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 30 (RK-T)

APPLICANT'S PREFILED DIRECT TESTIMONY
WITNESS # 11: RANDALL KRICHBAUM

Q Please state your name and business address.

A My name is Randall Krichbaum and my business address is 4130 SW 117th #148, Beaverton, OR 97005.

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

A I am President and co-owner of Eagle Cap Consulting Inc. Our firm provides environmental consulting services to organizations such as Zilkha Renewable Energy. We assist those organizations in analyzing environmental impacts of projects such as the Kittitas Valley Wind Power Project ("Project'). My duties regarding this project were to coordinate and

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perform a rare plant impact assessment study, prepare a cover type map for the project, and prepare a habitat quality assessment for the mitigation parcel. I assisted in the preparation of the Application for Site Certification for this project.

Q Would you please identify what has been marked for identification as Exhibit 30-1(RK-1).

A Exhibit 30-1(RK-1) is a résumé of my educational background and employment experience.

Q Are you sponsoring any portions of the "Application for Site Certification" and "Clarification Information Provided to EFSEC Independent Consultant for EIS Preparation", for the Kittitas Valley Wind Power Project?

A Yes. I am sponsoring the following sections for which I was primarily responsible for the analysis and development:

Sections 3.4.1.1 to 3.4.1.7	Vegetation
Section 3.4.7.8	Description of Proposed Mitigation Parcel
Section 3.4.7.9	Current Habitat Condition of Proposed Mitigation Parcel
Section 3.4.7.10	Proposed Habitat Enhancement Measures
Clarification Information	Section 3.4.1.3
Clarification Information	Section 3.4.1.5.1
Clarification Information	Section 3.4.1.6.5
Clarification Information	Section 3.4.1.7
Clarification Information	Attachment 13

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Q What exhibits that are part of the Application are you sponsoring?

A I am sponsoring the following exhibits to the Application.

Exhibit 8	Rare Plant Report
Exhibit 9	Project Habitat Map
Exhibit 10	Mitigation Parcel Description

Q Are you familiar with these sections of the Application and Exhibits?

A Yes

Q Did you prepare these sections and exhibits, or, if not, did you direct and /or supervise their preparation?

A Yes.

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

A Yes

Q Are the contents of these sections and exhibits of the Application either based upon your own knowledge, or upon evidence, such as studies and reports as reasonably

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prudent persons in your field and expertise are accustomed to rely in the conduct of their affairs?

A Yes.

Q To the best of your knowledge, are the contents of these sections and exhibits of the Application true?

A Yes.

Q Do you incorporate the facts and content of these sections and exhibits as part of your testimony?

A Yes.

Q Are you able to answer questions under cross examination regarding these sections and exhibits?

A Yes

Q Do you sponsor the admission into evidence of these sections and exhibits of the Application?

A Yes

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Q Are there any modifications or corrections to be made to those portions of the Application that you are sponsoring?

A No

Q Would you please summarize and briefly describe the studies you conducted regarding vegetation and rare plants, your assessment of the impacts of the Project on habitat and vegetation and mitigation features that are being proposed.

A The rare plant portion of our work evaluated the potential effects that the Project would be likely to have on special status plant species. We addressed all plant taxa defined as 'Endangered', 'Threatened', 'Proposed' or 'Candidate' by the US Fish and Wildlife Service, as well as plants defined as 'Endangered', 'Threatened', 'Sensitive', 'Review', or 'Extirpated' by the Washington Natural Heritage Program. We began with a prefield review to collect and analyze existing sources of information on the vegetation of the Project vicinity. We then conducted a series of field surveys for special status plant populations within all potential Project impact areas. These surveys were conducted in early spring, mid-spring, and summer of 2002, and spring of 2003. The surveys searched all areas within 50 meters of proposed Project facilities using a combination of intuitive-controlled and targeted pedestrian surveys.

No populations of any current rare plant species of concern were found during the surveys. However, several occurrences of one former Washington State 'Review'

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species, white-margined knotweed, were found (this species was removed from the Review list following the surveys and is not currently an agency concern). Based on the lack of extant special status plant populations within the Project area, we concluded that the Project would have no direct effects on any special status plant species.

