Introduction

Q. Please state your name and business address and position.

A. Richard W. Sprott, 35 Taos Drive in Angel Fire, NM. I am the principal and sole proprietor of Bear Claw Environmental Consulting.

Qualifications

Q. Briefly summarize your education and experience.

A. My full CV is attached as Appendix A. I received a Bachelor of Arts degree in chemistry from Grinnell College, did three years of graduate study in analytical chemistry at the University of New Hampshire, and hold a Masters of Environmental Management in Air and Water Resources from the Nicholas School of the Environment at Duke University.

I was a career officer in the US Air Force serving as an aircraft maintenance officer in fighter aircraft, weapon system development, and finally environmental management at Hill Air Force Base, Utah where I retired in 1992.

I worked in the Utah Department of Environmental Quality from 1994 until my retirement in December 2008. I began as an air quality permit writer and subsequently served as Manager of the Air Permitting Branch, Manager of the Planning Branch, and Director of the Division of Air Quality from 2000 to 2007. In May 2007, I was appointed Executive Director of the Department of Environmental Quality (UDEQ) by Governor Jon Huntsman, Jr.

Q. What experience did you have working with the utility industry while at the Utah Department of Environmental Quality?

A. I was the lead air quality operating permit writer for the utility sector and Acid

Rain Program Coordinator from 1994 until 1997. I wrote all the operating permits for the PacifiCorp coal-fired power plants as well as the initial operating permit for the Deseret Generation and Transmission Bonanza Unit. I was closely involved in utility sector issues in every position I held in the department from Air Quality Implementation Plans, new source review (NSR) permitting, regional haze, and compliance. During the last several years I was responsible for climate change policy and planning in the Division of Air Quality and the Department. I shared that role with Dianne Nielson for Governor Huntsman.

Q. Please provide detail about your experience with the regional haze program specifically.

A. I participated in planning and implementing the regional haze program in Utah and the west for 11 years from 1997 until 2008. I was a leader in the Western Regional Air Partnership where I worked with the Market Trading Forum that negotiated the sulfur dioxide (SO_2) milestones and backstop trading program, was co-chair of the Initiatives Oversight Committee, Liaison to the Joint Fire Emissions Forum, co-chair of the Air Managers Committee, and member of the Board. I was intimately involved in a wide range of regional haze work that often constituted my primary work for several years.

Q. Have you ever provided testimony before regulatory bodies?

A. I have testified numerous times before the Utah Air Quality Board, once before the New Mexico Environmental Improvement Board, and once during the recent arbitration between PacifiCorp and Deseret Generation and Transmission.

Purpose of Testimony

Q. What is the purpose of your testimony?

A. I have been retained by PacifiCorp to provide expert testimony based on my role as the responsible environmental regulator during the time these projects were planned and permitted as to their prudence, use, and usefulness. The purpose of my testimony is to rebut intervener claims concerning the environmental projects included in this rate case. The topics will address:

1) why the projects were required by environmental regulations
2) why projects did not go beyond regulations and were not premature,
3) why the costs for the projects are reasonable, and
4) what additional air quality regulations the projects address other than regional haze.

I will also share my experience with how the regulated community approaches multiple air quality programs simultaneously.

Summary

Q. Please provide a summary of your testimony.

A. My testimony begins with background information that addresses the key issues. I will briefly review state and federal regional haze regulations that explain why PacifiCorp's environmental projects were not "voluntary" or premature as some interveners imply. Next I will provide information that shows that the projects were cost effective. Then I will address additional air quality regulations covered by the projects. Finally, I will provide comments and rebuttal on specific details

in the testimony of the following witnesses: Mr. Matt Croft, Division of Public Utilities (DPU); Mr. Howard Gebhart, Utah Association of Energy Users (UAE); Dr. Jeremy Fisher, Sierra Club; and Dr. William Steinhurst, Sierra Club.

Background

Q. Could you summarize the visibility and regional haze programs?

A. In 1977, Congress declared a goal to prevent future pollution and remedy past pollution that would impact visibility at Class I areas. Class I areas are determined by the federal government as natural areas worthy of the highest possible level of protection. There are five Class I areas located in Utah: Arches National Park, Canyonlands National Park, Capitol Reef National Park, Bryce Canyon National Park, and Zion National Park. States must submit implementation plans to address visibility. The Act also lists 26 large industrial sectors and sources with emissions over 250 tons per year that might be required to install Best Available Retrofit Technology (BART) if built between 1962 and 1977. Coal-fired power plants over 250 mmBtu per hour were among the 26 industrial sectors.

The 1990 amendments to the Act added new requirements to address visibility impairment caused by thousands of large and small sources of pollution transported on a more regional basis, regional haze. It also created visibility transport regions and commissions to propose remedies for those regions. The Grand Canyon Visibility Transport Commission (GCVTC) was the only commission specifically established in the Act.

Q. Is the Regional Haze program different in the West, and if so, how?

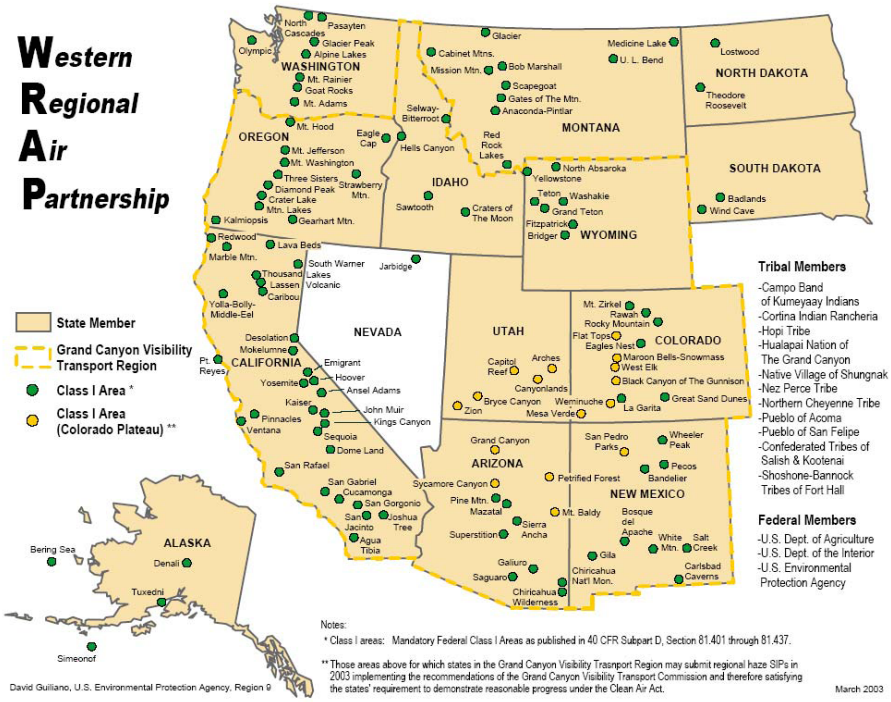
A. Yes. As mentioned above, the GCVTC was the only regional haze commission

explicitly chartered by Congress in the Act. The GCVTC region included nine states and 211 tribal lands. Commission members were Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon, Utah, and Wyoming and the leaders of four Indian tribes.

