WHISTLING RIDGE ENERGY LLC
GREG JOHNSON
PREFILED TESTIMONY
EXHIBIT NO. 6.00

BEFORE THE STATE OF WASHINGTON

ENERGY FACILITY SITE EVALUATION COUNCIL

In the Matter of Application No. 2009-01: WHISTLING RIDGE ENERGY LLC; WHISTLING RIDGE ENERGY PROJECT	EXHIBIT NO. 6.00

APPLICANT'S PREFILED DIRECT TESTIMONY

WITNESS #6: GREG JOHNSON

Q Please state your name and business address.

A My name is Greg Johnson, and my business address is 2003 Central Avenue, Cheyenne, Wyoming 82001.

Q What is your present occupation and profession, and what are your duties and responsibilities?

A I am a Senior Ecologist/Senior Manager with Western EcoSystems Technology (WEST), Inc., which provides environmental and statistical consulting services and contract research nationally and internationally to industry, government, and private

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organizations. I have over 23 years of consulting experience in wildlife and ecological studies. I am a Certified Wildlife Biologist through The Wildlife Society, a Professional Wetland Scientist though the Society of Wetland Scientists, and a certified Senior Ecologist through the Ecological Society of America. My specialty areas include wildlife research with an emphasis on wind power development. My duties on this Project concerned wildlife surveys and assessing the potential impact to wildlife. I assisted in the preparation of the Application for Site Certification for this Project.

Q Please identify what has been marked for identification as Exhibit No. 6.01.

A Exhibit No. 6.01 is a résumé of my education background and employment experience.

Q Are you sponsoring any portions of the Application for Site Certification for the Whistling Ridge Energy Project?

A Yes. I am sponsoring the following sections concerning general avian and wildlife use, raptors, and bats:

Section 2.17	Study Schedules
Section 3.4.3	Wildlife

Q Are you sponsoring any appendices or other documents that are part of the Application for Site Certification?

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A Yes. I am sponsoring the following appendices:

Appendix B-5	Wildlife Report (Final Baseline Avian Use)
Appendix B-6	Wildlife Report (Baseline Avian Use)
Appendix B-7	Wildlife Report (Bat Acoustic Studies)
Appendix B-8	Wildlife Report (Bat Acoustic Studies)

Q Are you familiar with those portions of the identified sections and appendices of the Application for Site Certification?

A Yes.

Q Did you prepare these portions of those sections and appendices, or, if not, did you direct and/or supervise their preparation?

A Yes.

Q Is the information in these portions of those sections and appendices within your area of authority and/or expertise?

A Yes.

Q Are the contents of these portions of those sections and appendices of the Application for Site Certification either based upon your own knowledge, or upon evidence, such as studies and reports that reasonably prudent persons in your field are accustomed to rely on in the conduct of their affairs?

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A Yes.

Q To the best of your knowledge, are the contents of these portions of those sections and appendices of the Application for Site Certification true?

A Yes.

Q Do you incorporate the facts and contents of these portions of those sections and appendices as part of your testimony?

A Yes.

Q Are you able to answer questions under cross examination regarding these portions of those sections and appendices?

A Yes.

Q Do you sponsor the admission into evidence of these portions of those sections and appendices of the Application for Site Certification?

A Yes.

Q Are there any modifications or clarifications to be made to these portions of those portions of the Application for Site Certification that you are sponsoring?

A No.

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Q Would you please summarize and briefly describe the avian surveys conducted at the Whistling Ridge Wind Resource Area (WRWRA) in Skamania County, Washington, and contrast these results to other studies of Wind Resource Areas (WRAs) in the Pacific Northwest as well as the U.S. as a whole?

A In the fall of 2004 and summer of 2006, WEST, Inc. conducted avian use surveys of the WRWRA. Additional avian use surveys were conducted during the winter of 2008/2009 and spring of 2009. Therefore, we now have avian use data for the WRWRA that covers all four seasons. Due to the different years surveyed, the surveys have the added value of accounting for some hypothetical variation between different years. Rigorous impact analyses for proposed wind energy facilities typically require data from all seasons.

