Issue:	**Depreciation Expense Rates**
Witness:	**Larry W. Loos**
Type of Exhibit:	**Direct Testimony**
Sponsoring Party:	**Black Hills Power, Inc.**
Date Testimony Prepared:	**June 26, 2006**

Before the South Dakota
Public Utilities Commission

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Direct Testimony of Larry W. Loos

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Qualifications

Q. Please state your name and business address.

A. Larry W. Loos, 11401 Lamar, Overland Park, KS 66211.

Q. What is your occupation?

A. I am employed by Black & Veatch Corporation (Black & Veatch). I am currently assigned to the Company's Enterprise Management Solutions Division, where I serve as a Director.

Q. How long have you been associated with Black & Veatch?

A. I have been employed by the company continuously since 1971.

Q. What is your educational background?

A. I am a graduate of the University of Missouri at Columbia, with a Bachelor of Science Degree in Mechanical Engineering and a Masters Degree in Business Administration.

Q. Are you registered as a Professional Engineer?

A. Yes, I am a registered Professional Engineer in the states of Colorado, Indiana, Iowa, Kansas, Louisiana, Missouri, Nebraska and Utah.

Q. Do you belong to any professional societies?

A. Yes, I do. I am a member of the American Society of Mechanical Engineers, the National Society of Professional Engineers, the Missouri Society of Professional Engineers, the Society of Depreciation Professionals, and the Company's representative to the American Gas Association.

Q. What is your professional experience?

A. I have been responsible for numerous engagements involving electric, gas, and other utility services. Clients served include both investor-owned and publicly owned utilities; customers of such utilities; and regulatory agencies. During the course of these engagements, I have been responsible for the preparation and presentation of rate cases and studies involving valuation, depreciation, cost of service, allocation, rate design, pricing, financial feasibility, cost of capital, and other engineering, economic and management areas.

Q. Have you previously appeared as an expert witness?

A. Yes, I have. Though I have never testified before the South Dakota Public Utilities Commission (Commission), on several occasions I have filed testimony in cases that were settled prior to hearings. I have presented expert witness testimony on a number of occasions before the Federal Energy Regulatory Commission as well as before regulatory bodies in the states of Colorado, Illinois, Indiana, Iowa, Kansas, Minnesota, Missouri, New York, North Carolina, Pennsylvania, South Carolina, Texas, Utah, Wyoming, and Vermont. I have also presented expert witness testimony before District Courts in the states of Colorado, Iowa, Missouri, and Nebraska; and before Courts of Condemnation in the states of Iowa and Nebraska. I have also served as a special advisor to the Connecticut Department of Public Utility Control.

Q. Please describe Black & Veatch Corporation.

A. Black & Veatch has provided comprehensive engineering, consulting, and management services to utility, industrial, and governmental clients since 1915. The Company specializes in engineering and construction associated with utility services including electric, gas, water, wastewater, telecommunications, and waste disposal. Service engagements consist principally of investigations and reports, design and construction, feasibility analyses, rate and financial reports, appraisals, reports on operations, management studies, and general consulting services. Present engagements include work throughout the United States and numerous foreign countries. Including professionals assigned to affiliated companies, we currently have a staff of about 7,000 people.

Q. For whom are you testifying in this proceeding?

A. I am testifying on behalf of Black Hills Power, Inc. (BHP).

Q. What is the purpose of your direct testimony in this matter?

A. I sponsor BHP's proposed depreciation expense rates. In this regard, I sponsor as Exhibit LWL-1 the Black & Veatch report entitled "Analysis of Depreciation Accrual Rates," dated June, 2006. This report was prepared under my supervision and direction. The study is based on plant balances as of December 31, 2005.

Q. Have you previously investigated depreciation expense rates applicable to BHP?

A. Yes, I have. I previously analyzed the depreciation rates of BHP in 1991 based on plant data as of December 31, 1989. BHP's current composite rates are based on the proposed rates in the 1991 study. Generally, the results of my current study are consistent with my findings in the 1991 study.

Q. Please outline your direct testimony.

A. I will (1) present my findings and conclusions and address depreciation expense rates in general; (2) address my proposed treatment of depreciation reserve balance surplus and deficiency; and (3) present my recommended remaining life rates for BHP's unit and mass properties.