The GCVTC issued a 115 page report on June 10, 1996, with nine major findings. Visibility impairment remedies in the report were more broadly focused than EPA's previous visibility regulations. The centerpiece of the report was a backstop sulfur dioxide ($SO_{2)}$ trading program that would be triggered if milestones for emission reductions in the region were not met. The recommendations had strong support among industry because the policies shared the burden more fairly, created more certainty, and provided flexibility.

Q. Please summarize EPA's Section 308 and 309 regulations on regional haze and what differentiates them?

A. EPA promulgated the regional haze regulations in 1999. 40 CFR 51.308 was based on traditional command and control rules focused on large industrial sources. A second rule, 40 CFR 51.309, was the direct result of the GCVTC's recommendations. Its scope was limited to nine states and 16 Class I areas on the Colorado Plateau. Figure 1 (USEPA) is a map that shows the GCVTC Class I areas covered by Section 309 in yellow (light spots) and all the others in the west in green (dark spots). Note there are no "green" dots in Utah so that state uses the GCVTC recommendations and Section 309 exclusively.



The rule used by most states is Section 308 that centers on BART for large industrial sources. Emissions limits are established on a case-by-case basis considering five factors: the technology available, the costs of compliance, the energy and non-air quality environmental impacts of compliance, any pollution control equipment at the facility, the remaining useful life of the facility, and the improvement of the proposed technology.

States using Section 308 determine what large industrial sources are "BART-eligible" and then determine which of the eligible sources might impair Class I area visibility and must install BART control technology. The rules do provide an alternative to BART [308(e)(2))].

Both Utah and Wyoming used the alternative program offered in Section 309 of the rule so BART-eligible sources in Utah and Wyoming are subject to a pollution control framework outside the BART system including the five-factor

analysis and cost calculations in EPA BART guidance. However, the EPA requires that alternative programs cut emissions to a level "better than BART" so that better progress toward visibility improvement is made compared to the normal BART program.

The GCVTC found that SO_2 was the major pollutant causing regional haze in the West. Consequently, the focus of Section 309 was a framework of regional SO_2 emission reduction milestones and a backstop SO_2 trading program that would be triggered if the milestones were not met.

The Projects Were Required By Environmental Regulations

Q. Did those regulations require the Company to make the pollution control investments that are at issue in this case?

A. Yes.

Q. Why were PacifiCorp's pollution control projects mandatory rather than voluntary?

A. A 2006 federal regional haze rule revision mandated emission limits for all BART-eligible units, so PacifiCorp had a clear legal obligation to reduce SO_2 emissions to ensure the milestones were met. The emission limits are in the SIPs and permits in both Utah and Wyoming.

Q. So was the Company required to meet the milestones?

A. Yes, ultimately. There is a regulatory "audit" in both Utah and Wyoming that leads back to the Company to ensure the milestones are met.

As I just discussed, the WRAP Market Trading Forum negotiated the milestones that EPA approved through Section 309. 40 CFR 51.309 requires the

Utah and Wyoming regional haze SIPs to "include an SO2 program that contains quantitative emissions milestones for stationary source SO2 emissions for each year through 2018." Both states have had SO2 milestones in their SIPs since 2003. The milestones are aggregate emissions for all 309 states, not individual states.

However, as also discussed, the same regulation requires that "the milestones must be shown to provide for greater reasonable progress than would be achieved by application of BART pursuant to §51.308(e)(2)." There are two points in this requirement that are critical. The first is that the milestones provide greater progress than source-by-source BART which has been discussed at length. The second is that the milestones provide better progress pursuant to §51.308(e)(2). This latter requirement is what connects individual sources to the milestones.

I have also emphasized that BART-eligible units were required to have enforceable emission limits by a regional haze rule revision on October 13, 2006. That requirement is in §51.308(e)(2)(i)(B), which is the part of the regulation that 309 says must be used to demonstrate that the milestones provide better progress. The specific language is: "…each BART-eligible source in the State must be subject to the requirements of the alternative program, have a federally enforceable emission limitation determined by the State and approved by EPA as meeting BART..." It was this requirement that EPA used to require Utah to put emission limits for all-BART eligible sources in its SIP and why PacifiCorp was obligated to submit permit applications to obtain state and federally enforceable

emission limits that were better than BART in Utah.

Wyoming did not put SO2 limits in its SIP, but did require PacifiCorp to submit BART permit applications. PacifiCorp complied and included BART for the three visibility pollutants: SO2, NOX and PM. Wyoming did not direct PacifiCorp (or any other company) to put SO2 BART in permit applications, but did require PacifiCorp to participate in the milestone program. The development of the Regional Haze milestones assumes an SO2 emission rate of 0.15 lb/mmBtu for each of the Wyoming BART-eligible units. However, PacifiCorp still needed to get enforceable permit limits to comply with §51.308(e)(2)(i)(B). Each BART-eligible unit within the state of Wyoming has been required to obtain a construction permit prior to upgrading or installing a scrubber. Unit-specific SO2 limits have been identified within each of these construction permits. Since Wyoming did not put unit specific limits in its SIP, the Company had somewhat more flexibility with respect to unit-by-unit permit limits; that flexibility did not exist in Utah.

The different regulatory paths in Utah and Wyoming are typical of the patchwork system that PacifiCorp faces in environmental regulations. Nonetheless, the milestones must be met by the Company in both states.

Q. What is the "Annex" and how were it and the SO_2 milestones created?

A. The process to create the Annex and milestones that later became law was similar to how a Legislature writes laws on controversial issues. A committee will often bring the stakeholders together to understand what the views and interests are. There may be a process of negotiation to arrive at some consensus on what should

be in the law. Each stakeholder usually has to "volunteer" to do or give up something. If there is some agreement, then hearings might be held and a bill drafted, with ultimate passage into law. Once the law is passed, the points that were in the negotiations are no longer voluntary; they are now the law. The GCVTC and its successor, the Western Regional Air Partnership (WRAP), operated in a similar fashion.