Based on these data, the annual mean raptor use at the WRWRA (0.28 raptors/plot/20-min survey) was compared with other WRAs that implemented similar protocols and had data for three or four seasons. Similar studies were conducted at 36 other WRAs. The annual mean raptor use at these WRAs ranged from 0.09 to 2.34 raptors/plot/20-min survey. Based on the results from these WRAs, a ranking of seasonal raptor mean use was developed as: low (0 – 0.5 raptors/plot/20-min survey); low to moderate (0.5 – 1.0); moderate (1.0 – 2.0); high (2.0 – 3.0); and very high (> 3.0). Under this ranking, mean raptor use (number of raptors divided by the number of 800-m plots and the total number of surveys) at the WRWRA is considered low, ranking 29th when compared to the 36 other wind-energy facilities.

We also examined use of the WRWRA by all bird species combined compared to similar data collected at 24 other WRAs in the Pacific Northwest. Mean overall bird use at the WRWRA was 9.3 birds/800-m radius plot/20-minute survey. Mean

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overall bird use for the other 24 WRAs has ranged from 5-23.6. The WRWRA ranks 19th compared to these 24 other WRAs.

Based on all of the avian use data collected for this Project, it does not appear that construction of a wind energy facility at the WRWRA would result in higher risk to birds than other WRAs. In fact, the data show that the WRWRA actually receives lower use by raptors as well as all bird species combined compared to most other WRAs in the U.S., as well as in the Pacific Northwest. Although similar data have not been collected in habitats similar to those at Whistling Ridge, the data have been collected in a variety of habitat types, including grasslands, shrub steppe, and croplands in both the western and midwestern United States. To date, the relationship between raptor use and mortality has been fairly consistent across habitats and locations, and these data represent the best available science for predicting avian impacts at the Project site.

Q Please identify what has been marked for identification as Exhibit No. 6.02 and Exhibit No. 6.03.

A Exhibit No. 6.02 is a figure comparing annual raptor use at the WRWRA to other WRAs in the U.S. Again, raptor use at the WRWRA is considered low, ranking 29th when compared to the 36 other wind-energy facilities. Exhibit No. 6.03 is a figure comparing all bird use at the WRWRA to other WRAs in the Pacific Northwest. Again, the WRWRA ranks 19th compared to these 24 other WRAs for overall bird use.

Q Parties to these proceedings contend that comparisons of mean bird use to other wind resource areas in Washington and Oregon and other areas of the country may be of

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little value as these other areas occupy different habitat types. Do you agree with this contention?

A No, I do not agree. Although similar avian use data have not been collected in habitats comparable to those at the Project site, the data have been collected in a variety of habitat types, including grasslands, shrub steppe, and croplands in both the western and midwestern United States. Many of these sites had far greater or more complex biodiversity than the Project site.

The Project site is a forested site managed for more than a century for commercial forestry. It is not in a natural or native coniferous forest condition. Moreover, the avian baseline surveys (including raptor surveys) did not simply rely on data from other projects—we surveyed and analyzed the Project site and obtained biological information specifically applicable to the Project site. To date, the relationship between raptor use and mortality has been fairly consistent across habitats and locations, and there is no reason to believe that the relationship between raptor use and mortality would be different at the Project site just because the habitat is different. Because no similar data exist for constructed wind energy projects in managed coniferous forest habitats that might help inform impact predictions for this Project, as previously confirmed by the Washington Department of Fish & Wildlife for this Project, I feel these data represent the best available science for predicting avian impacts at the Project site. This will remain the case until several wind energy projects have been constructed in western coniferous forests and post-construction fatality data are available to compare to pre- construction data on avian use.

In addition to this Project, a handful of wind energy projects have been proposed on coniferous forest landscapes in Washington, some of which are planned for unmanaged, natural forests. It is likely that additional projects will be proposed in

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forested landscapes across the West in the future. Because it is generally acknowledged that even-aged, managed forests provide far less suitable habitat for most avian species than uneven aged, natural forests (*e.g.*, Buchanan, J.B. 2005. Challenges of Avian Conservation on Non-Federal Forests in the Pacific Northwest. USDA Forest Service Gen. Tech. Rep. PSW-GTR-191), construction of a wind energy facility at the Project site would have a much lower potential for wildlife impacts than construction of a wind energy facility within natural forests. A comparison of avian usage in natural forests would add little to the analysis of the Project's habitat conditions. Therefore, this Project provides an optimum location to obtain data on wildlife impacts that might be used to inform decisions and impact predictions for wind energy facilities proposed for other managed as well as unmanaged, natural forests.

