PUBLIC SERVICE COMMISSION OF UTAH

Docket No. 12-035-92

SIERRA CLUB EXHIBIT 35

July 12, 2012 Comments of PacifiCorp, Docket ID No. EPA-R08-OAR-2012-0026

July 12, 2012 Submitted electronically to www.regulations.gov

Mr. Carl Daly
Director, Air Programs
Environmental Protection Agency Region 8
Mailcode: 8P-AR
1595 Wynkoop Street
Denver, CO 80202-1129

Re: Docket ID No. EPA-R08-OAR-2012-0026
Initial Information Submittal by PacifiCorp

Dear Mr. Daly:

PacifiCorp is providing this initial information[1] in response to EPA's request regarding comments on its "Proposals in the Alternative" for PacifiCorp's Jim Bridger Units 1, 2, 3, and 4 NO_x BART, published in the Federal Register on June 4, 2012. 77 Fed. Reg. 33022, 33053. Specifically, EPA has requested more information regarding what EPA calls the first, second and third proposed approaches in light of the impacts expected as a result of EPA's Federal Implementation Plan ("FIP") on PacifiCorp's customers and on the reliability of PacifiCorp's generating system as a whole. In submitting this initial information, it is important to note that PacifiCorp firmly believes the issues of customer impacts and system reliability are not limited to the proposed NO_x BART alternatives for Jim Bridger Units 1, 2, 3 and 4; rather, PacifiCorp believes that in making any determination on a large, multi-jurisdictional system such as PacifiCorp's, the regulating agency must consider the broad scope of the impacts of its decisions on customers and generating system reliability as a whole. This is precisely what the state of Wyoming properly did in establishing its State Implementation Plan ("SIP") in this regard. In support of its position, and without waiving any arguments addressing EPA's approach, PacifiCorp provides the following initial information to support EPA's "Third Proposed Approach," as outlined in the June 4, 2012, EPA action, to address the timing of controls at the Jim Bridger units. PacifiCorp believes that the issues raised herein are applicable to the timing of all BART or reasonable progress controls on PacifiCorp's units, whether in Utah, Wyoming, Arizona or Colorado, required to be installed under the Regional Haze program.

[1] PacifiCorp intends to file additional, extensive comments on the EPA's proposed action at a later date.

Because of the Size and Multi-State Nature of its Generation Fleet, PacifiCorp and its Customers are Unreasonably Impacted by the Regional Haze Rules

PacifiCorp provides regulated electric service to more than 1.7 million customers in California, Idaho, Oregon, Utah, Washington and Wyoming with a net system capacity of 10,597 megawatts, operating 75 generating units across the Western U.S. PacifiCorp's diverse generation portfolio includes coal (58% of total owned capacity), natural gas (21% of total capacity), hydroelectric (11% of total capacity), and wind and other resources (10% of total capacity). PacifiCorp is one of the largest owners of rate-regulated renewable generation in the United States (second only to its sister company, MidAmerican Energy Company) with 21% percent of its generation capacity being renewable. PacifiCorp owns and operates 19 coal-fueled generating units in Utah and Wyoming, and owns 100% of Cholla Unit 4, a coal-fueled generating unit in Arizona. In addition, PacifiCorp has an ownership interest in Craig Units 1 and 2 and Hayden Units 1 and 2 in Colorado.

Importantly, for purposes of evaluating EPA's Proposals in the Alternative, more than 80% of PacifiCorp's 6,157 total owned megawatts of coal-fueled generating capacity are BART-eligible. Even without considering the ultimate outcome of EPA's recently proposed action to partially disapprove the Utah Regional Haze SIP, approximately half (more than 3,000 megawatts) of PacifiCorp's coal-fueled generating capacity will be subject to the installation of controls within the next five years. This conclusion is based on EPA's proposed actions to partially approve and partially disapprove Wyoming and Arizona's SIPs and to approve Colorado's SIP. If EPA ultimately attempts to require four additional SCR on PacifiCorp's Utah units as BART controls, which is beyond the NO_x controls already installed or planned for those units under the existing Utah SIP, then the impact on PacifiCorp, its customers, and system reliability will be even more severe.

When considering PacifiCorp's diversified generation portfolio on an energy (as opposed to capacity) basis[2], PacifiCorp's coal-fueled generation fleet serves as the backbone of the system with 66% of the electricity serving customers being coal-fueled. PacifiCorp cannot simply shut these coal units down or replace all of the energy; it is subject to state and federal requirements to provide reliable generation and transmission service on demand. As a result, additional and accelerated costs imposed on coal-fueled plants have a greater cost impact on customers.

[2] The word "energy" as used here is intended to mean the amount of electricity actually produced in any given period as opposed to the total ability to produce electricity in that same period. In other words, although a unit may have a rated capacity to produce 100 megawatts of electricity (its capacity), it may only produce 50 megawatts of electricity in a given period (its energy).