The "Annex" was a supplement to the GCVTC report required by EPA to provide details of the SO_2 reduction program, specifically the emission milestones and backstop trading program. EPA amended the Section 309 rule to incorporate the provisions of the Annex on June 5, 2003, thus making both the milestones and backstop trading program legal regulatory requirements. The Annex rulemaking was litigated extensively by coal interests, but was subsequently amended by EPA in its current and final form on October 13, 2006. This rule also required sources to have enforceable emission limits to achieve the milestones.

Q. Could you briefly describe how the milestones were set?

A. The WRAP Market Trading Forum created the milestones "bottom up", summing estimated emissions from BART-eligible sources in the states that could use Section 309. This work was accomplished in the late 1990s so there was a good deal of uncertainty regarding the future of major copper smelters, electrical demand, new power plants, what SO_2 controls sources might install, and what EPA would decide regarding BART guidelines.

The main debate in milestone negotiations was over timing of controls versus tons of SO_2 reduced. PacifiCorp and others wanted to reduce fewer tons and to delay emission controls for as long as possible so they could prepare. The States, federal land managers, and environmental advocates wanted more tons reduced ASAP. The outcome reflects a balance of these interests. However, the milestones had to conform to the GCVTC recommendation of a 50-70 percent reduction by 2040 and also provide greater reasonable progress than BART [309(d)(4)(i)].

The greater reasonable progress analysis in the Annex made numerous assumptions so the materials used to document milestone development were heavily caveated and not intended to bind companies or states to the specifics of the planning document. PacifiCorp and other companies were part of the stakeholder process that created the milestones that they later would be required to achieve through enforceable emissions limits.

Q. So States with Section 309 SIPs must ensure milestones are met to comply with federal regulations?

A. Yes. Many were concerned that if participation in the milestone program were truly voluntary, SO_2 reductions would not happen. So the 2006 federal regional haze rule revision was promulgated, EPA required federally enforceable emission limits for all BART-eligible sources [308(e)(2)(i)(B)] that were part of an alternative program like those in Utah and Wyoming. That meant that PacifiCorp and others had to get permits with better than BART emission limits and the states had to put the limits in the regional haze SIPs. These are enforceable by both the

state and EPA. If PacifiCorp had failed to apply for these permits, the states and EPA could have pursued enforcement action.

Q. You keep referencing Section 308 when you talk about Section 309. Why?

A. Section 308(e)(2) provides all states with an opportunity to develop an alternative program to BART and describes the basic requirements. Section 309 points back to these same basic program requirements rather than repeat them.

Q. When did PacifiCorp have to get its permits?

A. There is generally a long lead time to get air permits approved and a project constructed so that SO_2 is being reduced in time to meet particular milestones. The projects in this case represent actions by the Company to ensure emissions are reduced in a timely fashion compared to the milestones. The Company was required to obtain permits far enough in advance so that the actual projects could be engineered and built with sufficient margin to avoid any period of non-compliance with these milestones. Based upon my experience and review, PacifiCorp's applications for permits were submitted in a reasonable timeframe compared to known or likely timeframes for completing the application process, and with respect to when the Company would be required to meet milestone benchmarks.

The Projects Did Not Go Beyond Regulatory Requirements and Were Not Premature

Q. Certain interveners claim that the Company's pollution control investments went beyond what was required of the Company or exceeded BART. Is that a valid criticism?

A. No, it is not. First, PacifiCorp's emission controls *had to be* better than BART to

demonstrate greater reasonable progress. Second, a five-factor BART analysis is specifically NOT required for SO_2 milestones sources so the associated cost test cannot be used to justify less stringent technology. Finally, the Company needed to ensure an adequate margin for compliance with the 2008 emission limits.

Q. What does it mean to say the Company's projects had to be "better than BART?"

A. "Better than BART" is really shorthand for greater reasonable progress meeting visibility goals than would be achieved through the application of source-specific BART emission limits. This is in 51.309(g)(2)(ii) and it is a mandatory rule for the Company. This demonstration of greater progress is made with the milestone analysis that is contained in the Utah Regional Haze SIP that shows the 2018 goal reduces more tons of SO_2 than BART would on the sources in the region and progress to the final goal is steady and continuous throughout the planning period. The milestones are achieved by reductions in each state.

Q. How did Utah and Wyoming go about demonstrating their 309 programs provided greater progress than BART and what did this mean for PacifiCorp?

A. Utah used EPA's presumptive BART levels and Wyoming used the five-factor BART analysis. PacifiCorp had to submit permit applications with emissions limits superior to the respective better than BART "yardsticks." Once these 309 analyses were complete and the proposed measures were determined to be better than BART, the compliant measures were published in SIPs and PacifiCorp's permits. PacifiCorp certainly did not volunteer something it didn't have to do by

federal and state law. Section 51.309(g)(2)(ii) and the permits issued to the Company required this.

Q. Is this documented?

A. Yes. It is in the Utah SIP in Section D. I have also verified this requirement with Coleen Delaney and others at the Utah Division of Air Quality and Steve Dietrich, Director of the Wyoming Division of Air Quality.

Q. What did PacifiCorp have to do to reduce SO2?

A. PacifiCorp had to propose projects that were better than BART. The scrubber projects were evaluated by the Utah Division of Air Quality to ensure that they were better than EPA's presumptive BART limit of 0.15 lb/mmBtu.

Q. Does Section 309 require PacifiCorp's BART sources to undergo the five-factor BART analysis to determine appropriate controls?

A. No. Federal regulation 40 CFR 51.309(g)(2)(ii) is absolutely unequivocal on this issue. It states that BART is satisfied if the program's emission milestones show greater progress than case-by-case BART. The milestones for SO_2 have been established so SO_2 BART has been satisfied and no five-factor analysis is necessary for SO_2.

Q. Why didn't PacifiCorp insist on a five-factor analysis in Utah?

A. It wasn't up to the Company. The Division of Air Quality was firmly set against using a five-factor analysis for SO_2 and would not have allowed that test instead of presumptive BART.

