**Q. Please state your name, business address, and position with PacifiCorp d/b/a Rocky Mountain Power (the "Company").**

A. My name is K. Ian Andrews. My business address is 1407 West North Temple, Suite 210, Salt Lake City, Utah 84108. I am the Manager of Resource Development in the Resource Development and Construction department at PacifiCorp Energy, a division of the Company.

**Qualifications**

**Q. Briefly describe your education and professional experience.**

A. I have a Bachelor of Science degree in chemical engineering from the University of Utah and a Masters degree in Business Administration from Brigham Young University. Since joining the Company in September 1978, I have had multiple roles including power plant training, project management, customer technical services, resource planning, managing due diligence of asset acquisitions, power plant performance improvement, emissions controls strategy development and implementation, and most recently, manager of the resource development group since August 2004. I am a registered professional engineer in the state of Utah. I also represent the Company on a number of boards related to energy at the University of Utah.

**Q. Please explain your responsibilities as Manager of Resource Development.**

A. The resource development group is responsible for developing Company-owned generation resource options that the Company could potentially implement, if those resources are determined to be least cost on a risk-adjusted basis. The resource development group is responsible for developing and providing

performance and cost information related to future resource options used in the Company's integrated resource planning process, and maintains data on existing resource capacities and performance. The resource development group also provides cost and performance information on current and emerging environmental regulations that may affect the operation of the Company's thermal generating assets.

**Purpose of Testimony**

**Q. What is the purpose of your testimony?**

A. The purpose of my testimony is as follows:

- I provide an overview of the Company's current recommended depreciable lives of the Company's generating resources. The Company reviewed its hydro, thermal, and wind-based generating assets and performed an evaluation of depreciable lives in support of this filing. Based on this assessment, the Company proposes certain changes to currently ordered depreciable lives.
- I describe the process used by PacifiCorp to develop estimated plant economic lives for the Company's thermal, wind and hydro generation resources that are incorporated into the Company's new depreciation study submitted as Exhibit RMP___(JJS-2)[1] (the "Depreciation Study") in this filing. My testimony also provides a summary of the proposed changes in depreciable plant lives and the basis for those changes.
- I present the Company's recommendations regarding decommissioning costs and the need to further evaluate decommissioning costs as the Company gains

[1] Exhibit of Company Witness John J. Spanos of Gannet Fleming.

more knowledge about the costs of plant demolition and removal based on its own experience and that of others in the industry.

**Background on the Development of Depreciable Plant Life**

**Q. Why is it necessary to estimate the economic life of a generation asset for purposes of developing depreciation rates?**

A. One major component of PacifiCorp's cost of service is the recovery of capital investment. This recovery is accomplished through depreciation expense over the life of each resource. From the standpoint of setting depreciation rates, it is necessary to have a reasonable estimate of the economic life of a resource at the time it is placed into service in order to calculate the depreciation expense. The estimated plant economic life of a generation asset is the period of time that begins when the asset is placed in service and starts generating electricity and ends when the asset is removed from service. In other words, it is the period of time during which customers benefit from the asset.

**Q. Is a plant's estimated economic life permanently set when the plant is placed into service?**

A. No. For depreciation purposes, all generation asset economic lives are estimates that may be adjusted over time as circumstances warrant. The Company reevaluates its economic life calculations each time it performs a depreciation study. In this case, the Company calculated generation plant depreciable lives and provided that information to Mr. John J. Spanos of Gannet Fleming, Inc. for his use in preparing the Depreciation Study.

**Q. Have you provided the Company's estimated plant economic lives for its generation assets?**

A. Yes. Exhibit RMP___(KIA-1) accompanying my testimony contains a complete list of PacifiCorp's generation plants and their recommended depreciable lives.

