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**BEFORE THE PUBLIC SERVICE  
COMMISSION OF UTAH**

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In the Matter of the Application of Rocky Mountain Power for Authority to Increase its Retail Electric Utility Service Rates in Utah and for Approval of its Proposed Electric Service Schedules and Electric Service Regulations

Docket No. 10-035-124

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**PREFILED DIRECT TESTIMONY OF NANCY L KELLY**

**ON BEHALF OF**

**WESTERN RESOURCE ADVOCATES**

**May 26, 2011**

1 **I. INTRODUCTION**

2 **Q: Please state your name, employer, position and business address.**

3 A: My name is Nancy L. Kelly. I am employed by Western Resource Advocates (WRA) in  
4 its Energy Program as a Senior Policy Advisor. My business address is 9463 N. Swallow  
5 Rd., Pocatello, ID 83201.

6 **Q: Please describe WRA.**

7 A: WRA is a non-profit policy and law organization founded in 1989 whose mission is to  
8 protect and restore the natural environment of the Interior West. It works to accomplish  
9 this mission through three programs: Energy, Lands and Water. WRA's Energy Program  
10 works to reduce the environmental impact of electricity production in the Interior West  
11 and advance the region's transition to renewable energy, energy efficiency, and other  
12 clean energy technologies. WRA is headquartered in Boulder, Colorado, with satellite  
13 offices in Salt Lake City, Utah, Carson City, Nevada, and Santa Fe, New Mexico.  
14 Additional staff are located in Arizona and Idaho.

15 **Q: Please describe your current work duties, work experience, and educational**  
16 **background.**

17 A: I provide policy analysis and regulatory support to WRA, primarily in the areas of  
18 resource planning and acquisition and regional transmission-related activities. Since  
19 joining WRA in August of 2008, I have participated in regulatory dockets in Colorado,  
20 Nevada, New Mexico, and Utah, while maintaining my previous regional transmission

21 duties. Before joining WRA, I worked for the Utah Office of Consumer Services for  
22 more than ten years on electricity-related issues.

23 Prior to my introduction to the utility industry in 1998, I had an academic career. I spent  
24 three years as an economics instructor at Idaho State University in Pocatello, Idaho and  
25 close to five years as the economist for the Center for Business Research and Services in  
26 the College of Business at Idaho State University. Before being employed by Idaho State  
27 University, I taught adjunct courses for Westminster College in Salt Lake City and the  
28 University of Utah.

29 My graduate and undergraduate training is in economics. I received a B.S. in economics  
30 from Idaho State University in 1983. I completed my fieldwork toward a PhD in  
31 economics from the University of Utah in 1991. My professional qualifications are  
32 shown in Attachment A.

33 **Q: On whose behalf are you testifying?**

34 A: I'm testifying on behalf of WRA.

35 **Q: What is the purpose of your testimony?**

36 A: The purpose of my testimony is to address the approximately \$800 million in  
37 environmental controls requested in this rate case. In particular, I wish to explain to the  
38 Commission the evaluation I undertook of PacifiCorp's recent coal-plant environmental  
39 investments, and provide my recommendations based upon that review.

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41 **II. POLLUTION CONTROL INVESTMENTS**

42 **Q: Which witness describes the pollution control investments for which PacifiCorp is**  
43 **seeking cost recovery?**

44 A: Mr. Chad A. Teply, Vice President of Resource Development and Construction for  
45 PacifiCorp, addresses this issue. Mr. Steve R. McDougal, Director of Revenue  
46 Requirements for Rocky Mountain Power, details the costs associated with these projects.