Q. Finally, does the Company's need to ensure compliance affect its choice of technology?

A. Absolutely. The technology choice must provide an ample margin of compliance. All responsible companies in all sectors use this principle. PacifiCorp must meet all emissions limit on a "continuous basis." That means the equipment must be robust and capable of handling process changes like higher sulfur coal. In addition, EPA has cracked down in recent years on excess emissions during startup, shutdown, and maintenance. In fact, their policy is that even during these events, exceeding an emissions limit constitutes a violation unless the company can prove otherwise. This is particularly critical for opacity and particulate emissions, but applies to all pollutants. As others have testified, EPA has a special enforcement initiative for coal-fired power plants that makes compliance margins a major consideration to avoid prosecution. Based on the information reviewed as part of this case, PacifiCorp was prudent in ensuring robust scrubber design, especially in light of the increasing sulfur in its coal and other operational issues presented.

Q. If the Commission assumes that PacifiCorp had to make *some* pollution control investments, is it your opinion that it had to make *all* of the investments that it did make?

A. Yes. The primary issue was that technology had to be better than BART, and it has to be better at all BART-eligible units. Second, cost analyses such as that in the typical five-factor analysis were not required nor could they be used to justify something less than better than BART. Finally, equipment and design choices had to ensure an adequate margin of compliance with the new emission limits now

and well into the future under all operating conditions. PacifiCorp's investments did not "overshoot" the regulatory bar; they were all necessary.

Q. Were the Pollution Control Projects Premature?

A. No. First, the milestones have been adjusted downward and PacifiCorp's share of SO_2 reductions has increased dramatically. Second, major SO_2 emitters need to reduce early enough to avoid getting caught by the 2013 milestone assessment or the 2018 final compliance year. Finally, an adequate margin of compliance is not just getting below an emission limit; it is also getting ahead of the decreasing milestones. I believe both Ms. Cathy S. Woollums and Mr. Chad A. Teply will elaborate on these issues in greater detail.

The Costs for the Projects Are Reasonable

Q. Why are the costs reasonable?

A. PacifiCorp's emission controls had to be better than BART to demonstrate greater reasonable visibility progress and may not always have been the cheapest option. Also, federal regulations preclude PacifiCorp from cutting emissions at plants that might be less expensive if it means less improvement in visibility.

Q. In your opinion, was it prudent for PacifiCorp to install equipment that was better than BART?

A. Yes, because it had no choice. 51.309(d)(4)(i) is clear...the alternative program must demonstrate *better* reasonable progress than BART. PacifiCorp's projects had to result in emissions that were at a lower level than BART, either presumptive BART in Utah or the five-factor analysis in Wyoming. It was required by both state and federal rule. To not install such equipment as it did, or

to install lesser equipment would have put the Company in a scenario of non-compliance.

Q. Since the milestones apply to a three state region, can't PacifiCorp choose what plant or plants to modify based on individual unit cost effectiveness?

A. No. EPA's rules for an "alternative" program (such as under Utah's SO_2 Milestone Program – Utah SIP Section XX.E.3, April 6, 2011) do not allow states (and therefore companies) to freely choose where reductions are made prior to a backstop trading program.

Specifically, 40 CFR 308(e)(3) prohibits the distribution of emissions from being substantially different than under source-specific BART. All four BART-eligible PacifiCorp units are very close to several Class I areas in Utah. SO_2 sources close to Class I areas have the greatest visibility impact and must be controlled the most. If reductions were not at the specific sources with the greatest impact on Class I areas, the SIP would not be deemed to show better reasonable progress than BART. If PacifiCorp had reduced its emissions at its Wyoming units simply because they appeared cheaper for the Company (or even the ratepayer), then the Utah Class I areas would not have benefited from the same visibility improvements and PacifiCorp's permits could not and would not have been approved.

Q. Certain interveners claim the pollution control investments were not cost effective. In your opinion were the subject pollution control projects cost effective or not?

A. Yes. PacifiCorp's emission controls had to be better than BART to demonstrate greater reasonable visibility progress so they had to be top quality. In addition, PacifiCorp could not simply enhance its emission reductions at its Wyoming plants (due to the relative expense of retrofits) and then chose not to reduce emissions in Utah at units in close proximity to Class I areas. EPA requires appropriate geographic reductions to protect all Class I areas.

Based upon my experience and review of the cost data provided to me in support of this case, it is my opinion that the decrease in SO_2 that will be brought about by the pollution investments made by the Company are cost effective. I believe Mr. Teply provides additional information in this regard in his testimony.

Additional Air Quality Regulations

Q. Are there other regulations that might have been drivers for these projects?

A. Yes, the Utah mercury rule and the upcoming Utility MACT.

Q. What does PacifiCorp have to do for the Utah mercury rule?

A. In May of 2007 the Utah Air Quality Board approved rules to limit mercury emissions in Utah. Most of the rule implemented the federal Clean Air Mercury Rule that was subsequently vacated. However, the rule also established state emission limits for electrical generating units with a heat capacity in excess of 1,500 mmBtu per hour that were in operation as of November 17, 2006. These sources must limit emissions to 6.5×10^{-7} pounds of mercury per mmBtu or demonstrate a 90 percent reduction in emissions by December 31, 2012. The projects already completed and others contained in this case should allow

PacifiCorp to meet or very nearly meet this standard at its Huntington and Hunter Plants.

Q. How do these projects help PacifiCorp meet requirements that might be in the final Utility MACT?

A. The projects have a high probability of meeting or helping to address the three major pollutant categories.

EPA has proposed a direct emissions limit for mercury and surrogate emission limits for other pollutants as follows:

- Mercury: numeric emission limit
- Acid gases: numeric emission limit on hydrochloric acid or SO_2 as a surrogate
- Non-mercury metallic toxic pollutants (arsenic and chromium): numeric emission limit for total particulate matter as a surrogate

PacifiCorp baghouse and scrubber projects control all these emissions. Baghouses are very effective controlling mercury from Utah coal. The same devices are also state-of-the-art for particulate pollution containing metallic toxic pollutants. Finally, the scrubbers for these units are designed for high efficiency SO_2 removal that will also be effective for other acid gasses.

The exact emission limits that will be finalized with the November rulemaking are not certain. It is certain that this rule will be litigated. The only question is when a rule will become effective. Whatever the outcome, PacifiCorp's projects definitely have the co-benefit of partial or full compliance with the Utility MACT when it does go into effect.

Specific Witness Rebuttals

Croft - DPU

Q. Does Mr. Croft's testimony accurately describe the concepts and obligations of the regional haze programs?

A. Yes. While Mr. Croft professes no background in this area, he has certainly communicated the key concepts and apparent contradictions succinctly. He has summarized the overarching framework for Section 309 and rightfully identified the apparent dilemma of "voluntary" measures to meet the SO_2 milestones. He has also fairly described how Utah and Wyoming went about their "better than BART" determinations. Finally, he has noted how the Arbitration Award is different from this proceeding and some of the important information that was not apparently considered or given deference in the Arbitrator's report.