A second portion of our work mapped and analyzed existing cover types within the Project area. We began by creating a preliminary cover type map using low altitude color aerial photos digitized into a Geographic Information System. We then field-verified the map by visiting representative areas at the Project site. The map was originally designed to cover a buffer area at least 300 meters from all proposed Project facilities. Subsequent changes to the proposed Project layout resulted in additional areas that were added to (and in some cases dropped from) the map. The final version of the map was also expanded to cover the entire proposed mitigation parcel.

In the field we also walked or drove the entire 50 meter buffer corridor and delineated areas of lithosolic (shallow-soiled) plant communities within the corridor. On the aerial photos, the lithosols were not distinguishable from the other cover types, so it was necessary to perform this delineation in the field.

The final cover type map includes 65,100 acres of land, and contains 11 different major cover types. The Shrub-Steppe type covered the largest extent (51.2%), with the Grassland type accounting for another (31.5%).

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The lithosolic sub-type (included in the Shrub-Steppe, Low Sagebrush, and Grassland types) was found to be present on approximately 39% of the 50m buffer impact corridor. It is important to note that in many parts of the project area, lithosols occur as small inclusions in deeper-soiled habitats. These inclusions are typically too small and numerous to map at the project scale. For this reason, where lithosols comprised 50% or more (as estimated visually) of the ground within a mapping unit, it was classed as a Lithosolic Plant Community. This results in some lithosolic polygons with significant inclusions of deeper-soiled habitats, and some non-lithosolic polygons that contain numerous shallow-soiled areas.

Some questions have been raised regarding the significance of Project lithosol impacts. While the extent of lithosol habitat that would be disturbed by the Project has been calculated, the total extent of lithosolic types in the local vicinity and in the region is not known with precision. The regional extent of lithosol habitats in the Columbia Basin is difficult to estimate. Small-scale vegetation and soils maps typically do not break out lithosol sites. During the prefield review for the Project, we conducted a document and data search to identify existing maps and spatial data suitable for use in delineating lithosol habitats in the Project vicinity. To my knowledge, WDFW has carried out no studies to quantify lithosols, and no directly applicable information was found.

However, observational evidence suggests that lithosol habitats are not uncommon in the general Project vicinity. There are several wide, sloping ridgelines in the Project area composed almost entirely of shallow-soiled habitats. In many places, this

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contiguous habitat extends for hundreds of meters on both sides of the Project impact corridors. Furthermore, in accessing the project corridors, the field botanists crossed other extensive patches of lithosol on adjacent ridgelines. This would suggest that the lithosol acres to be impacted by the Project likely represent only a small and regionally insignificant proportion of the total lithosol habitat in the vicinity.

We expect that general mitigations proposed by the applicant to minimize the degree and extent of ground disturbance will be effective at reducing both permanent and temporary impacts to vegetation resources. In addition, as mitigation for unavoidable temporary and permanent habitat impacts, the Applicant proposes the acquisition and enhancement of a 550 acre on-site parcel of land. Furthermore, the Applicant has committed to specific vegetation mitigation measures. These are the development and implementation of both a noxious weed control plan, a wildfire management plan, and reseeding of temporarily disturbed areas. The plans will be implemented on the entire Project area, and carried out over the life of the Project.

The final portion of our work involved the evaluation of the vegetation and habitat conditions within the 550 acre mitigation parcel. The parcel consists of segments of two broad-topped north-south trending ridges, with an unnamed creek and associated canyon running between them. Sixty-four percent of the ground was classed as Shrub-Steppe habitat, with the majority of the remaining extent (34%) being classed as Grassland. In addition, several riparian habitat types are associated with the unnamed creek that crosses through the parcel.

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The eastern ridgetop contains primarily shrub-steppe habitat in fair to good condition. Native shrubs (primarily bitterbrush) and forbs dominate most of this area, with a mixture of native and non-native grasses. The western ridgetop, for most of the mitigation parcel, has recently burned and the habitat quality is generally fair. The vegetation is now composed primarily of a mix of native and non-native grasses and forbs, with widely scattered small shrubs.

The creek bottom ranges in habitat quality along its length. The upper portions are in poor to fair condition, with little development of riparian vegetation. Non-native species are common in these upper portions, although native species still dominate in areas. The creek appears to be intermittent in this upper section. Lower down, the creek bottom is in fair to good condition. Riparian vegetation is better developed and the creek flows late into the summer. Riparian trees and shrubs are present along this lower reach, and in places are dense and well-developed.