47 **Q: Please provide an overview of the pollution control investments for which**  
48 **PacifiCorp is seeking cost recovery.**

49 A: PacifiCorp is seeking to place approximately \$1.2 billion associated with investments in  
50 its coal-fired generation facilities into ratebase in this general rate case.<sup>1</sup> Of that \$1.2  
51 billion, over \$800 million are associated with pollution control projects.<sup>2</sup> PacifiCorp is  
52 seeking:

- 53 • \$298 million for scrubber and low NOx burner additions at its two Naughton units  
54 located in Kemmerer, Wyoming;
- 55 • \$143 million for a baghouse addition, scrubber upgrade, improved waste  
56 handling, and low NOx burners for Hunting Unit 1 located in Huntington, Utah;
- 57 • \$121 million for environmental improvements to its Hunter facility located in  
58 Castle Dale, Utah. Improvements include a baghouse, scrubber upgrade, and

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<sup>1</sup> Exhibit RMP\_(SRM-3), July 10 to June 12 Plant Additions, p. 8.8.23

<sup>2</sup> Ibid, p. 8.8.22 and Direct Testimony of Chad A. Teply.

59 improved waste handling at Hunter Units 1 and 2, a low NOx burner at Hunter  
60 Unit 2, and a wet stack upgrade at Hunter Unit 3;

61 • \$116 million for improvements to its Wyodak facility in Gillette, Wyoming  
62 including the addition of a baghouse and low NOx burners;

63 • \$113 million for the addition of baghouses, scrubber upgrades, and improved  
64 waste material handling for Dave Johnston Units 3 & 4 and a low NOx burner for  
65 Dave Johnston Unit 3 located in Glenrock, Wyoming; and

66 • \$17 million for a scrubber upgrade to Jim Bridger Unit 1 located in Rock Springs,  
67 Wyoming.

68 **Q: Please describe the purpose of these investments.**

69 A: Mr. Teply states that the pollution control investments included in this filing reduce  
70 emissions of sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), and particulate matter (PM)  
71 and are “required to comply with current, proposed, and probable environmental  
72 regulations.”<sup>3</sup>

73 **Q: In your opinion, how likely is it that further significant investments in PacifiCorp’s**  
74 **coal fleet will be necessary to meet environmental regulatory requirements?**

75 A: I consider it highly likely that further significant investments will be necessary if the fleet  
76 is to continue operating. This assessment is supported both by analysis PacifiCorp

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<sup>3</sup> Direct Testimony of Chad A. Teply, lines 33-37

77 provided to the Wyoming Department of Environmental Quality, Air Quality Division  
78 (AQD), in November of 2010<sup>4</sup> and by ongoing regulatory activity by the EPA.

79 The analysis provided to AQD outlines PacifiCorp's long-term emission reduction  
80 commitments to meet the Regional Haze Rule and provides information regarding past  
81 expenditures and forecasts of future costs it expects to incur to meet the Regional Haze  
82 Rule. The document indicates that between 2005 and 2010, PacifiCorp spent more than  
83 \$1.2 billion on pollution control projects and expects to spend an additional \$3 billion by  
84 2023. Roughly \$800 million of the \$3 billion expected between 2010 and 2023 are  
85 included in this rate case, so it would appear that PacifiCorp expects to spend an  
86 additional \$2.2 billion beyond this general rate case to complete the retrofit of its coal  
87 fleet to meet the emissions standards as currently required by the Regional Haze Rule.<sup>5</sup>  
88 Significantly, by 2023, PacifiCorp estimates the annual O&M expenditures associated  
89 with these retrofits will have reached \$360 million.

90 **Q: Does PacifiCorp anticipate additional costs not included in these estimates?**

91 A: Yes. PacifiCorp cautions AQD of other sources of costs "including but not limited to"  
92 the following. Because of the significance of this list, I quote it in its entirety.<sup>6</sup>

93 1. Implementation of Utah's Long Term Strategy for meeting regional haze  
94 requirements during the 2018-2023 time period.

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<sup>4</sup> Exhibit RMP\_(CAT-1)

<sup>5</sup> EPA has not yet approved Utah or Wyoming's State Implementation Plans and may require more expensive technologies than currently included in the Utah and Wyoming plans. EPA recently required selective catalytic reduction (SCR) at the five units operating at the Four Corner Power Plant in Arizona and recently proposed to require installation of SCR at the San Juan Generating Station in New Mexico.