Gebhart - UAE

Q. Considering all your testimony thus far, does Mr. Gebhart accurately characterize the Utah and Wyoming 309 programs and PacifiCorp's obligations?

A. No, absolutely not.

Q. Please explain.

A. Mr. Gebhart has done a very thorough analysis, however it has no applicability for PacifiCorp units under Section 309 SO_2 regulatory requirements in Utah and Wyoming. The process and analysis he uses is for a standard Section 308 BART program. This is an important distinction since it determines the emission limits, what control equipment is required, and the costs allowable.

Furthermore, there is no consideration or apparent understanding of the SO_2 milestone and backstop trading programs and how emission reduction strategies are developed and implemented in his testimony. The suggestion that SO_2 reduction measures from companies with BART-eligible sources are purely "voluntary" is ludicrous. A specific federal rule requires enforceable emission limits. Admittedly, the regular use of the term "voluntary" in the Annex title and other documents is confusing for those who may not be familiar with the 309 program; however state regulators and EPA would never allow a company like PacifiCorp to escape rigorous SO_2 controls. As discussed earlier, the only thing truly "voluntary" for PacifiCorp was the specific controls for their units. Even timing flexibility was limited by the milestone schedule and the requirement for source emission limits in the 2008 SIP.

Furthermore, nowhere in Section 309 is a BART analysis or cost test required to determine control equipment. Each affected company must determine what controls meet the better than BART criteria of the state regulators and best fits company needs. The five-factor analysis process set forth in Appendix Y is for determining BART under Section 308. As noted above, both Utah and Wyoming used Appendix Y BART procedures and guidance simply as a yard stick to demonstrate to EPA that their program was better than BART. Utah used the presumptive BART levels and Wyoming used the five-factor analysis. Once the company made a showing that their proposed controls were better than BART, each state accepted the proposal by approving permits to install the better than BART compliant controls. PacifiCorp was and will continue to be required to

meet a number of regulatory requirements for regional haze. Therefore, it is not accurate to assert that PacifiCorp's controls included in this rate case were either voluntary or exceeded regulatory requirements in terms of rigor or timing.

Q. Beyond using the incorrect regulation to analyze the projects, are there any other flaws in Mr. Gebhart's testimony?

A. Yes. The values for both cost and tons reduced used to calculate what he calls "cost effective" are faulty.

Q. How are Mr. Gebhart's numbers faulty?

A. I believe Mr. Teply will address actual cost effectiveness information more fully, but Mr. Gebhart's cost data is simply too high. In addition, the values he uses for tons reduced, particularly for the Utah projects are also faulty, being drastically low. Mr. Gebhart takes the tons reduced from Table 6 of the 2008 Utah regional haze SIP. That data was provided by the WRAP Regional Modeling Center and were never intended as a basis for a cost analysis. Further, the estimates were developed years ago without consideration for real control equipment specifications. Just like the assumed control rates in the WRAP tables that appear in UAE Exhibit RR 2.4, these data do not reflect actual regulatory requirements or alternative better than BART levels. The actual tons reduced for each project must be used. As already discussed, there were several reasons for improved scrubbers (coal quality, haze rules, etc.). When all these factors are included, the SO_2 reductions are several fold greater than what Mr. Gebhart suggests.

Q. Is Mr. Gebhart's use of the WRAP Clearinghouse data current and accurate?

A. It was probably fine in December 2009, but many BART decisions have been made since that time so it is certainly not current.

Q. Who determines what a cost effective pollution control project is and is $2,000 a bright line the Commission should accept?

A. Environmental regulators make the decision on cost effectiveness. In this case the question on the actual regulatory decision is moot anyway for all the reasons presented concerning the Utah and Wyoming better than BART demonstrations. Presumptive BART and the five-factor analysis were simply used as yard sticks to measure PacifiCorp's proposed projects against BART, not to determine the technology required based on a cost test.

Mr. Gebhart's $2,000 per ton criteria may be portrayed as "based on BART guidelines" in Appendix Y, but it is an erroneous value. As he himself points out, those costs are for *uncontrolled* units; all of the units being challenged already have some level of SO_2 controls. As a result, the marginal or incremental cost of reducing a ton of SO_2 will be greater.

However, EPA has made it clear that existing SO_2 controls should not limit consideration of further control, even if costly. The preamble to Appendix Y states that EPA did <u>not</u> establish presumptive cost limits for units with existing controls which is exactly what Mr. Gebhart is trying to do for PacifiCorp's projects.

EPA goes on to say that scrubbers with less than 50 percent removal

should be totally replaced with state of the art equipment. Such a project would undoubtedly exceed Mr. Gebhart's "cost effectiveness limit" by a wide margin, even though expressly called for by the EPA.

In addition to the higher marginal costs, all of these PacifiCorp units must employ technology better than BART so it can be expected to be even more costly. Finally, Dan Olson, former Director of the Wyoming Division of Air Quality during the time the Section 309 program was developed, was fond of saying that "BART is not a number; it is a process." He observed the same for BART. Mr. Gebhart's "number" is purported as a reasonable "standard," but it is just a number and totally fails to recognize the process that is actually in play for deciding SO_2 control technology for 309 sources.

Q. Why did Wyoming do a five-factor BART analysis and not presumptive BART for determining better than BART for PacifiCorp plants?

A. A: For 309 SO_2 sources, Wyoming only used the five-factor analysis to measure better than BART. Wyoming used a five-factor analysis for NO_X and PM emissions at all its sources subject to BART. It made sense for Wyoming to use the five-factor analysis for the 309 better than BART test since they planned to use it for the other two pollutants anyway. Using two methods would have been confusing for industry and the public.

Q. Why didn't Utah require five-factor analysis for Hunter and Huntington?

A. As discussed earlier, all of Utah's Class I areas are covered by Section 309 so a simpler and more certain test was presumptive BART. The regulations do not require a five-factor analysis for 309 nor did UDEQ consider it appropriate for the

reasons also previously stated. Again, this was Utah's choice.

Q. Mr. Gebhart criticized a number of the specific projects. Let's start with Hunter #2. Are the tons reduced data in Table 6 on pg 25 of the 2008 Utah Regional Haze SIP valid for the purpose of a cost analysis for Hunter 2 and the other Utah units?