**Depreciable Lives for Thermal Generation Resources**

**Q. Please describe the process the Company used to assess the depreciable lives of its thermal generation assets.**

A. The Company began with the estimated retirement years from the 2007 depreciation study and considered whether to recommend modifications. The Company considered modifying its current practice of using a single retirement year for a plant, rather than using separate retirement years for each unit at each plant. As part of this process, the Company considered the impact of significant events, defined as those resulting in major capital expenditures and/or ongoing operating and maintenance expenses, on depreciable lives. Significant events are typically caused by one of the following three major factors: (1) major equipment condition; (2) fuel availability; and (3) certain environmental compliance obligations. Given the uncertainty associated with existing and potential environmental regulations, however, the Company decided against making changes to the asset lives of its coal-fired generation plants at this time.

**Q. Please explain how major equipment condition can affect the depreciable life of a thermal generation asset.**

A. Major equipment condition is influenced by the planned outage schedule. Thermal resources, including the coal-fired, gas-fired, and geothermal resources

involving the production and transport of steam, normally undergo overhauls on four-year cycle, eight-year cycle or 12-year cycles. For coal-fired resources, outage schedules have been established by Company and industry operating experience. For gas-fired combustion turbine based resources, overhaul schedules are established based on the number of operating hours and starts of the units and the recommendations of the original equipment manufacturer. It is at these overhaul milestones that other major replacements may be required, such as replacing cooling towers, condenser re-tubing, re-winding generators, or replacing steam generator components. These periodic milestone replacements are significant and if capital investment is required, the resource may no longer be economic to operate, depending on the level of investment and expected remaining life.

**Q. Please explain how fuel availability can affect the depreciable life of a thermal generation asset.**

A. Fuel availability and, to an extent, its quality, are factors that can influence the economic life of a resource. In the event there is significant change in the availability of fuel from the resource's original design fuel, it may be necessary to switch to a different source of fuel. The use of this alternate fuel may require a major capital expenditure that could make the resource uneconomic to operate.

**Q. Please explain how environmental regulations can affect the depreciable life of a thermal generation asset.**

A. Environmental regulations which include both existing and emerging changes in air emissions standards, water intake and effluent discharge standards, and solid

waste regulations may have a major impact on the economics of operating an asset. New regulations or changes to existing air, water or solid waste regulations influence the timing of major capital expenditures and the subsequent operating and maintenance costs for compliance. Major capital expenditures include air pollution controls, water intake infrastructure modifications, discharge constraints and cooling system changes, and new or upgraded coal combustion waste stream infrastructure to transport and store bottom ash, fly ash, and scrubber waste. Capital expenditures, once made, must be recovered over the remaining life of the asset. If a major capital investment is required to meet a new environmental standard and the investment is not feasible or economic over the remaining life of the asset, this could precipitate the early retirement of the resource.

**Q. Do any capital additions for environmental controls actually extend plant lives or do they just allow a plant or unit to operate through its existing life?**

A. The Company has made capital additions on a number of its coal-fired generating assets in order to comply with environmental regulations. In justifying the prudency of these investments, the Company has assumed that the plant life would not be extended inasmuch as other material investments, but currently unknown, may be required to extend the plant life.

**Q. Have any new significant environmental regulations emerged since the Company's last depreciation study that could affect depreciable plant lives?**

A. Yes, two sets of environmental regulations have emerged since the previous depreciation study was performed in 2007. First, the United States Environmental Protection Agency ("EPA") promulgated the Mercury Air Toxic Standards

("MATS") regulations. These rules regulate mercury and other hazardous air pollutants from stack emissions.

Second, proposed Coal Combustion Residual regulations as part of the Resource Conservation and Reclamation Act have emerged in draft form. These regulations, while not finalized, are expected to require utilities with coal-fired generation facilities to meet certain compliance obligations for ash and coal residue handling, infrastructure, and storage facilities by the 2019-2020 timeframe, depending on timing of the final ruling. The EPA is still reviewing public comments related to these rules and a final decision on them is currently not expected until 2014.

In addition, the EPA has partially approved and partially dis-approved various components of the Regional Haze State Implementation Plans of Arizona, Utah and Wyoming, which affect Company wholly-owned or partially-owned generation resources. Furthermore, both the states of Utah and Wyoming have issued state implementation plans that require that certain additional air pollution control projects be installed at specific coal-fired generating units.