<sup>6</sup> Exhibit RMP\_(CAT-1) pp. 7-8.

95 2. The addition of mercury control equipment under the requirements of the  
96 upcoming mercury MACT provisions. PacifiCorp estimates that \$68 million  
97 in capital will be incurred by 2015 and annual operating expenses will  
98 increase by \$21 million per year to comply with mercury reduction  
99 requirements. In addition, anticipated regulation to address non-mercury  
100 hazardous air pollutant (HAPs) emissions may require significant additional  
101 reductions of SO<sub>2</sub>, as a precursor to sulfuric acid mist, from non-BART units  
102 that currently do not have specific controls to reduce SO<sub>2</sub> emissions.

103 3. Mitigating and controlling CO<sub>2</sub> emissions. While Congress has not yet  
104 passed comprehensive climate change legislation, in December 2009, the  
105 Administrator of the Environmental Protection Agency made a finding that  
106 greenhouse gases in the atmosphere threaten the public health and welfare of  
107 current and future generations. Having made the so-called “endangerment  
108 finding,” EPA issued the final greenhouse gas tailoring rule, effective January  
109 2, 2011, which will require greenhouse gas emissions to be addressed under  
110 PSD and Title V permits<sup>7</sup>. Likewise, mandatory reporting of greenhouse gas  
111 emissions to the Environmental Protection Agency commenced beginning in  
112 January 2010.

113 4. In addition, there are a number of regional regulatory initiatives, including  
114 the Western Climate Initiative that may ultimately impact PacifiCorp’s coal-  
115 fueled facilities. PacifiCorp’s generating units are utilized to serve customers  
116 in six states – Wyoming, Idaho, Utah, Washington, Oregon and California.  
117 California, Washington and Oregon are participants in the Western Climate  
118 Initiative, a comprehensive regional effort to reduce greenhouse gas emissions  
119 by 15% below 2005 levels by 2020 through a cap-and-trade program that  
120 includes the electricity sector; each state has implemented state-level  
121 emissions reduction goals. California, Washington and Oregon have also  
122 adopted greenhouse gas emissions performance standards for base load

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<sup>7</sup> The Environmental Protection Agency has not yet published its proposed guidance on what constitutes Best Available Control Technology for greenhouses gases.

123 electrical generating resources under which emissions must not exceed 1,100  
124 pounds of CO<sub>2</sub> per megawatt hour. The emissions performance standards  
125 generally prohibit electric utilities from entering into long-term financial  
126 commitments (e.g., new ownership investments, upgrades, or new or renewed  
127 contracts with a term of 5 or more years) unless the base load generation  
128 supplied under long-term financial commitments comply with the greenhouse  
129 gas emissions performance standards. While these requirements have not been  
130 implemented in Wyoming, due to the treatment of PacifiCorp's generation on  
131 a system-wide basis (i.e., electricity generated in Wyoming may be deemed to  
132 be consumed in California based on a multi-state protocol), PacifiCorp's  
133 facilities may be subject to out-of-state requirements.

134 5. Regulations associated with coal combustion byproducts. In June 2010,  
135 the Environmental Protection Agency published a proposal to regulate the  
136 disposal of coal combustion byproducts under the Resource Conservation and  
137 Recovery Act's Subtitle C or D. Under either regulatory scenario, regulated  
138 entities, including PacifiCorp, would be required, at a minimum; to  
139 retrofit/upgrade or discontinue utilization of existing surface impoundments  
140 within five years after the Environmental Protection Agency issues a final rule  
141 and state adoption of the appropriate controlling regulations. It is anticipated  
142 that the requirements under the final rule will impose significant costs on  
143 PacifiCorp's coal-fueled facilities within the next eight to ten years.

144 6. The installation of significant amounts of new generation, including gas-  
145 fueled generation and renewable resources.

