BEFORE THE STATE OF WASHINGTON

ENERGY FACILITY SITE EVAUATION COUNCIL

In the Matter of Application No. 2003-01: SAGEBRUSH POWER PARTNERS, LLC; KITTITAS VALLEY WIND POWER PROJECT	EXHIBIT 29 R (WE-R)

APPLICANT'S PREFILED REBUTTAL TESTIMONY
WITNESS #10: WALLY ERICKSON

Q What is the purpose of this testimony?

A I intend to respond to several aspects of Ken Bevis' testimony which are relevant to the subject addressed in my testimony.

Q Can you please address the concerns raised by Mr. Bevis with regards to the protocols used in the avian studies for this Project?

A Yes. Mr. Bevis raises concerns over the protocols that were used for collection of avian baseline data. Mr. Bevis correctly states that the protocols follow accepted scientific guidelines for avian abundance work. However, he stated concerns over the duration and

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intensity of the surveys and specifically, how the "short" duration of the study may affect the "definitiveness" of the abundance information.

The overall objectives of the baseline wildlife study conducted at Kittitas Valley were not to determine absolute abundance or predict changes in populations or population size. The objectives of the studies, which are consistent with most pre-project baseline studies at wind farms and which are consistent with the WDFW guidelines were: 1) to gather information that could be used to predict potential impacts from the wind project; and 2) to gather information that could be used to assist in design of a wind project that would reduce or minimize risk to wildlife resources. This a different study design than what might be implemented to predict trends in populations, population size of individual species or groups of birds, or to determine absolute abundance.

The scope of study and protocols were developed with input from the WDFW and the U.S. Fish and Wildlife Service (USFWS) and are consistent with the wind power guidelines recently developed by the WDFW. As the resource agencies responsible for protection and management of wildlife resources, I feel that the expert opinions of these agency personnel are an appropriate measure of the sufficiency of the studies. The staff of USFWS and WDFW, were given an opportunity to comment on the protocols. A face to face meeting with WDFW staff was held on February 26, 2002, prior to the start of the avian studies. Both agencies indicated they were pleased to receive empirical information about the wildlife resources from the study area which greatly enhanced their ability to describe the affected environment, predict potential impacts, and show areas

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that could be considered sensitive (e.g., a raptor nest or rare plant population). Additionally, the scope and design of the baseline studies conducted at the proposed wind project were well within the realm of studies that have been conducted at other wind plants and wind resource areas throughout the western U.S. The scope of study for wind plants has been a dynamic process through on-going and project-specific consultation with agency personnel. The scope of study for Kittitas Valley was developed based on direct input from WDFW and USFWS about this particular site as well as numerous preceding studies all of which have involved input from agency and resource experts and is consistent with the state of the art for wind power project wildlife studies within the Pacific Northwest and western U.S.

Because there is a wealth of information available from numerous studies of wind projects and wind resource areas, the Bonneville Power Administration (a federal agency) funded a meta-analysis, *Synthesis and Comparison of Baseline Avian and Bat Use, Raptor Nesting and Mortality Information from Proposed and Existing Wind Developments*, utilizing all data within the public domain as well as requested and volunteered data from other proposed wind plants and wind resource areas (Erickson et al. 2002). The study underwent peer review from affected interests and resource experts and comments were received from Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, Oregon Office of Energy, Renewable Northwest Project, Eastern Oregon University and other local bird experts. The objectives of the synthesis were to 1) extend the avian and bat mortality summary to include both baseline data and operational fatality monitoring data on fatalities from recently constructed wind

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projects; 2) provide an evaluation of the ability to predict direct impacts on avian resources using less than an entire year of baseline avian use data (one season, two seasons, etc.); 3) assist the various stakeholders in the interpretation and use of this large information source in evaluating new projects; and 4) suggest an appropriate level of baseline data required to adequately assess potential impacts of new wind projects. A total of 27 different avian use data sets from 13 wind resource areas in the western U.S. were used in the meta-analysis (see Erickson et al. 2002). Results of the synthesis suggested that the number of seasons necessary to predict impacts depended on factors such as vegetation types and topography and in some cases as little as one season of data collection is adequate to characterize raptor use of site in a manner that could be used to predict a reasonable range of impacts.

Q Mr. Bevis questioned the applicability of turbine mortality data from other wind projects and noted his concerns that the mortality rates were derived from lumped data. Can you respond to these statements?