A. No, for the reasons stated earlier. The data are out of date, were not developed for that purpose, and do not reflect the reality of the project. Mr. Gebhart understates the actual pollutants removed and overstates costs to remove pollutants. I believe Mr. Teply's testimony will address the actual cost summaries.

Q. Are the tables referenced in UAE Exhibit RR 2.4 current and appropriate for the use intended by Mr. Gebhart's direct testimony on page 35?

A. No. Mr. Gebhart did not share the specific source for these tables, but they appear to be information from the late 1990s used by the WRAP Market Trading Forum to develop the SO_2 Milestone Program. Once again Mr. Gebhart is using extremely dated material in a way it was never intended even when it was current. Each table carries clear caveats with two footnotes that obviously anticipated that states would make decisions different from those in the tables:

> "These estimates are only valid as part of the regional estimate and are <u>not intended to establish BART estimates for individual sources."</u> [emphasis added]

> "The application of regional achievable control technology estimates to individual sources has <u>only undergone preliminary review</u> by the states. <u>There may be changes</u> due to a more detailed review." [emphasis added]

Hence, the tables were intended strictly as a demonstration of the feasibility of achieving the necessary reductions for the milestones proposed in

the Annex and that the milestones were better than BART and were expressly not intended to be used as Mr. Gebhart is doing. Mr. Gebhart's method would be like using a 1958 Chevy repair manual to troubleshoot a 2011 Corvette. A lot of wires get crossed. To my knowledge, neither Utah nor Wyoming used this information in their 309 SIP decisions or PacifiCorp emission limits.

Q. Does the Hunter #2 scrubber project go "substantially beyond the applicable regulatory requirements" and would the UDEQ have allowed a five-factor analysis for SO_2 as Mr. Gebhart suggests?

A. No on both counts. PacifiCorp had to propose scrubber improvements that were clearly better than BART as part of the Utah 309 milestone program and ensure adequate allowances for a possible cap and trade program. UDEQ was strongly opposed to using the five-factor analysis for reasons already discussed so PacifiCorp did not have the option to use Appendix Y procedures for SO_2. Using Appendix Y is not a matter of "following the normal industry practice." It is a decision made by the air quality regulator. Only three states are using 309 and none used Appendix Y to dictate SO_2 controls since they are subject to the milestone program. Wyoming only used the Appendix Y for SO_2 as a yardstick for better than BART, not to determine SO_2 BART of 309 Class I areas.

Q. Were PacifiCorp's SO_2 emissions controls for Hunter 2 voluntary?

A. No. PacifiCorp was obligated to propose controls for emissions limits that were better than BART in the 2008 SIP revision. The only "voluntary" aspect was the exact nature of controls and exact timing of implementation, although the Company had mandatory parameters to meet for both of those criteria as well.

Doing nothing was not an option. The Company's actions were prudent and likely reduced costs for customers in the long run by avoiding fines, litigation, and higher priced labor and materials, and the like. They were also absolutely needed to allow these existing plants to continue operating.

Q. Rather than repeat all these questions for Hunter 1 and Huntington 1 and 2, does Mr. Gebhart's analyses for those units suffer the same flaws as his analysis of Hunter 2?

A. Yes. The exact costs and tons of SO_2 removed vary by unit, but the magnitude of the differences from Mr. Gebhart's numbers is similar.

Q. Does Mr. Gebhart accurately portray the WDEQ BART SO_2 analysis for Basin Electric's Laramie River Plant compared to Hunter and Huntington?

A. No. His cost analysis for all the Utah units is totally flawed and cannot be the basis for any valid comparison.

<u>Fisher – Sierra Club</u>

Q. Have you reviewed the testimony submitted by Dr. Fisher in this case?

A. Yes.

Q. Do you have any concerns with the testimony Dr. Fisher filed?

A. Yes. The main concern I have is how he describes the state-federal regulatory relationship and how industry should handle multiple regulatory requirements occurring on different timelines, some of which may not be very certain in their outcome.

Q. Do you think Dr. Fisher's Exhibit SC-4, the World Resources Institute Fact Sheet, and Dr. Fisher's assertions about it fairly portray regulatory reality?

A. No. While it is true that a number of the regulatory programs have been on the books for some time, the specific requirements when they are updated or proposed are not always known far in advance. For example, the National Ambient Air Quality Standards (NAAQS) are supposed to be considered every five years for update, but EPA is often behind schedule or gets litigated and they may or may not be made more stringent. Also, the Utility MACT grows from a requirement in the 1990 Clean Air Act, but the current proposal is EPA's third attempt to meet the Act's mandate and this version is very different than the others. The utility sector warrants strong environmental regulation, but the original Edison Electric Institute chart simply shows that the utility sector has a lot of environmental regulations coming in a fairly compressed time frame (a window of a few years) and suggests that perhaps we don't have the most efficient regulatory framework.

Q. Is there a BART requirement for SO_2 at facilities covered by Section 309 SIPs as Dr. Fisher suggests on pages 25 and 26 of his testimony?

A. No, both Utah and Wyoming have 309 SIPs that use milestones and a backstop trading program to reduce SO_2 emissions. Unit specific emission limits are required to demonstrate better than BART performance beginning with the 2008 SIPs.

Q. When do PacifiCorp's BART-eligible SO_2 sources in Utah and Wyoming have to comply with SIPs and other state rules?

A. The SIPs are enforceable as soon as they are approved by the state air quality regulatory authority and the rulemaking procedural requirements are met. In Utah that would be the Air Quality Board and the SIP is enforceable under Utah law once published in the state rules bulletin. Permits (Approval Orders and Operating Permits) are enforceable when the Executive Secretary of the Air Quality Board signs them. The same person also serves in the capacity of Director of the Division of Air Quality. Accordingly, PacifiCorp *must* install controls in accordance with the updated schedule in the April 2011 regional haze SIP and their Approval Orders.

Q. Can the state of Utah take enforcement action after a SIP is approved in Utah, but before it is approved by EPA?

A. Absolutely. In fact, it is not unusual for an EPA Regional Office to take years to approve a SIP. This is so common that it has a name: "SIP gap" meaning the gap between state and federal rules and enforceability.

Q. Does Utah wait for EPA approval before implementing a SIP?

A. Absolutely not. If we did, public health would suffer while EPA went through the many procedural and legal steps it takes to approve a SIP.

Q. Does Utah have to wait for EPA to approve its permits?

A. No, most of our permitting rules are federally enforceable so any permit Utah issues can also be enforced by EPA. The federal government can fine violators up to $37,500 per day per violation plus injunctive relief which can be even more

costly than fines.