146 7. The addition of major transmission lines to support the renewable  
147 resources and other added generation.

148 8. Increasing escalation rates on fuel costs and other commodities.

149 **Q: Please provide a short overview of EPA activity impacting or likely to impact coal-**  
150 **fueled steam facilities.**



151 A: To address the adverse environmental and public health impacts of coal generation, the  
152 EPA regulates emissions, water discharge, and waste disposal under the Clean Air Act,  
153 Clean Water Act, and Resource Conservation and Recovery Act. Complying with  
154 regulations to address these adverse environmental impacts could significantly increase  
155 the cost of generating electricity from coal-powered plants in the future. The regulations,  
156 proposed rules and probable rules applicable to coal-fired power plants include:

- 157 • The Regional Haze Rule was issued by the Environmental Protection Agency in July  
158 of 1999 to improve visibility in designated national parks, wilderness areas and other  
159 Class 1 public lands by reducing visibility-impairing emissions of SO<sub>2</sub>, NO<sub>x</sub> and PM.  
160 Best Available Retrofit Technology (BART) to control emissions is required by the  
161 Rule and implemented by the states through a State Implementation Plan (SIP).
- 162 • EPA reviews the National Ambient Air Quality Standards (NAAQS) every five years  
163 and has been in the process of tightening these standards. The SO<sub>2</sub> standard was  
164 tightened in June of 2010. New standards for ozone and PM<sub>2.5</sub> are expected by the  
165 middle of this year.
- 166 • On June 21, 2010, EPA proposed rules to regulate fly ash and flue gas  
167 desulfurization, “coal combustion residuals” (CCR), as either a hazardous waste or a  
168 solid waste. The comment period closed November 19, 2010.<sup>8</sup>
- 169 • On March 28, 2011, EPA issued a draft Cooling Water Intake Rule to regulate  
170 cooling water intake for electric generation units. A final rule is expected in 2012.<sup>9</sup>

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<sup>8</sup> <http://www.epa.gov/wastes/nonhaz/industrial/special/fossil/ccr-rule/>

<sup>9</sup> <http://water.epa.gov/lawsregs/lawsguidance/cwa/316b/>

- 171           • On March 16, 2011, the EPA proposed national emission standards for hazardous air  
172           pollutants from coal- and oil-fired electric utility steam generating units and standards  
173           of performance for electric utility steam generating units. The proposed Air-Toxic  
174           rule sets Maximum Achievable Control Technology (MACT) emission limits for  
175           mercury, acid gases, and non-mercury metals. A final rule is expected in November  
176           2011.<sup>10</sup>
- 177           • On September 15, 2009, EPA announced its intention to undertake rulemaking  
178           focused on providing effluent guidelines for wastewater discharges from steam  
179           electric plants, including coal-fired generation facilities. The EPA has identified  
180           wastewaters from flue gas mercury control systems, regeneration of the catalysts used  
181           for SCR, wastes from flue gas desulphurization, and coal combustion residual storage  
182           ponds as sources of waste water to be considered under this rule. EPA plans to  
183           propose rulemaking for the steam electric power generating industry in July 2012 and  
184           take final action by January 2014.<sup>11</sup>
- 185           • On March 24, 2011, the EPA announced its intention to develop a greenhouse gas  
186           new source performance standard for electric utility steam generating units. EPA’s  
187           website states the rule would “amend the electric utility steam generating units  
188           (EGUs) New Source Performance Standard and add a section 111(b) greenhouse gas  
189           (GHG) standard for new, modified, and reconstructed facilities. It will also establish

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<sup>10</sup> <http://yosemite.epa.gov/opei/RuleGate.nsf/byRIN/2060-AP52#4>

<sup>11</sup> [http://water.epa.gov/scitech/wastetech/guide/steam\\_index.cfm](http://water.epa.gov/scitech/wastetech/guide/steam_index.cfm)

190 section 111(d) requirements that will include emissions guidelines for GHGs from  
191 existing EGUs.”<sup>12</sup>

192 **Q: In your opinion, what will be the effect of these impending regulations and items 1-5**  
193 **and item 8 of the list PacifiCorp provided to the Wyoming AQD on the economic**  
194 **viability of PacifiCorp’s coal fleet?**

195 A: In my opinion, coal-fueled generation will cease to be a “low-cost resource” and may  
196 become uneconomic to operate.

