assume the abandonment or~~  
32 ~~unsuccessful fledging is the result of the facility unless another cause can be demonstrated~~  
33 ~~convincingly. If the GHWP facility and the Klondike III facility are both required to provide~~  
34 ~~mitigation for the same nest, the two certificate holders shall coordinate the required~~  
35 ~~mitigation with the approval of the Department.~~

36  
37 ~~Given the very low buteo nesting densities in the area, statistical power to detect a~~  
38 ~~relationship between distance from a wind turbine and nesting parameters (e.g., number of~~  
39 ~~fledglings per reproductive pair) will be very low. Therefore, impacts may have to be judged~~  
40 ~~based on trends in the data, results from other wind energy facility monitoring studies and~~  
41 ~~literature on what is known regarding the populations in the region.~~

42  
43 ~~If the analysis shows that mitigation is appropriate, the certificate holder shall propose~~  
44 ~~mitigation for the affected species in consultation with the Department and ODFW, and shall~~

1 ~~implement mitigation as approved by the Council. Mitigation should be designed to benefit the~~  
2 ~~affected species or contribute to overall scientific knowledge and understanding of what causes~~  
3 ~~nest abandonment or nest failure. Mitigation may be designed to proceed in phases over~~  
4 ~~several years. It may include, but is not limited to, additional raptor nest monitoring, protection~~  
5 ~~of natural nest sites from human disturbance or cattle activity (preferably within the general~~  
6 ~~area of the facility), or participation in research projects designed to improve scientific~~  
7 ~~understanding of the needs of the affected species. Mitigation may take into consideration~~  
8 ~~whether mitigation required or provided for other impacts, such as fatality impacts or grassland~~  
9 ~~bird displacement, would also benefit the raptor species whose nesting success was adversely~~  
10 ~~affected.~~

11  
12 ~~(e)~~ (b) Long-term Raptor Nest Monitoring ~~and Mitigation~~

13  
14 In addition to the two years of post-construction raptor nest surveys described in  
15 subsection (a), ~~GHWF the certificate holder~~ shall conduct long-term raptor nest surveys at five  
16 year intervals for the life of the facility. ~~GHWF The certificate holder~~ shall conduct the first long-  
17 term raptor nest survey in the ninth year after construction is completed. In conducting long-  
18 term surveys, ~~GHWF the certificate holder~~ shall follow the same survey protocols as described  
19 above in subsection (a) ~~unless GHWF the certificate holder~~ proposes an alternative protocol  
20 that is approved by the Department. In developing an alternative protocol, ~~GHWF the~~  
21 certificate holder shall consult with ODFW.

22  
23 ~~GHWF shall analyze the raptor nesting data collected after each year of long-term raptor~~  
24 ~~nest surveys to determine whether a reduction in either nesting success or nest use has~~  
25 ~~occurred in the vicinity of the GHWP. If the analysis indicates a reduction in nesting success or~~  
26 ~~nest use by Swainson's hawks, golden eagles, or ferruginous hawks within the facility site or~~  
27 ~~within 2 miles of the site, then GHWF shall propose appropriate mitigation for the affected~~  
28 ~~species as described in subsection (b) and shall implement mitigation as approved by the~~  
29 ~~Council. At a minimum, if the analysis shows that any raptors of these species have abandoned~~  
30 ~~a nest territory within the facility site or within ½ mile of the facility site or has not fledged any~~  
31 ~~young within that same area, GHWF shall assume the abandonment or unsuccessful fledging is~~  
32 ~~due to operation of the facility unless another cause can be demonstrated convincingly.~~

33  
34 ~~Any reduction in nesting success or nest use could be due to operation of the GHWP~~  
35 ~~facility, operation of another wind facility in the vicinity or some other cause. GHWF shall~~  
36 ~~attribute the reduction to operation of GHWP if the wind turbine closest to the affected nest~~  
37 ~~site is a GHWP turbine unless GHWF demonstrates, and the Department agrees, that the~~  
38 ~~reduction was due to a different cause.~~

39  
40 ~~Given the low raptor nesting densities in the area, statistical power to detect a~~  
41 ~~relationship between distance from a wind turbine and nesting parameters (e.g. number of~~  
42 ~~fledglings per reproductive pair) will be very low. Therefore, impacts may have to be judged~~  
43 ~~based on trends in the data, results from other wind energy facility monitoring studies and~~  
44 ~~literature on what is known regarding the population in the region.~~

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1  
2 **3. Avian Use and Behavior Surveys**  
3

4 ~~Searchers will also record bird species observed and their behavior relative to turbine~~  
5 ~~locations before or after each standardized carcass search (as described in Section 1(e) above).~~  
6 ~~Observations will be recorded during 5-minute surveys at each turbine sampled during the~~  
7 ~~fatality monitoring program, using standard variable circular plot point count survey methods.~~  
8 ~~Collection and recording of these additional observations of live birds will be carried out in a~~  
9 ~~manner that does not distract searchers from carrying out the standardized carcass searches.~~