**Q. Based on these considerations, what major changes did the Company propose with regard to the depreciable lives of its thermal resources?**

A. The Company has proposed several changes based on its analysis of the depreciable lives of its thermal resources.

First, the Company recommends accelerating the retirement date of the Carbon plant from 2020 to 2015. This change responds to the need to comply with EPA's MATS and other environmental regulations. The Company has

assessed the feasibility and economics of various options for compliance and concluded that retiring the Carbon plant in 2015 is currently the least-cost alternative, accounting for risk and uncertainty. Carbon units 1 and 2 will be 61 and 58 years old, respectively, in 2015.

The second major change is the recommendation to extend the retirement date of the Gadsby gas-fired steam generating units from 2017 to 2022. The Company extended Gadsby's plant life after determining that it could economically operate the plant for another five years.

The third major change is a recommendation to extend the economic life of the Blundell Unit 2 bottoming cycle from 26 years to 30 years based on a determination of that unit's design life of 30 years; the new retirement date is 2033.

The fourth change is to note that the Company's Little Mountain gas-fired plant was retired in 2011, consistent with its planned retirement date of 2011 after 40 years of service.

For the remaining coal-fired generating units, the Company maintained the current depreciable lives consistent with prior depreciation studies. The Company's recommends that the existing depreciable lives be maintained. There is sufficient uncertainty regarding the environmental regulations described above that extending the current depreciable lives is not warranted at this time.

**Q. Has the Company changed the depreciable lives for its gas-fired simple cycle combustion turbine resources?**

A. No. The Company is not recommending any change to the depreciable lives of its

simple cycle gas combustion turbines. The simple cycle combustion turbines in the Company's fleet are aero-derivative combustion turbines and operate when economic and/or when required for system reliability purposes. Operating hours related to outage schedule assumptions around these units have not changed. Moreover, fuel availability and technology viability of the simple cycle gas combustion turbine units have not changed. The original equipment manufacturer's 30-year useful life recommendation has not changed and remains consistent with the 2007 depreciation study.

**Q. Has the Company changed the depreciable lives for its gas-fired combined cycle combustion turbine resources?**

A. No. The Company did not change the depreciable lives for the combined cycle gas combustion turbines because the original equipment manufacturer useful life recommendation has not changed from the recommended 40-year life since the 2007 study. Likewise, these plants operate when economic and/or when required for system reliability purposes. Since the 2007 study, these units continue to operate with net capacity factors between 20 and 80 percent. As such, the operating hours pertaining to the outage schedule assumptions around these units have not changed. Moreover fuel availability and technology viability of the combined cycle gas combustion turbine resources have not changed.

**Depreciable Lives for Hydroelectric Generation Resources**

**Q. What event did the Company consider in developing depreciable lives of hydro facilities?**

A. As discussed in the testimony of Company Witness Mr. Henry E. Lay, the 2007

depreciation study based the hydroelectric plant terminal lives primarily on Federal Energy Regulatory Commission ("FERC") hydroelectric plant license expiration dates. The Company made an assessment of major FERC licensed hydro facilities and determined any changes necessitated by new licensing information.

**Q. What major changes did the Company make with regard to the depreciable lives of its hydro resources?**

A. The major change resulted from changes to license expiration dates for the Merwin, Swift Yale, Lemolo, Toketee, and Prospect plants. Exhibit RMP___(KIA-1), "PacifiCorp Estimated Plant Retirement, Lives – Hydro" lists both the estimated retirement dates of the Company's hydro assets and the proposed changes.

**Q. Did the Company reduce the depreciable life of any of its major hydro facilities?**

A. Yes. The depreciable lives of the two major projects on the Klamath River, J.C. Boyle and Iron Gate, were reduced by 26 years. Consistent with the Klamath Hydroelectric Settlement Agreement, these facilities are scheduled for decommissioning no earlier than 2022.