Conclusion

Q. What are your findings and conclusions?

A. Based on the results of my analysis, I find that BHP's existing depreciation expense rates are generally adequate, in aggregate, to recover undepreciated investment over the remaining life of the property. However, rates applicable to individual accounts may be too low or too high. For example, BHP has generally extended forecast steam production plant retirement dates resulting in depreciation rates in excess of the level required to fully amortize investment over the remaining life. Also, in 2004 and 2005 BHP transferred its investment in 47kV and 69kV lines from generally longer life transmission to generally shorter life distribution.

Based on these findings, I recommend the Commission adopt and BHP charge the depreciation rates set forth in Table 6-3, (Page 31), Column [D] of Exhibit LWL-1. Implementation of these rates will result in an increase in annual depreciation expense of about $9,537 (0.05 percent) as shown in Column [E], Line 52.

Depreciation Rates - General

Q. How do you define depreciation?

A. My definition is the same as that set forth in the FERC Uniform System of Accounts which defines depreciation as:

> "The loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of electric plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes considered are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand and requirements of public authorities."

With regard to this definition, the reference to value is from an accounting perspective where value represents the investment (original cost) in electric plant. By properly charging depreciation, the investment in plant (initial cost less recovery through salvage and plus cost of removal) is distributed over the useful life of the assets being depreciated. This distribution is intended to equitably allocate total investment in plant to periods during which service is provided through the use and consumption of such facilities.

Q. When were BHP's depreciation rates last revised?

A. BHP's current depreciation rates were approved by the South Dakota Public Utility Commission in 1992 in Docket No. EL92-026, based on plant investment as of December 31, 1989.

Q. What method do you use to develop your recommended rates?

A. I use the remaining life depreciation method. This method is premised on the annual recovery of plant investment in generally equal amounts over the remaining service life of plant facilities. When referring to recovery in this context, it represents the annual charge to net income.

Q Do you apply the same approach to all accounts?

A. No, I do not. In developing depreciation rates, I first divide plant into two fundamental categories. These categories are "mass" property and "unit" property. Mass property represents a collection of a relatively large number of homogeneous property units (i.e., poles, conductors, conduits, and meters) which are retired individually.

Unit property, on the other hand, is characterized as a collection of interconnected, integrated, heterogeneous property elements; the individual components which have limited value outside their contribution to the whole. While individual components of the whole may be retired and/or replaced prior to final retirement, most components comprising the system will be retired with the balance of the whole. This retirement en masse is due to the fact that the benefit provided (engineering value) is a result of the inter-relationship of individual components with the whole.

Q. Does this difference affect how you develop depreciation rates?

A. Yes, it does. For unit property, my concern is that the life of the unit be synchronized with the total investment to be recovered i.e. the total investment associated with a number of heterogeneous components. This requires that interim additions and retirements (those individual heterogeneous components) be incorporated in the development of depreciation expense rates since their cost must be recovered over the remaining life of the facility, not over the life of the individual component. For mass property, interim additions and replacements are not a factor since I generally assume that the service life of individual components is not affected by the life of the system. The homogeneous nature of the property components allows depreciation rates to be developed based on the average service life of all units.

Q. Are the procedures you follow the same for unit property and mass property?

A. No, they are not. Consistent with the remaining life concept, for unit property (production plant), I develop a history of investment activity by account for each location or site. This life history reflects gross additions, retirements, surviving property, and account balances. Based on the estimated life (planned retirement date) for each unit property (generating station), I forecast plant investment activity (interim additions, retirements, and account balances) at the account level for each year that units within such an account are forecast to remain in service. I then calculate a remaining life, straight line depreciation accrual rate by dividing the unrecovered gross investment by the sum of the annual depreciable plant balances over the remaining life of the unit property. Unrecovered investment represents plant investment as of December 31, 2005 plus forecast interim additions, less net salvage and accumulated depreciation reserve. Annual depreciable balances are based on plant balances as of December 31, 2005 plus forecast additions less retirements for each year the plant is forecast to remain in service.