Although overall habitat quality of the parcel is fair to good, several opportunities for enhancement exist that would be expected to raise habitat quality further. Primary among these is management and control of cattle grazing within the entire parcel; especially within the riparian zone. Furthermore, although high concentrations of noxious weeds were not found within the parcel, scattered patches and individuals are present throughout. An overall noxious weed control effort for the parcel, perhaps incorporating a variety of techniques (chemical, mechanical, cultural, etc.), would likely be effective at reducing or eliminating noxious weeds from the site, increasing the habitat quality. Finally, certain areas could benefit from active revegetation efforts.

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Some areas along the creek would benefit from riparian replanting designed to re-establish native species in certain problem areas.

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Exhibit 30-1(RK-1)

Randall Scott Krichbaum

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Summary

More than twenty years experience working with, and studying, the biological resources of western North America. Fifteen years performing botanical, wildlife, and impact assessment studies for both public and private concerns. Good working relationship with agency and academic experts regarding natural resource issues. Excellent management and administrative skills gained from directing numerous projects. Demonstrated ability to produce clear, scientifically defensible documentation that communicates study results and conclusions in a manner appropriate for the target audience.

Experience

President — Eagle Cap Consulting Inc. (1991-present)

- Co-founded an environmental consulting firm specializing in botanical and wildlife studies.
- Designed and managed resource investigation projects for numerous private and public concerns.
- Prepared documentation to the standards of the scientific community and government regulations.

Project experience includes:

Principal Investigator: Rare plant survey and slickspot peppergrass habitat evaluation for a proposed Idaho Power project near Mountain Home, Idaho. In addition to a thorough floristic-level rare plant survey of all ground within the proposed right-of-way, this project involved the development and implementation of a slickspot habitat quality assessment protocol designed to determine the potential for slickspot peppergrass occurrence in apparently unoccupied habitat. Tasks: design study methodology; develop habitat quality assessment protocol in consultation with the US Fish and Wildlife Service; hire and train field botanists; perform field surveys; prepare final report.

Principal Investigator: Slickspot identification and field marking along an existing powerline right-of-way between Caldwell, Idaho and Ontario, Oregon. The goal of this project was to identify and stake all potential habitat for slickspot peppergrass within the right-of-way for avoidance during line upgrade construction. Tasks: coordinate field crew; identify and stake potential habitat; prepare final report.

Principal Investigator: Comprehensive study of road impacts on botanical and wildlife species of concern within a 3,500 km^2 basin along the Snake River. The study was part of Idaho Power Company's FERC relicensing effort for the three hydroelectric dams that make up the Hells Canyon Complex. Because the analysis focused on a large number of species and species groups, extensive use was made of bibliographic database and GIS technology to collect and analyze the sizeable volume of data that was collected for the study. Tasks: design study methodology; collect and compile literature and other existing data; design and implement GIS modeling techniques to analyze road impacts; prepare peer-reviewed report describing methods, results, and conclusions.

Project Manager: Preparation of an environmental assessment (EA) for a radio tower/powerline project on BLM land near the Oregon-Idaho border. This project involves all aspects of the impact assessment process, from initial scoping to final mitigation. Tasks: coordinate all project communications between the various affected agencies; act as a liaison between the proponent and government; hire and direct all environmental subconsultants for the project; analyze project impacts on environmental resources; design mitigation measures; perform rare plant surveys; prepare EA document to BLM and NEPA standards.

Principal Investigator: Multi-year study of rare plant resources and noxious weeds along a 262 kilometer-long reservoir complex on the Snake River. This study involved crews of botanists inventorying the shoreline for target rare plant and noxious weed species. Multiple logistic regression analysis was then used to determine correlations between species occurrence and a variety of disturbance and habitat parameters. Tasks: design study methodology; hire and train field botanists and supervisors; schedule and direct field work; analyze collected data; prepare peer-reviewed report; present results at conference.

Experience (continued)

Principal Investigator (Botanical Task): Rare plant investigation and Biological Assessment preparation for the US Highway 95 upgrade project between Copeland Junction and Eastport in Northern Idaho. This study took place along a 26 kilometer-long section of highway in peatland and upland habitats. Tasks: design study methodologies; supervise survey crews; perform rare plant surveys; analyze collected data; prepare technical report and Biological Assessment.