197 **Q: Are there other sources of cost pressures on coal facilities?**

198 A: Yes. Coal costs are on the rise and are likely to continue to escalate as long-term  
199 contracts expire and coal producers are unwilling to enter new contracts with the length  
200 and favorable terms that coal customers once enjoyed. The industry already experienced  
201 this phenomenon in the natural gas markets roughly a decade ago. Since the long-term  
202 contracts expired, natural gas prices have been significantly higher and more volatile than  
203 they had been previously. This phenomenon is documented in the Direct Testimony of  
204 PacifiCorp witness, Dr. Cindy A. Crane.

205 **Q: Please summarize your conclusion regarding the economic viability of coal-fired**  
206 **electric generation.**

207 A: The cumulative effect of the environmental regulation of air, water, and waste and the  
208 economics of the coal market are likely to make coal-fired generation increasingly  
209 expensive and undermine its economic viability. For at least some units, early retirement

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<sup>12</sup> <http://yosemite.epa.gov/opei/RuleGate.nsf/byRIN/2060-AQ91#1>

210 and replacement with cleaner resources may be a better option than continued  
211 investments in these plants.

212 **Q: Please describe the type of study you believe should be undertaken on a going**  
213 **forward basis.**

214 A: A comprehensive analysis of the economic viability of further investment in the coal fleet  
215 would quantify and include the costs and ranges of potential costs of complying with  
216 impending and expected environmental regulations, escalating fuel costs, and potential  
217 regulation of carbon dioxide. It would evaluate earlier retirement as an alternative to  
218 further investment in these facilities. In addition to comparing the costs of pollution  
219 control investment vs. retirement strategies for complying with these regulations, a  
220 comprehensive analysis would also compare the emissions reductions, water savings,  
221 public health and other environmental benefits achieved under the two approaches.  
222 Ideally, this type of analysis would be undertaken as part of the integrated resource  
223 planning (IRP) process. Indeed, Mr. Teply indicates that the IRP is the place “to explore  
224 ongoing investment versus retirement.”<sup>13</sup>

225 **Q: Would you like to comment on PacifiCorp’s IRP process?**

226 A: Yes. A number of parties who participated in the recent IRP planning process that  
227 resulted in the March 31, 2011 filing were interested in exploring with PacifiCorp the  
228 costs and benefits of avoiding pollution control and potential CO2 costs through earlier  
229 retirement of certain of PacifiCorp’s coal-fired generation units. Unfortunately, the

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<sup>13</sup> Direct Testimony of Chad A. Teply, line 177.

230 comprehensive analysis that parties who were actively engaged in the IRP process had  
231 desired be produced was not an outcome of this planning process. While so called “coal-  
232 retirement sensitivities” were modeled by PacifiCorp, they did not produce meaningful  
233 results. First, because the modeling did not allow pollution control expenditures before  
234 2017 to be avoided, this analysis did not evaluate what a retirement study should  
235 evaluate—ongoing investment versus retirement. Second, by assuming pollution control  
236 investments between 2012 and 2017 are sunk costs and further assuming that the  
237 incremental fixed O&M and capital from these investments must be recovered before the  
238 unit can be retired, these pollution control investments extend the lives of the plants in  
239 the study, a seemingly perverse result.