Mass Property

Q. How are mass properties treated?

A. As discussed in Section 3.0 of Exhibit LWL-1, for transmission, distribution, and general plant (collectively, mass properties), I perform actuarial studies to determine the experienced mortality characteristics (average service life) of property for each FERC account. Based upon the historical plant activity, a survivor stub curve is developed based on the percent of investment surviving by age. Using a least squares analysis technique, this experienced survivor stub curve is compared to general survivor curve types to identify the best fitting curves and service lives. I use the historical life determined by this method, results of prior studies, engineering judgment, and other considerations to determine a reasonable average service life and survivor curve applicable to each account. I calculate a whole life depreciation expense rate for each account by dividing one minus the forecast net salvage ratio by the average service life. As a final step, I consider accumulated reserve for depreciation and the average age of surviving plant to adjust the whole life rates to remaining life rates.

<u>Unit Property</u>

Q. Please describe your analysis of each of BHP's generating stations.

A. In Section 4.0 of Exhibit LWL-1, I discuss the application of the whole life and remaining life procedures separately to each of BHP's generating stations. By separately analyzing each station, I recognize its unique nature. The remaining life rates I develop will, if applied to annual plant balances over the remaining life of the station (from the period ending December 31, 2005 to the year of retirement), recover BHP's total investment in the station, including consideration for the impact of net salvage. The principal forecasts I rely on in the analyses include:

- The retirement date for each generating unit.
- The forecast level of interim additions and retirements.
- Net salvage associated with interim additions and retirements.
- There will be no additional major plant additions, life extension costs, or equipment modifications other than those currently forecast by BHP.

Q. What service life have you estimated for the steam generating units?

A. As indicated in Section 4.1 of Exhibit LWL-1, BHP provided the year of installation and forecast retirement date for each of its steam generating units. As shown in this schedule, the Ben French Station located in Rapid City was placed in service in 1960 and has an estimated remaining life of 8 years based on the forecast retirement in 2013.

The Neil Simpson generating station is located at the Wyodak mine near Gillette, Wyoming. This mine was acquired by BHP in 1954 from the Wyodak Coal Company, a subsidiary of the Homestake Mining Company. Neil Simpson Unit 1 was placed in service in 1969 and has an estimated remaining life of 15 years based on the forecast retirement in 2020. Neil Simpson Unit 2 was placed in service in 1995 and the remaining life is estimated to be 40 years based on the forecast retirement of the unit in 2045.

The Osage Plant units were placed in service from 1948 through 1952. The steam production facilities at this location include two generating units originally owned by BHP and one generating unit acquired from Rushmore REA Co-Op in early 1992. The remaining life of all three units is estimated to be 7 years based on the forecast retirement of the plant in 2012.

The Wyodak Plant is located adjacent to the Neil Simpson Station near Gillette, Wyoming and has been placed in service in 1978. From 1978 through 1990, this plant was jointly leased by Black Hills Power (f/k/a Black Hills Power & Light) and PacifiCorp (f/k/a Pacific Power & Light Company). At the end of 1990, Black Hills Power and PacifiCorp acquired the plant from the leaseholders. BHP receives 20 percent of the plant capacity (and output) of 335 MW. The remaining life of the unit is estimated to be 25 years based on the forecast retirement in 2030.

Q. What service life have you estimated for other electric generating units?

A. As indicated in Section 4.2 of Exhibit LWL-1, BHP provided the year of installation and forecast retirement date for each of its other electric generating units. The four Ben French combustion turbines were installed in the period 1977 through 1979 and the remaining life of the units is estimated to be 14 years based on the forecast retirement in 2019.

Neil Simpson Unit 1 Combustion Turbine was installed in 2000 and the estimated remaining life is 25 years based on the planned retirement of the unit in 2030.

Lange Combustion Turbine was installed in 2002 and the remaining life is estimated to be 27 years based on the forecast retirement of the unit in 2032.

Q. Do you find the planned retirement dates provided by BHP to be reasonable?

A. Based on a general review of the planned retirement dates provided by BHP, I find the BHP forecast to be within my expectations.

Q. Will there be any substantial forecast capital additions to BHP's production plants?

A. Yes, there will be extensive capital additions required for the various plants to achieve the lives forecast by BHP. For the Ben French steam production plant, BHP forecasts capital investment of $1.4 million in 2007 for a generator rewind and turbine blade rings. The Wyodak Plant will have major capital additions amounting to $4.7 million in 2006. Also, there will be major capital costs of $2.0 million in 2011, with recurring capital costs every five years escalated at a 2.5 percent annual inflation rate over the remaining life of the plant. The Neil Simpson Unit 1 will have major capital additions of $1.2 million in