Botanist: Rare plant and vegetation studies for a natural gas extraction project in the prairie region of southern Alberta, Canada. Tasks: survey proposed test well locations for rare plants; characterize vegetation at these sites; document results for inclusion in impact assessment document.

Project Manager: Several rare plant, noxious weed, and vegetation studies for the Wallowa-Whitman National Forest. Tasks: design study methodologies; coordinate and supervise botanical survey crews; document results consistent with Forest Service standards. Ten projects have been completed over the course of six years.

Project Manager: Rare plant investigations on a 400 km^2 timber management unit in the northern Rocky Mountains of British Columbia, Canada. Tasks: design survey methodologies; supervise survey crews; coordinate data input; prepare technical documentation.

Botanical Investigator: Rare plant surveys for a natural gas extraction project in the foothills of the Rocky Mountains in Alberta, Canada. Tasks: survey remote areas for rare plants; prepare report describing results.

Principal Investigator (Botanical Task): Rare plant studies, wetland delineations, revegetation planning, and vegetation mapping support for the Stateline Wind Power Project on the Oregon-Washington border. This is an ongoing project supporting one of the largest wind farms in the nation. Tasks: design rare plant impact assessment studies; consult with agency specialists; perform field surveys and supervise field crews; prepare revegetation plan; implement revegetation monitoring program; perform wetland delineations/determinations; document all botanical/vegetation studies; prepare relevant text for permit applications.

Project Manager: Rare plant, wildlife, archaeological, and wetland studies for various Idaho Power Company projects in Idaho and Oregon. Projects have included major transmission line impact assessments, hydroelectric facilities relicensing, and numerous other energy related projects. Tasks: design methodologies for impact assessment studies; coordinate and supervise field crews; analyze collected data to determine potential project impacts; design mitigation measures; prepare peer-reviewed documentation consistent with Idaho Power and federal specifications. Sixteen projects have been completed over the past eight years.

Principal Investigator (Botanical Task): Rare plant investigations for the Vansycle Ridge wind power facility in N.E. Oregon. This facility is located adjacent to the Stateline wind power project, and was Oregon's first major wind power plant. Tasks: design rare plant study methodologies; perform prefield and field work to determine rare plant existing conditions; prepare rare plant impact assessment technical memoranda; contribute sections for permit application.

Project Manager: Several rare plant studies for the US Bureau of Land Management in Klamath Falls, Oregon. Tasks: design rare plant study methodologies; supervise survey crew; prepare compliance documentation; analyze impacts related to various alternatives. Five projects have been completed in recent years.

Principal Investigator (Botanical Task): Rare plant investigations for the proposed TPC-Vansycle wind power project, located near the Stateline and Vansycle Ridge wind power facilities. Tasks: design rare plant impact assessment methodologies; perform field surveys and supervise field crews; prepare compliance documentation describing potential project impacts on rare plant populations.

Experience (continued)

Botanist: Rare plant and vegetation studies on the island of St. Vincent in the British West Indies for a United Nations project. Tasks: design study methodologies; perform field surveys in primary rain forest and palm brake habitats; prepare input to a technical report on the project.

Principal Investigator (Botanical and GIS Tasks): Rare plant investigations and GIS analysis for a major proposed wind power project in N.E. Oregon. Tasks: design and implement rare plant impact assessment studies; document potential project-related botanical impacts; design and maintain the project GIS database.

Botanist: Rare plant and vegetation studies for a natural gas pipeline project in the boreal forest region of central Alberta, Canada. Tasks: survey major pipeline route for rare plant species; characterize vegetation along the route.

Principal Investigator (Botanical Task): Rare plant impact assessment studies for a major proposed wind power project near The Dalles, Oregon. Tasks: design rare plant study methodologies; perform field surveys and supervise field crews; prepare impact assessment documentation for inclusion in the project application.

Principal Investigator (Botanical Task): Rare plant studies and vegetation mapping for the proposed Kittitas Valley wind power project near Ellensburg, Washington. Tasks: design, perform, and document rare plant impact assessment studies; supervise field crews; delineate current vegetation types within the project area; prepare GIS themes and maps to document cover types.

Principal Investigator (Botanical Task): Rare plant impact assessment studies for the proposed Maiden Wind Farm near Sunnyside, Washington. Tasks: design rare plant studies; perform field surveys and supervise field crews; prepare documentation for inclusion in the project application.