A Yes. Mr. Bevis pointed out the obvious that until the wind project is built, actual mortality cannot be known. I provided ranges of expected mortality based on studies at new generation wind projects in the West and Midwest, including sites along ridges and sites in grassland and shrub-steppe habitats. Typically, this included specific results from individual wind projects (e.g., Vansycle, Foote Creek Rim, Buffalo Ridge) which provide the range of estimates and is not "lumped" data.

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Q Mr. Bevis conjectures that the abundance of nesting red-tails in the Kittitas Valley "could be markedly reduced" as a result of project. Do you agree with that assessment?

A No. Intensive aerial nesting surveys were conducted from a helicopter throughout the wind project site and an approximate 2-mile buffer around the project site and these surveys documented a relatively low number of active raptor nests (ASC Exhibit 11, Figure 18), with the 6 active raptor nests, all occupied by red-tailed hawks. Estimated raptor nest density at this site is lower than many of the other wind projects in the region. Only two of the red-tailed hawk nests were within 1 mile of proposed turbine locations. The red-tail hawk is one of the most widespread and commonly observed birds of prey in North America, and has in general expanded in response to forest clearing for agriculture and urban growth. Estimates of 350,000 to 1,000,000 red-tailed hawks are believed to exist throughout its range according the Hawk Mountain Pennsylvania Sanctuary web site. It is possible that a few of the nesting sites may be abandoned due to disturbance from the project, and post-construction and operational monitoring will be in place to estimate those potential impacts, and , it is likely that the breeding pair would establish an alternative nest, because nesting structures are not a limiting factor in this area. In addition, the estimates for raptor mortality from the site based on what we know from other wind power monitoring projects are small and I would not expect this potential small impact to result in a "marked decline" as Mr. Bevis suggests. It is more likely that the small effect would be immeasurable on the local population of red-tailed hawks.

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Q Mr. Bevis suggests that potential raptor mortality associated with the project "would damage the food web by removing these top tier species." Do you concur with this assessment?

A No. For the food web to be damaged through removal of top predators, as Mr. Bevis suggests, would require that the red-tailed hawk population (as well a other top predators e.g., owls, coyotes) be significantly reduced to the point that prey species would over-populate and damage their habitat. As stated above, I do not believe nor do data from other studies suggest, that a significant decline in red-tailed hawk numbers will occur. Furthermore, it appears breeding red-tailed hawks are sufficiently scarce at the project site that it is doubtful the species has a significant influence on prey populations at current densities. In most cases, prey densities are dependant on other environmental conditions such as food availability and not predator numbers or density. Predators respond to increased prey availability by increasing their own production, but rarely are predators the overall controlling force for prey densities.

Q Mr. Bevis implied that the bat fatalities could contribute to an increase in insect populations, and therefore increase the spread of West Nile virus. Do you agree with this suggestion:

A This is purely conjectural and I am not aware of any data that would support such a claim. The vast majority of evidence indicates that the bat populations that are at risk of collision with wind turbines are foliage dwelling migratory bats and in the Pacific

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Northwest, are hoary bats (*Lasiurus cinereus*) and silver-haired bats (*Lasionycteris noctivagans*). Diets of hoary bats are comprised mainly of moths. Silver-haired bats appear to be more of a generalist, eating a variety of insects. Overall mosquitoes comprise a small proportion of their diets. Post-construction fatality studies at wind plants throughout the U.S. have repeatedly shown that the vast majority of bat fatalities occur during the fall. Studies of resident bats at the Buffalo Ridge (Minnesota) Wind Plant, in conjunction with post-construction fatality monitoring studies, showed that resident bats do not appear to be at great risk of collision with wind turbines. In addition, fatality studies at other wind plants rarely find spring migrant or summer resident bat fatalities. While additional research is necessary to reach a conclusive determination, based on the studies to date, it is believed that many of the bats that are at risk of collision with any given wind plant are migrants, and in the Pacific Northwest these bats could be from northern populations from Canada and/or southern Alaska. Finally, as with small rodent prey populations, mosquito populations are dependent on other environmental conditions. In wet years there are more mosquitoes and in dry years fewer mosquitoes. It is purely speculative to assume that mosquito populations in any location would be controlled by fall migrant bats.

In response to increased interest in the effects of wind turbines on bats, a collaborative research effort on bat-wind turbine interactions has recently been launched. Many of the leading bat experts in the US and abroad are involved in this effort. Participants include the USFWS, Bat Conservation International, US Dept. of Energy, and the American Wind Energy Association (AWEA.) It is my understanding that Zilkha Renewable

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Energy has offered three years of financial support to this collaborative bat research effort to help identify strategies to avoid and mitigate impacts to bats.