2009 and $1.4 million in 2014. For Neil Simpson Unit 2, there will be major capital costs of $1.5 million in 2010, with recurring capital costs every five years escalated at a 2.5 percent annual inflation rate over the remaining life of the unit. The Lange CT will have major capital additions of approximately $2.0 million in 2012, with recurring capital costs every seven years escalated at a 2.5 percent annual inflation rate over the remaining life of the unit. For the Neil Simpson Unit 1 combustion turbine, a hot gas path inspection will take place in 2007 at a capital cost of $1.8 million, with recurring capital costs every seven years escalated at a 2.5 percent annual inflation rate till 2021. There will be another capital addition of $400,000 in 2028. Other than these major capital additions, nominal levels of interim additions and interim retirements are expected to be made over the remaining life of all the generating units. All these investments have been included in our analysis for the determination of remaining life rates for unit property.

Q. Do you find the forecast capital additions provided by BHP to be reasonable?

A. Based on a general review of the schedules and costs associated with the planned overhauls of production plant equipment, I find the BHP forecast to be within my expectations.

Depreciation Reserve

Q. How does depreciation reserve affect whole life depreciation

rates?

A. As discussed in Section 6.0 of Exhibit LWL-1, the whole life rates I develop differ in some instances from the existing depreciation rates. This difference may result in a surplus or deficiency in the depreciation reserve balance relative to the level required at that age by the whole life rate. Depreciation reserve surplus or deficiencies can arise for a variety of causes. Some causes are:

(1) Failure to include forecast levels of interim additions and retirements that correspond to levels which actually occur.

(2) Changes in average service lives occasioned by changes in technology, equipment, and other factors.

(3) Average service lives that do not correspond to actual experience due to inadequate historical retirement data or other considerations which lead to the use of an average service life which differs from actual.

(4) Failure to include an allowance for net salvage at a level which corresponds to actual experience and forecast levels.

Q. Do you calculate a substantial reserve deficiency or surplus?

A. No, I do not consider the indicated deficiency or surplus particularly substantial. For mass property accounts, I adjust the accumulated depreciation reserve per books set forth in Table 6-1 (Page 26), Column [C] of Exhibit LWL-1, to reflect the transfer of $15,523,989 in reserve (Column [D]) from transmission to distribution. This reserve transfer is associated with the transfer of 47kV and 69kV transmission plant to distribution plant in 2004 and 2005. I analyze the depreciation reserve to determine the calculated (theoretical) reserve for the mass property classifications using the whole life rates. I then determine the reserve excess/deficiency in Table 6-2 (Page 30), Column [T] of Exhibit LWL-1, by subtracting the calculated accumulated reserve, Column [S] from the adjusted accumulated reserve Column [F] (Page 29) of the same table. In total, I find a reserve deficiency of $9.2 million, as shown on Line 52 of Column [T] (Page 30). When compared with $638.5 million in plant, this deficiency is less than 1.5 percent.

This reserve deficiency can be generally attributed to changes in life characteristics or historical rates which have not properly reflected life characteristics or changes in life characteristics. However, the transfer of plant and accumulated depreciation reserves from generally longer life transmission property to somewhat shorter life distribution property is the primary factor contributing to the $6.7 million deficiency for distribution plant, Column [T], Line 39 of Table 6-2.

Q. What is your recommended treatment of the reserve surplus and deficiencies shown in Exhibit LWL-1, Table 6-2?

A. I recommend that the surpluses and deficiencies be amortized and recovered prospectively through depreciation expense rates. The whole life rates I have previously discussed are shown in Column [N] of Table 6-2 of Exhibit LWL-1. To calculate the remaining life rate, I amortize the reserve excess/deficiency over the remaining life of the asset. As shown in Table 6-2 (Page 30), the reserve excess/deficiency is divided by the remaining life of the asset group, Column [Q] to determine the adjustment required to annually amortize the deficiency. By dividing the annual adjustment by the existing plant balance, I calculate the percent remaining life adjustment, Column [U] in the same table. This adjustment is then subtracted from our indicated whole life rates, Column [N] to determine the recommended remaining life rates, Column [V].

Q. What is your recommendation?

A. I recommend the Commission approve the proposed depreciation rates set forth in Table 6-3, (Page 31), Column [D] of Exhibit LWL-1 for prospective application by Black Hills.

Q. Does this conclude your direct testimony in this matter?

A. Yes, it does.