**Q. Could environmental issues affect the estimated plant economic life of hydro resources in the future?**

A. Yes. While no new significant environmental compliance issues have emerged since the last depreciation study, the dynamic nature of evolving environmental stewardship requirements coupled with asset specific attributes will continue to

impact the Company's ability to economically achieve license extensions. For instance, assets located on United States Forest Service land, such as the North Umpqua hydro project, may be subject to different environmental stewardship requirements than a hydro project located on non-federal lands. On the other hand, long-term investments the Company is making to comply with its current licenses may positively influence future efforts to relicense these facilities. When hydro assets are successfully relicensed in the future, the depreciable lives of those assets will be adjusted accordingly.

**Depreciable Lives for Wind Generating Resources**

**Q. Please describe the process the Company used to assess the depreciable lives of its wind resources.**

A. In the 2007 depreciation study, the Company proposed using a 20-year life for wind resources based on a life-span technique. The life-span technique assumed that any existing investment in property units plus any new property unit additions will all be retired no later than a specific time from original installation of the project. For example, if a wind-powered generation resource was constructed in 2007, it was anticipated that all investment in property units would be fully depreciated and retired by no later than 2027. In the dockets to establish depreciation rates based on the 2007 depreciation study, some intervening parties proposed using a longer depreciable life, pointing to wind purchased power agreements with a term of 25 years or more. In response, the Company agreed to extend the lives for its wind-powered generation resource property units to 25 years. Review of the operating history of the units installed over the last few years

and the expectations for future requirements has led the Company to propose to extend the lives of its wind-powered generation resources to 30 years.

**Q. What specific changes is the Company proposing with regard to the depreciable lives of its wind resources?**

A. The Company recommends extending the depreciable lives of wind turbines to a maximum of 30 years from the previous estimate of 20 years due to the operating history of the units installed over that last few years and the expectations for future maintenance requirements. Additionally, the Company will apply an Iowa-type curve adjustment to the maximum 30-year life for interim wind turbine property retirements. Mr. Spanos' testimony explains what an Iowa-type curve is and how the curve is used to adjust the service life of certain assets.

**Q. Did the Company consider its ability to secure land rights for 30 years or more when it increased the depreciable lives of wind resources?**

A. Yes. Several of the Company's wind-powered resource projects are located on land owned by third parties (including governmental lands) under long-term leases with varying terms. Most of these leases are for terms of 30 years or more, but in some cases the initial term is limited to 25 years. The Company will seek to prudently extend lease terms beyond the initial period, as required, to support the longer depreciable lives of its wind resources.

**Terminal Net Salvage/Decommissioning Costs**

**Q. What level of decommissioning costs has the Company included in the Depreciation Study for its thermal generation plants?**

A. The Company proposes to continue to use current decommissioning costs of $40

per kilowatt, with the exception of the Carbon plant. This rate is based on the cost of decommissioning the Company's Hale Plant in the 1993 to 1995 time period. Based on recent studies, the current estimate of the complete decommissioning cost for the Carbon plant is $56.8 million, or $330 per kilowatt. This includes demolition, ash pile and ash pond abatement, asbestos and other hazardous materials abatement and final site cleanup and mitigation.

**Q. Do the decommissioning costs estimated for the Carbon plant suggest the need to evaluate the Company's current level of decommissioning costs for use in future depreciation studies?**

A. Yes. Recent estimates performed for the Carbon plant indicate that the actual costs for future decommissioning of individual units and/or plant sites may be significantly higher than the current rate of $40 per kilowatt. It is the Company's position that the current rate of $40 per kilowatt reflects an absolute minimum decommissioning cost but will continue to apply this rate as conservative approach until a broader, up to date, base is established. As a result of the estimate performed for the Carbon plant, the Company intends to perform and/or update decommissioning cost studies on a selection of its resources to determine if the current rate needs to be modified in future depreciation studies. The Company also plans to review available industry data on decommissioning costs to inform its analysis.

**Q. Does this conclude your direct testimony?**

A. Yes.