Q. When did PacifiCorp have to comply with Utah's Section 309 SIP?

A. The Utah Air Quality Board approved the first regional haze SIP in December 2003. So it was binding on the state and companies regulated by the state at that time. The 2008 SIP contained enforceable emission limits for both Hunter and Huntington to comply with federal rules. Actual project dates are in the future in some cases.

Q. On page 26 of his testimony, Dr. Fisher states that "Utah DEQ found that the planned installations and upgrades of controls at PacifiCorp's Hunter and Huntington units satisfied BART requirements." Is that accurate?

A. No. The controls for those facilities have to be better than BART so the state can demonstrate that its SIP provides greater reasonable progress than source-by-source BART in achieving visibility goals. The controls also must ensure current and ongoing compliance with the SO_2 milestones.

Q. Dr. Fisher suggests at the top of page 27 that PacifiCorp should have waited until EPA approved state rules before investing in capital projects. Should PacifiCorp have waited until EPA approves the state regional haze SIP?

A. No. Such an action would put the Company at risk of being subject to a $10,000 fine per day for each violation of state rules. As I indicated, EPA approval can take years. So if PacifiCorp had failed to propose better than BART controls for the 2008 SIP, they could conceivably been subject to almost $44 million in fines. Moreover, that is just in Utah; the financial exposure in Wyoming potentially could be double that given the greater number of facilities there. Again, doing

nothing was not an option, and Dr. Fisher is simply mistaken to suggest it was.

Q. How is an air permit justification for requesting an economic recovery in a rate case?

A. Air permits reflect underlying applicable regulatory requirements for a given facility to construct and operate. For both Utah and Wyoming, the permits for PacifiCorp BART-eligible sources under 309 make the SO_2 controls necessary for milestone success enforceable. For 309 SIPs, BART-eligible sources had to propose measures that were better than BART and would ensure compliance with the SO_2 milestones. Once the air agency determined a proposal met that requirement and was better than BART, the company had to submit an application for a permit so that the controls would be installed. In addition, EPA has required that PacifiCorp's BART-eligible sources have enforceable emissions limits.

So it is technically the underlying requirements in state and federal rules that are implemented via permits that are the justification for economic recovery in proceedings such as this. PacifiCorp's permits are prudent and necessary to provide safe adequate and reliable power since they comply with state and federal law.

Q. Dr. Fisher opined that PacifiCorp's compliance actions would not be sufficient to meet "final" regional haze rules. Do you agree?

A. No. First, he is completely wrong about his understanding of "final regional haze rules." As I described earlier in this testimony, state rules are enforceable shortly after they are approved and companies are obligated to comply under threat of substantial penalty. To suggest otherwise demonstrates a fundamental lack of

understanding of air quality management in the United States.

Second, new source review permits in Wyoming and Utah are issued by the state air quality agencies, not EPA. The National Park Service did comment that it felt Selective Catalytic Reduction (SCR) was required at PacifiCorp plants in Wyoming as BART to reduce NO_X but states do have the latitude in BART guidance to require different solutions than presumptive BART. Nor can EPA compel the state to change a permit except under extraordinary circumstances.

Therefore, to characterize the controls that have been permitted by PacifiCorp as "probably not" meeting "final Regional Haze rules" is simply not accurate.

Q. What about Dr. Fisher's speculation about SCRs needed for ozone attainment by 2016?

A. Ozone precursors throughout the west must be reduced if the ozone NAAQS is tightened. Exactly what will be required where at this point is definitely unknown and it would be irresponsible to act based on this level of uncertainty.

Q. What about Dr. Fisher's speculation about what PacifiCorp should do about the "proposed" NAAQS?

A. It is an interesting concern given Dr. Fisher's earlier testimony exhorting the company to wait until the very last minute to do anything. There is a great deal of uncertainty and risk in the evolving NAAQS; especially the short term SO_2 and NO_2 standards and future updates to the secondary standards. One thing is certain; the NAAQS will continue to become more stringent. The current round of projects, while not required by the most recent NAAQS, will provide co-benefits

that are directionally correct for future compliance and risk reduction. None of these projects would have to be ripped out based on any future requirements I am aware of.

Steinhurst – Sierra Club

Q. Have you reviewed Dr. Steinhurst's testimony in this case?

A. Yes, I have.

Q. What was your reaction to Dr. Steinhurst's testimony?

A. Yes. As with Dr. Fisher, Dr. Steinhurst did not appear to grasp how the air quality regulatory system works in practice and he was not realistic in his approach to managing a dynamic regulatory environment.

Q. Dr. Steinhurst suggests that PacifiCorp's projects cannot be "used and useful" because EPA has not yet finalized a regional haze rule under the Clean Air Act. Is that true?

A. No. As with Dr. Fisher, Dr. Steinhurst does not appear to have a complete understanding of the Clean Air Act or regional haze rules. As I and other interveners have testified, EPA first promulgated the regional haze rules (40 CFR Part 51 Sections 308 and 309) in 1999. There have been several revisions since that time with the most recent being finalized on October 13, 2006. The assertion that EPA has not finalized a regional haze rule is simply not true.

It is possible that Dr. Steinhurst is referring to EPA approval of state regional haze SIPs. As explained earlier, this is an entirely different process than the regional haze rule. Once again, a state SIP is enforceable under state law once approved by the state air agency and is binding on regulated entities at that time.

The course of action recommended by Dr. Steinhurst would require PacifiCorp to be in violation of both the Utah and Wyoming 309 regional haze SIPs and risk serious financial sanctions.

It is true that there is always a possibility that EPA could disapprove part or all of a state SIP. That is the exception and the Utah Division of Air Quality has been working diligently for several years to address EPA Region VIII's questions concerning the regional haze SIP. Again, regulated sources do not have the option to wait until final action by EPA on a SIP; they must obey the state SIP rules immediately upon publication.

It is hard to comprehend how something is not "used and useful" if it is required to comply with state and federal environmental laws since at least 2008.

Q. Would you agree with Dr. Steinhurst's opinion that "…Rocky Mountain Power would be forced to either reinvest in different or additional technology, which could render the currently proposed investments redundant or obsolete, or to decommission plants entirely; in which case the ratepayer funded investments would be abandoned."?