Q Mr. Bevis states that he believes the survey period was too short to provide sufficient information regarding likely bald eagle movement through the project area. Do you agree with this opinion?

A Two winter seasons of surveys were conducted to document the level of wintering bald eagle use within the project boundaries and within adjacent, more preferred, habitats like the Yakima River corridor. Most of the use away from the Yakima River was associated with calving areas along Smithson Road and near carrion. Similar surveys and observations were made on the site of the nearby Desert Claim proposed wind power project. The cumulative data set indicates that bald eagles do move around the valley and likely in response to prey (carrion) availability. As is indicated in the report, bald eagles are expected to move across the site in search of food.

One of the mitigation measures proposed by the Applicant at our suggestion is to quickly remove carrion that is found in the vicinity of the project. While this will not ensure that eagles do not fly across the project area, it will minimize attractants to the site.

I am unaware of any report of bald eagle fatalities at wind projects. Despite the fact that mortality data has been collected at well over 20 wind power projects, with many located in areas bald eagles are known to utilize, no bald eagle fatalities have been reported. The

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Applicant has had numerous discussions with Gregg Kurz , USFWS Wenatchee Field Office and is in the process of developing a Habitat Conservation Plan (HCP) to acquire an incidental take permit for possible take of bald eagles. The consultation with Gregg Kurz and the effects analysis prepared for the HCP indicate that the project is not likely to adversely affect bald eagles.

Q Mr. Bevis proposes additional mitigation measures beyond those proposed by the Applicant for the project. What is your assessment of the mitigation measures proposed by the Applicant?

A I believe the mitigation package proposed by the Applicant is comprehensive. The mitigation package proposed by the Applicant was approved by WDFW as consistent with the agency's wind power guidelines. Furthermore, the proposed mitigation package is quite substantial compared to those implemented or proposed at other wind power projects in the region, and for that matter, in the entire U.S. Based on the habitat categorization, the Applicant would have been required under WDFW's wind power guidelines to mitigate for approximately 345 acres of suitable habitat, and the mitigation parcel is approximately 550 acres, far exceeding the WDFW requirement for habitat mitigation. To the best of my knowledge, this is the largest habitat mitigation yet offered for a wind farm in the Northwest. In my opinion, the Technical Advisory Committees (TACs) organized for the Stateline Wind Projects and the Nine Canyon Wind Projects have been, and continue to be, very effective in reviewing monitoring protocols and data on realized impacts, not speculation on impacts. The TAC also provides

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recommendations for any proposed adjustments to the monitoring and mitigation plans following adaptive management practices. I believe this opinion is shared by agency staff and Audubon members who are participants in these TAC's. Fortunately, monitoring data that has been made available from operating wind projects suggests that fatalities are a relatively rare event and are spread throughout wind plants. The data do not suggest that a few individual turbines at a particular wind project are responsible for a large portion of the avian or bat fatalities at any wind projects, including older projects like the Altamont Pass. Recommendations based on data from many wind project sites and expert opinion suggest avoiding gaps, swales or notches within ridges, or on steep slopes when siting turbines. Based on the site layouts for the Kittitas Valley Project that I have examined, it appears the turbines have not been sited in these features.

Q Mr. Bevis asserts that the Swauk Creek, Dry Creek and Yakima River corridors are "very likely used by migrating passerines such as warblers, for migration and summer breeding range." (p.3) What is your assessment of this assertion?

A Swauk Creek is located more than ¾ of a mile west of the nearest proposed wind turbine, and Dry Creek is an ephemeral stream adjacent to a highway (US 97) that is typical of minor riparian areas found throughout the Columbia Basin. Riparian areas like these are found near other wind project sites where studies have been conducted and impacts from these studies were considered when analyzing potential impacts for this project site. Passerines typically migrate at night at high altitudes above the rotor-swept area. Riparian corridors do not appear to be migration corridors for passerines but do provide

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valuable feeding and resting areas during pauses in migration and provide potential breeding habitat for summer residents. Nevertheless, in cases where wind plants are placed near relatively large riparian areas, few passerines have been killed. For example, the Foote Creek Rim wind project in Wyoming, which has been monitored for multiple years for fatalities, is located in native short grass/shrub steppe habitat, and is adjacent to the Snowy Range Mountain Range, and two sizeable riparian corridors. From over 3 years of monitoring, this wind plant has averaged approximately 1 - 2 resident and migrant passerines fatalities per turbine per year. Therefore, I do not believe that the location of this project in relation to these drainages is likely to result in significant adverse effects to migrating passerines.

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