Project Manager: Biological Assessment for a waste treatment plant/golf course project near the City of Union, Oregon. Tasks: coordinate wildlife, botanical, and fisheries subcontractors; act as a liaison between the City and federal agencies; prepare documentation consistent with the Endangered Species Act.

Project Manager: Rare plant and noxious weed study for the Burns Ranger District of the Malheur National Forest, Oregon. Tasks: select, coordinate, and supervise survey crew; design study methodology; perform rare plant surveys; prepare documentation consistent with Forest Service standards.

Project Biologist: Impact assessment studies for a power generation project near Spokane, Washington. Tasks: design and perform studies to assess potential project impacts to rare plants, wildlife, and wetlands; perform wetland delineations; map vegetative cover types; design mitigation options; prepare technical memoranda detailing all investigations.

Botanist: Rare plant, vegetation, and noxious weed studies for various Oregon Department of Transportation projects in Central Oregon. Tasks: design and perform botanical studies; document results to Department standards; suggest mitigation measures to reduce impacts on rare species.

Botanist: Resource investigations for a proposed power generation project in the Columbia Basin of Oregon. Tasks: design and perform studies of rare plant and wetland resources; map plant communities; delineate wetlands; prepare permitting documentation; design revegetation plan.

Botanist: Botanical investigations of two projects in Central and Eastern Oregon for an electric utility. Tasks: design study methodologies; perform surveys for rare plants; prepare documentation consistent with federal and state environmental regulations; design mitigation plans for threatened populations.

Interdisciplinary Team Member: Impact assessment studies for a railroad improvement project in Eastern Oregon. Tasks: collect background information on various natural resources; design studies to determine distribution and abundance of rare plant populations and noxious weeds; supervise field crew; analyze direct and indirect impacts; provide technical input for regulatory compliance documents; map historical plant communities; prepare cumulative impacts analysis.

Experience (continued)

Botanist: Preparation of a revegetation plan for a power generation project near Hermiston, Oregon. Tasks: survey disturbance areas; design appropriate seed mixes and planting methods; coordinate contacts with revegetation contractors.

Wetland Scientist: Wetland determination in the Columbia Basin of Oregon for an agricultural concern. Tasks: read vegetative plots consistent with US Army Corps of Engineers standards; provide documentation to support the determination.

Botanist: Post-construction undesirable plant survey on a transmission line corridor for the US Bonneville Power Administration in Northern California. Tasks: perform noxious weed surveys; document results; prepare noxious weed control plans.

Project Manager: Environmental assessment preparation for an airport expansion project in NE Oregon. Tasks: collect background data on project site; design studies for endangered species, and wildlife; conduct wetland inventories; supervise survey crew; prepare compliance documentation; analyze impacts related to various alternatives; prepare mitigation plans.

Botanical Surveyor — Wallowa-Whitman National Forest, Enterprise, Oregon (1989-1990)

- Conducted rare plant surveys in a variety of habitats (desert to sub-alpine).
- Served on interdisciplinary planning teams for various projects.
- Wrote Biological Evaluations for timber sales, range allotments, and development projects.

Biological Technician — Southern Oregon Experiment Station, Medford, Oregon (1988)

- Conducted surveys of noxious weeds in the pear orchards near Medford.
- Collected and analyzed field samples for integrated pest management research.

Science Instructor — Hancock Field Station, Fossil, Oregon (1977-1982)

- Taught students (grades 6-12) basic concepts of natural history at a science camp/outdoor school.
- Prepared and presented workshops on plant ecology, keying and ethnobotany as well as other natural science topics.

Education

Master of Science Degree (Resources and the Environment) — University of Calgary, Canada (1998)

- Thesis title: *An Investigation of Methods Used in Rare Plant Surveys Conducted for Impact Assessment*
- Thesis subject: The work consisted of a comprehensive review of rare plant survey methodologies currently in use worldwide, with particular emphasis on those applied to impact assessment projects. In addition, scientific and regulatory requirements for these surveys were analyzed. A set of guidelines were produced to be used in conducting rare plant studies. These guidelines specified minimum investigator qualifications, prefield review techniques, field survey methods and intensities, and documentation content.

Bachelor of Science Degree (Zoology) — Oregon State University, Corvallis, Oregon (1985)