A. No, I do not. First of all, the practice of incremental improvements in pollution controls as new regulations occur has been the normal course throughout all industrial sectors since the first Clean Air Act 40 years ago. Section 309 for regional haze is different in that industry was allowed to select technical solutions (that met certain parameters) rather than the state or EPA prescribe exactly what had to be installed. Having to upgrade or install additional equipment for future requirements is exactly what I would expect. The particular projects in this case

represent appropriate regulatory choices for regional haze and the Utah mercury rule. EPA has set SCRs as presumptive BART for NO_X so they may be required on some units that operate into the future. In any case, the claim that these controls could be "redundant or obsolete" is nonsense.

Finally, I am a strong proponent of clean energy actions that reduce carbon and other pollutants. However, in the absence of robust and immediate clean energy on a large scale, we cannot abandon coal-fired generation and I can't imagine that this Commission has that in mind as even possibly being in the best interests of Utah ratepayers. In the meantime, we must invest wisely to make sure these plants are as clean as possible. That is what this suite of projects do; protect health and improve visibility. This is a risk reduction set of projects, not the other way around as suggested. To delay or stop this work is injurious to human health; I can't believe that representatives of the Sierra Club would stand in the way of that objective.

Q. Dr. Steinhurst states that "the Current Case Retrofit costs have not been shown to be necessary or least cost for the provision of utility service over the long term." Would you agree?

A. No. These projects are required by state and federal regional haze rules and whatever EPA does, it will not be less stringent. My earlier testimony demonstrates the reasonable cost of the projects. The projects are required now. Since they are required now it makes no sense to say they haven't been shown to be cost effective in the future.

Q. What is your opinion about Dr. Steinhurst's claims about PacifiCorp not dealing with the cumulative effect of environmental regulations?

A. I don't find it very realistic. First, industries with large or toxic air emissions understandably face myriad requirements under separate parts of the Clean Air Act. These rules arrive during different time frames and are rarely harmonized; sometimes they even conflict. Second, the more complicated and controversial rules are litigated, sometimes for years. The more responsible companies track and comply with each as they become enforceable or a course of action becomes more obvious. The best environmental performers that I have worked with are constructively involved during rule development (federal, state or both) and communicate regularly with their regulators to find the most efficient and economic way to comply. My experience with PacifiCorp has been that they are very proactive and constructive in planning for future air quality requirements. During my years as Air Director and Executive Director of the Department, I and my Wyoming counterparts met regularly with company officials to explore ways for them to address not only regional haze, but also mercury and even carbon emissions. The Company will have to address any issues with respect to Integrated Resource Planning and other processes pertaining to utility regulation, but my experience was that they were very focused on the full range of air quality now and well into the future. We didn't always agree, for sure, but they spent a lot of time planning the best course of action.

Q. Dr. Steinhurst suggests that PacifiCorp has used a piecemeal program that will only satisfy current requirements and should wait for EPA's renewed multipollutant initiative. Is this a valid criticism of the Company?

A. No. Based on my experience as related above, PacifiCorp is doing the right things because it does not have the option to wait as implied by Dr. Steinhurst. The reality is that regulations do come piecemeal and any company must comply whether it likes it or not. So Dr. Steinhurst's recommendation is not realistic.

Regarding EPA Administrator Lisa Jackson's recent call for a more multi-pollutant sector-based approach to air quality regulation, I was an invited guest the day she gave that speech in Washington, DC marking the 40th Anniversary of the Clean Air Act on September 14 of last year. Like many others, I welcome this move. Currently the Clean Air Act Advisory Committee is working on proposals for Gina McCarthy, EPA Assistant Administer for Air and Radiation, to consider. The Commission should know that the multi-pollutant discussion has been on-going for years. It is an excellent concept, but has proven difficult to implement due to legal barriers or other obstacles. Ironically, PacifiCorp's CAI that has been criticized by some was very focused on multi-pollutant projects and efficient implementation. It may be "dusty" now, but it was quite forward looking at the time.

The Company's investments have been consistent with (and not less than or beyond) what has been required of it by state and federal regulations. In that regard it is wrong, in my opinion, to claim this is a "piecemeal" approach.

Conclusion

Q. Could you please summarize your testimony?

A. There are four major intervener concerns about PacifiCorp's environmental control projects that I addressed:

1) why the projects were required by environmental regulations,

2) why the projects did not go beyond regulatory requirements and were not premature,

3) why the costs for the projects are reasonable, and

4) what additional air quality regulations the projects address other than regional haze.

I will now summarize my position on each of these issues.

1) The Projects Were Required: Interveners claim that PacifiCorp was under no regulatory obligation to submit SO_2 emission control permit applications. I have shown that PacifiCorp was required by federal rule to obtain permits with enforceable limits that achieve the SO_2 milestones. The permit applications provided the necessary better than BART technology so they did not step beyond the required regulation. Finally, the applications were timely to allow an orderly installation of projects to ensure compliance with the SO2 milestones and Utah mercury rule. In short, PacifiCorp initiated projects with appropriate scope and timing to avoid possible enforcement action. Their actions were prudent, used, and useful.

2) The Projects Were Within Regulations And Not Premature: First, PacifiCorp's emission controls had to be better than BART to demonstrate greater

reasonable progress. Second, a five-factor BART analysis is specifically NOT required for SO_2 milestones sources so the associated cost test cannot be used to justify less stringent technology. Finally, the Company needed to ensure an adequate margin for compliance with the new 2008 emission limits.

3) The Costs for the Projects Are Reasonable: Emission controls had to be better than BART to demonstrate greater reasonable visibility progress. Given this higher technology hurdle and the fact that partially controlled sources have a higher marginal cost per ton to reduce SO_2, costs will be greater compared to uncontrolled sources that only install BART. Furthermore, cost was not a direct criterion in setting the emission limits. Both Utah and Wyoming used BART guidance only to set the better than BART bar, not to diminish controls on the basis of cost. In addition, the Company needed to ensure an adequate margin for compliance with the new emission limits so the least cost controls may not be prudent. Finally, regulations preclude PacifiCorp from cutting emissions at plants that might be less expensive if it means less improvement in visibility.

4) Additional Air Quality Regulations: PacifiCorp must comply with the Utah mercury emissions limit at all Hunter and Huntington units by December 31, 2012. In addition, the federal Utility MACT will be finalized in November. It faces extensive litigation, but all these projects will position the company well for future compliance.

Given the many air quality regulations that exist, that are in development, or that are contemplated for the utility industry; there is no perfect time to proceed with projects since rules continue to become ever more stringent and are not

always certain. A prudent compliance program is a fine balance of the known, the expected, and what might be. PacifiCorp has been prudent and done, in my opinion, a reasonable job attempting to balance all these complex considerations.

Q. Does that conclude your rebuttal testimony?

A. Yes.