10  
11 ~~All of these avian use and behavior data, as well as raptor and waterfowl mortality~~  
12 ~~observed at the turbines near these stations, will be used to understand direct and indirect~~  
13 ~~impacts of the GHWP facility on raptors, waterfowl and other avian species. The certificate~~  
14 ~~holder shall include an analysis of these data in the reports described in Section 5.~~

15  
16 **34. GHWP Operational Wildlife Incident Response and Handling System Monitoring**  
17

18 The Operational Wildlife Incident Response and Handling System Monitoring is a  
19 voluntary monitoring program ~~set up for responding to and handling avian and bat casualties~~  
20 ~~found by construction and maintenance personnel to search for avian and bat incidents (e.g.,~~  
21 ~~fatality, injury) during operation of the facility. during construction and operation of the facility.~~  
22 ~~This monitoring program includes the initial response, the handling and the reporting of bird~~  
23 ~~and bat carcasses discovered incidental to construction and maintenance operations~~  
24 ~~("incidental finds"). Construction and Maintenance personnel will be trained in the methods~~  
25 ~~needed to carry out this program. This monitoring program includes documenting and~~  
26 ~~reporting bird and bat carcasses discovered during maintenance operations.~~

27  
28 All carcasses discovered by ~~construction or~~ maintenance personnel will be documented and left  
29 in place. This is a voluntary program and may be discontinued by the certificate holder at any  
30 time photographed, recorded and collected.

31  
32 ~~If construction or maintenance personnel find carcasses within the plots for protocol searches,~~  
33 ~~they will notify a qualified biologist, as approved by the Department, who will collect the~~  
34 ~~carcasses. The fatality data will be included in the calculation of fatality rates.~~

35  
36 ~~If construction or maintenance personnel discover incidental finds that are not within plots for~~  
37 ~~fatality monitoring protocol searches, they will notify a qualified biologist, as approved by the~~  
38 ~~Department, and the carcass will be collected by a carcass handling permittee (a person who is~~  
39 ~~listed on state and federal scientific or salvage collection permits). Data for these incidental~~  
40 ~~finds will be reported separately from standardized fatality monitoring data.~~

41  
42 The certificate holder shall coordinate collection of state endangered, threatened, sensitive or  
43 other state protected species with ODFW. The certificate holder shall coordinate collection of

1 federally-listed endangered or threatened species ~~and Migratory Bird Treaty Act-protected~~  
2 ~~avian species~~ with the USFWS.

#### 4 **45. Data Reporting**

6 The certificate holder will report the monitoring data and analysis to the Department.  
7 Monitoring data include fatality monitoring program data, raptor nest survey data, ~~avian use~~  
8 ~~and behavior survey data~~ and data on incidental finds by fatality searchers and  
9 ~~GHW Operational Wildlife Monitoring by maintenance~~ personnel. The report may be included  
10 in the annual report required under OAR 345-026-0080 or may be submitted as a separate  
11 document at the same time the annual report is submitted. ~~In addition, the certificate holder~~  
12 ~~shall provide to the Department any data or record generated in carrying out this monitoring~~  
13 ~~plan upon request by the Department.~~

15 The certificate holder shall ~~immediately~~ notify USFWS and ODFW, respectively, within  
16 24 hours in the event that any federal or state endangered or threatened species are killed or  
17 injured on the facility site.

19 The public will have an opportunity to receive information about monitoring results and  
20 to offer comment. Within 30 days after receiving the annual report of monitoring results, the  
21 Department will make the report available to the public on its website and will specify a time in  
22 which the public may submit comments to the Department.<sup>6</sup>

#### 24 **65. Amendment of the Plan**

26 This Wildlife Monitoring and Mitigation Plan may be amended from time to time by  
27 agreement of the certificate holder and the Council. Such amendments may be made without  
28 amendment of the site certificate. The Council authorizes the Department to agree to  
29 amendments to this plan; any additional mitigation actions that may be required under this  
30 plan must be approved by amendment of the plan by Council. The Department shall notify the  
31 Council of all amendments and mitigation actions, and the Council retains the authority to  
32 approve, reject or modify any amendment of this plan or mitigation action agreed to by the  
33 Department.

#### 35 **6. Literature Cited**

36 Dalthorp, D. H., L. Madsen, M. M. Huso, P. Rabie, R. Wolpert, J. Studyvin, J. Simonis, and J. M.  
37 Mintz. 2018. GenEst Statistical Models—a Generalized Estimator of Mortality. US  
38 Geological Survey Techniques and Methods, Volume 7, Chapter A2. 13 pp. doi:  
39 10.3133/tm7A2. Available online: <https://pubs.usgs.gov/tm/7a2/tm7a2.pdf>

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<sup>6</sup> The certificate holder may establish a Technical Advisor Committee (TAC) but is not required to do so. If the certificate holder establishes a TAC, the TAC may offer comments to the Council about the results of the monitoring required under this plan.

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17 [Meeting XII, St Paul, Minnesota. November 27 - 30, 2018.](#)
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