Q Would you please summarize and briefly describe the bat surveys conducted at the WRWRA?

A Three years of bat acoustical data have been collected at the WRWRA. From August 20 through October 21, 2007, three Anabat stations (2 ground and one elevated on a meteorological or "met" tower) were established in the study area to record bat echolocation calls. The mean number of bat passes per detector per night was 7.91, which is relatively low compared to many WRAs that had relatively high bat mortality. A second bat acoustic study was conducted at the WRWRA from July 3 to October 7, 2008 using four detectors placed on the ground. During that study, a mean of 148.34 bat passes per detector-night was recorded across all stations. In 2009, bat acoustical surveys were conducted using three bat detectors elevated on met towers

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from June 4 to October 25. In 2009, bat activity was again relatively low as a mean of 8.09 bat passes per detector-night was recorded.

In 2007, bat activity was monitored at two ground stations and one elevated station on a met tower. These stations were located in upland habitats characteristic of proposed turbine locations. Bat activity levels were similar to those measured in 2009, as the mean number of bat passes per detector night was 7.91. In 2008, Anabat surveys were conducted at four ground stations from July 3 to October 7. Two stations were placed in clear cuts, one was placed along a logging road through a forest, and the fourth was placed adjacent to a pond in the study area to assess levels of bat activity and composition of primarily breeding bats in the Project area. For all four units combined, a mean of 148.34 bat passes per detector-night was recorded. However, 80.7% of all calls were recorded at the detector set on the logging road, which was likely used as a travel corridor by bats and was not representative of cleared areas where turbines would be placed. The detector placed near the pond also recorded relatively high activity levels (178.03 bat passes/detector night). Bat activity at the two stations placed in clear cuts comprised only 19.1% of all bat passes recorded during the study (14.30 and 73.76 bat passes/detector night, respectively).

The data collected in 2009 were collected entirely at elevated met tower locations, which were most representative of proposed turbine locations. In addition, the three units were elevated on the met towers to a height of 45 m, within the rotor swept zone. Until recently, based on a limited number of studies (5), it was assumed that bat call rate data from Anabat units placed on the ground was roughly correlated with bat mortality, and could be used as a predictor of bat fatality. However, two recently-published studies have shown that bat activity data from ground-based detectors is apparently not strongly correlated with bat fatality, at least not in all cases. A recent study in Alberta found that bat activity levels determined from Anabat units

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raised on turbine nacelles were more closely related to bat fatality rates, and that there was no clear relationship between bat activity recorded at ground level and bat fatality rates (Baerwald, E.F. and R.M.R. Barclay. 2009. Geographic variation in activity and fatality of migratory bats at wind energy facilities. Journal of Mammalogy 90(6): 1341–1349). A similar study in Europe compared ground and raised Anabat detectors and concluded that assessing bat activity levels from ground level detectors only can be misleading, particularly when surveying high-flying species that are most likely to be at risk from wind energy development (Collins, J. and G. Jones. 2009. Differences in bat activity in relation to bat detector height: implications for bat surveys at proposed windfarm sites. Acta Chiropterologica 11:343–350). Therefore, the data collected in 2009 likely provide the best data for assessing risk to bats in the Project area.

Based on results of the 2009 study, it does not appear that construction of a wind energy facility at the WRWRA would result in high bat mortality levels. However, no data on bat mortality levels associated with wind energy developments in western coniferous forests are available to help predict risk to bats at the WRWRA. Bat fatality patterns may differ from those in open habitats as well as in eastern deciduous forests. Post-construction monitoring of the Project would provide valuable data on bat collision mortality in this environment that would be useful for assessing risk to bats of future proposed wind energy developments in western coniferous forests.

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