240 The public input process was troubling. PacifiCorp tightly controlled the public process,  
241 limited input, limited modeling requests, and limited access to results claiming time and  
242 resource constraints. PacifiCorp’s control of the coal sensitivity results was particularly  
243 troubling. The results of the coal retirement sensitivities were originally to have been  
244 released in November. However, without explanation the Company withheld the results  
245 until it released the completed draft IRP on March 7. Attempts by parties to understand  
246 the reasons for the five-month delay in releasing the completed studies were not  
247 responded to. WRA’s comments to PacifiCorp on its draft 2011 IRP are attached as  
248 Exhibit WRA: NLK-1.

249 **III CONCLUSION AND RECOMMENDATION**

250 **Q: Please provide your conclusion and recommendation.**

251 A: The pollution control costs included in this general rate case are substantial, and because  
252 of the inherently adverse environmental impacts of conventional coal plants, the need to  
253 make further investments in these plants to address both current environmental  
254 regulations and a suite of impending and proposed regulations is expected. In addition,  
255 coal as a fuel source is likely to become increasingly expensive. Therefore undertaking a  
256 comprehensive analysis of ongoing investment versus earlier retirement and replacement  
257 with cleaner resources is a prudent course of action that is necessary to protect both the  
258 Company and customers from future disputes over stranded cost recovery of investment  
259 that may become uneconomic.

260 I therefore recommend:

261 1. The Commission make clear in its order that PacifiCorp will affirmatively  
262 demonstrate the prudence of any significant new coal plant investments through  
263 comprehensive analysis in order to receive recovery of such costs in any future rate  
264 recovery proceeding. The comprehensive analysis would include consideration of the  
265 potential cost and risk of the full suite of impending and expected environmental  
266 regulations to bring the utility sector into compliance with the Clean Air and Clean  
267 Water Acts, escalating fuel costs, and the likelihood that carbon dioxide emissions  
268 will be regulated. Further investments in PacifiCorp's coal fleet must be compared in  
269 a meaningful manner against alternative courses of actions, including earlier  
270 retirement and replacement with cleaner resources. Failure to provide this analysis  
271 will result in disallowance of future investments.

272 2. The Commission open a separate docket at the conclusion of this general rate case to  
273 oversee the development of this comprehensive analysis. The Commission should  
274 also instruct the Company to develop this type of comprehensive and complete  
275 analysis in order for future IRPs to be considered for acknowledgement. An  
276 acknowledged IRP that included this specific analysis in a satisfactory manner could  
277 relieve the Company of this affirmative obligation to demonstrate prudence.

278 **Q: Does this conclude your testimony?**

279 **A:** Yes. It does.

# ATTACHMENT A

**Nancy L. Kelly**

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## EXPERIENCE

### **Western Resource Advocates (WRA), Boulder Colorado**

*Senior Policy Advisor (August 1, 2008—present)*

- Provide regulatory support to WRA in the states of Utah, Nevada, and Colorado; participate in regional transmission forums.
- Participate in the docket in Colorado establishing transmission planning rules for the state of Colorado;
- Serve as expert witness for WRA in evaluating Rocky Mountain Power's Energy Cost Adjustment Mechanism Application;
- Serve as expert witness for Nevadans for Clean Affordable Reliable Energy (NCARE) in its opposition to LS Power's application for an environmental permit to construct a 1600 MW coal facility in White Pine County, Nevada;
- Serve as expert witness for WRA in evaluating Rocky Mountain Power's application for a Certificate of Convenience and Necessity to construct the Populus to Terminal 500 kV transmission line across southeast Idaho and northern Utah;
- Participate in the public input process leading to the submission of PacifiCorp's 2011 and 2009 Integrated Resource Plans for the six states it serves; assist in providing comments to the Public Service Commission of Utah.
- Participate in Public Service Company of New Mexico's (PNM) first integrated resource planning process and evaluate its draft IRP report;

### **Western Electricity Coordinating Council (WECC)**

- Serve as a member of the WECC Board of Directors—April 2002 to present;
- Serve on the WECC Reliability Policy Issues Committee (RPIC) and in other WECC forums—April 2003 to present;

### **Office of Consumer Services, Department of Commerce, Salt Lake City, Utah**

*Consultant and Utility Economist (March 1998 to June 2008)*

- Represent the Committee of Consumer Services as a designated member of the Committee on Regional Electric Power Cooperation (CREPC);
- Serve as project manager and policy analyst in evaluating PacifiCorp's Integrated Resource Planning (IRP); provide expert testimony in PacifiCorp's Request for Proposal (RFP) process;



- Serve as project manager, policy analyst, advocate, and witness in addressing PacifiCorp's multijurisdictional allocation issues;
- Serve as project manager and policy analyst for the Committee's response to PacifiCorp's application for a Power Cost Adjustment Mechanism (PCAM);
- Serve as project manager, policy analyst, and policy witness for the Committee's response to PacifiCorp's application to sell its Centralia Generating Plant and Mine.
- Represent the Committee of Consumer Services and Utah small customers in the many regional processes relating to the formation of regional transmission organizations, transmission expansion planning, and transmission project planning;
- Advise the Committee regarding Federal Energy Regulatory Commission (FERC) and other federal activity, restructuring in other states, and implications for Utah customers;
- Advise the Committee regarding the impacts of electrical deregulation on Utah's residential and small business customers. Participate in legislative and Commission activity regarding electrical restructuring.

**Center for Business Research and Services, Idaho State University, Pocatello, Idaho**

*Staff Economist (1992 – 1997)*

- Authored/edited *Idaho Indicators* a quarterly publication tracking local indices;
- Conducted economic impact analyses and prepared reports;
- Worked with other agencies to conduct studies and prepare reports;
- Prepared census reports.

**Regional Services, Inc., Challis, Idaho.**

*Research Associate (1990 – 1992)*

- Analytical support pertaining to western water and anadromous fish issues.

**College of Business, Idaho State University, Pocatello, Idaho.**

*Instructor (1994-1995)*

- Advanced Business Statistics
- Managerial Economics

**Department of Economics, Idaho State University, Pocatello, Idaho**

*Visiting Instructor (1988-1991, 1986)*

- Econometrics
- International Economics
- Labor Economics
- Principles of Microeconomics
- Principles of Macroeconomics
- Economics Issues

**Department of Economics, Westminster College, Salt Lake City: *Instructor* (1988)**

**Department of Economics, University of Utah, Salt Lake City: *Instructor*, (1985-1988)**

**Department of Economics**, University of Utah, Salt Lake City: *Teaching Fellow*, (1983-1985)

## **EXPERT WITNESS**

- Western Resource Advocates, Utah Docket No. 09-035-15, *In the Matter of the Application of Rocky Mountain Power for Approval of its Proposed Energy Cost Adjustment Mechanism*. (Prefiled testimony: November 16, 2009; January 5, 2010; June 16, 2010; August 4, 2010; August 10, 2010; September 15, 2010, October 13, 2010. Hearing appearances: January 13, 2010; August 17, 2010; November 3, 2010. Brief: December 16, 2010.)
- Western Resource Advocates, Nevada Docket No. 06-02032, *Application of White Pine Energy Associates, LLC for authority under the provisions of the Utility Environmental Protection Act for a permit to construct electrical generation facilities and ancillary facilities to be known as the White Energy Station with a capacity of up to 1600 MW as well as one 500 kV substation and interconnection facilities, one 500 kV line traversing 35 miles, and two parallel 500 kV transmission spur lines traversing between 2.5 and 6 miles to be located in White Pine County, Nevada*. (February 20, 2009)
- Western Resource Advocates, Utah Docket No. 08-035-42: *In the Matter of the Application of Rocky Mountain Power for a Certificate of Convenience and Necessity Authorizing Construction of the Populus to Terminal 345 kV Transmission Line Project*. (August 26, 2008)
- Committee of Consumer Services. Docket No 05-035-47: *In the Matter of the Application of PacifiCorp for Approval of a 2009 Request for Proposals for Flexible Resources*. (November 3, 2006)
- Committee of Consumer Services. Docket No. 02-035-04: *In the Matter of the Application of PacifiCorp for an Investigation into Interjurisdictional Issues*. (July 21, 2004)
- Committee of Consumer Services. Docket No. 99-2035-03: *In the Matter of the Application for an Order Approving the Sale of its Interest in (1) the Centralia Steam Electric Generating Plant, (2) the Ratebased Portion of the Centralia Coal Mine, and (3) Related Facilities; For a Determination of the amount And the Proper Ratemaking Treatment of the Gain Associated With the Sale; and for an EWG Determination*. (January 20, 2000)

## **COMMENTS<sup>14</sup>**

Filed Comments of Western Resource Advocates to the Public Utilities Commission of the State of Colorado: Docket No. 10R-526E: *In the Matter of the Proposed Rules Related to Electric Transmission Facilities Planning, 4 Code of Colorado Regulations 723-3*. (October 15, 2010; December 10, 2010; February 10, 2011)

Filed Comments of Western Resource Advocates to the Public Service Commission of Utah: Docket No. 09-2035-01: *In the Matter of the Acknowledgment of PacifiCorp Integrated Resource Plan*. (June 18, 2009; June 15, 2010)

Filed Comments of the Committee of Consumer Services to the Public Service Commission of Utah: *Docket No 07-2035-01: In the Matter of the Acknowledgment of PacifiCorp Integrated Resource Plan 2007*. (August 31, 2007)

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<sup>14</sup> Prepared or assisted in preparing

Filed Comments of the Committee of Consumer Services to the Public Service Commission of Utah: *In the Matter of the Application of PacifiCorp for Approval of a 2009 (2012) Request for Proposals for Flexible Resources*; Docket No 05-035-47. (October 13, 2006)

Filed Comments of the Committee of Consumer Services to the Public Service Commission of Utah: *Committee of Consumer Services' Comments Regarding PacifiCorp's Application for Approval of a 2009 Request for Proposals for Flexible Resources in Docket No. 05-035-47*. (August 23, 2006)

Filed Comments of the Committee of Consumer Services to the Public Service Commission of Utah: *Comments of the Committee of Consumer Services regarding PacifiCorp's Integrated Resource Plan 2004 Update*; Docket No. 05-2035-01. (May 5, 2006)

Filed Comments of the Committee of Consumer Services to the Public Service Commission of Utah: *Recommendations of the Committee of Consumer Services regarding the Matter of Acknowledgement of PacifiCorp's Integrated Resource Plan 2004*; Docket No. 05-2035-01. (April 25, 2005)

Filed Comments of the Committee of Consumer Services to the Public Service Commission of Utah: *Recommendations of the Committee of Consumer Services regarding the Matter of Acknowledgement of PacifiCorp's Integrated Resource Plan 2003*; Docket No. 03-2035-01. (March 31, 2003)

Filed Comments of the Committee of Consumer Services to the Public Service Commission of Utah: *PacifiCorp's Integrated Resource Plan, RAMPP-6, Docket No. 98-2035-05*. (December 10, 2001)

*Comments and Suggestions of the Committee of Consumer Services on the Draft Report of the Electrical Deregulation and Customer Choice Task Force to the Electrical Deregulation and Customer Choice Task Force, Legislature of the State of Utah*. (November 1998)

*Summary Comments of the Committee of Consumer Service on Market Power to the Electrical Deregulation and Customer Choice Task Force, Legislature of the State of Utah*. (September 1998)

Filed Comments of the Committee of Consumer Services to the Public Service Commission of Utah: *Comments of the Committee of Consumer Services on Market Power to the Utah Public Service Commission*, Docket No. 96-999-01. (August 28, 1998)

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## **EDUCATION**

- ABD University of Utah, Department of Economics
- B.S. Economics, Idaho State University, 1983