EPA's Primary Regional Haze Proposal is Simply Too Much, Too Fast

As evidenced by the emission reduction projects which PacifiCorp has already installed in accordance with the Utah and Wyoming Regional Haze SIPs, PacifiCorp is not opposed to making emission reductions that are cost effective for its customers and that achieve environmental benefits, as required by law. PacifiCorp has undertaken projects to comply with the Utah and Wyoming SIPs at a cost of approximately $1.3 billion (PacifiCorp's share of $1.4 billion of total project costs) between 2005 and 2011. Those projects, in conjunction with projects completed through 2012, have reduced emissions of SO_2 by approximately 58% and emissions of NO_x by approximately 46%, with associated visibility benefits.

Just as modeled visibility improvements associated with PacifiCorp's emission reduction projects do not stop artificially at a state border, EPA's analysis of the impacts of its proposed FIP for a large, multi-state system like PacifiCorp's should not be limited to only those facilities and customers located within Wyoming's borders. EPA's actions impacting large, multi-state systems in one state must also consider the cumulative impacts of all of its actions in all other states that affect the same system. In connection with its proposed FIP in Wyoming, EPA should also consider its proposed partial disapproval of the Utah SIP and the resulting impact on PacifiCorp's four BART-eligible Utah facilities. In addition, EPA Region 8 has already approved the Colorado SIP, which includes major emissions control retrofit requirements for selective catalytic reduction ("SCR") and selective non-catalytic reduction ("SNCR") and their associated costs at the Craig and Hayden facilities in Colorado. Further, EPA Region 9 recently released a proposed Federal Implementation Plan ("FIP") requiring installation of SCR at Cholla Unit 4 within the next five years. In each case, the costs of these incremental environmental controls will be borne by PacifiCorp and its customers, as PacifiCorp's generation fleet costs are allocated on a system-wide basis to customers across all states where it provides retail service. Likewise, in each case, installation of controls on all of these facilities within the prescribed or proposed timeframes takes generation out of PacifiCorp's system for prolonged periods of time to effectuate the construction and tie-in of these controls.

To illustrate the magnitude of the impacts on PacifiCorp's generating system, Table 1 below identifies the units owned (along with ownership share) and operated by PacifiCorp that are impacted by the state SIPs and proposed FIPs. Table 2 includes units in which PacifiCorp has an ownership share but for which it is not the operator, and, therefore, has a financial obligation for controls required by Regional Haze-related requirements.

[Table 1 on next page]

Table 1
Summary of EPA Proposed Incremental NO_x Actions
PacifiCorp Owned and Operated Units

State	Unit	MW	Ownership Share	Proposed NO_x Controls	Installation Requirements
WY	Dave Johnston 1[3]	106	100%	LNB/OFA	SIP – Not required *FIP – July 31, 2018*
WY	Dave Johnston 2[2]	106	100%	LNB/OFA	SIP – Not required *FIP – July 31, 2018*
WY	Dave Johnston 3	220	100%	SNCR	SIP – Not required *FIP – Within 5 years; 2017*
WY	Jim Bridger 1	531	66.66%	SCR	SIP – December 31, 2022 *FIP – 2017 (first proposed approach)* *FIP – 2022 (third proposed approach)*
WY	Jim Bridger 2	527	66.66%	SCR	SIP – December 31, 2021 *FIP – 2017 (first proposed approach)* *FIP – 2021 (third proposed approach)*
WY	Jim Bridger 3	523	66.66%	SCR	SIP – December 31, 2015 *FIP – 2015 (first proposed approach)* *FIP – 2017 (second proposed approach)*
WY	Jim Bridger 4	530	66.66%	SCR	SIP – December 31, 2016 *FIP – 2016 (first proposed approach)* *FIP – 2017 (second proposed approach)*
WY	Naughton Unit 3[4]	330	100%	SCR	SIP – December 31, 2014 *FIP – 2014*

[3] EPA's proposed action on the Wyoming SIP reaches beyond PacifiCorp's BART-eligible units in that state to non-BART-eligible Dave Johnston Units 1 and 2.

[4] While both the Wyoming SIP and the EPA's proposed FIP require installation of SCR and a baghouse at Naughton Unit 3 by the end of 2014, PacifiCorp's economic modeling suggests that it is not cost effective to install the required controls and that a lower cost alternative is conversion of Naughton Unit 3 to natural gas. As a result, PacifiCorp has withdrawn its application for a certificate of public convenience and necessity filed with the Wyoming Public Service Commission and plans to file for the necessary approvals to complete a gas conversion. Significant reductions in emissions of SO_2, NO_x and particulate matter are expected to be achieved as a result of this action.

WY	Wyodak	335	80%	SNCR	SIP – Not required *FIP – Within 5 years; 2017*
UT	Hunter Unit 1	446	94%	TBD	SIP – Not required EPA Action – TBD
UT	Hunter Unit 2	446	60%	TBD	SIP – Not required EPA Action – TBD
UT	Huntington Unit 1	457	100%	TBD	SIP – Not required EPA Action – TBD
UT	Huntington Unit 2	450	100%	TBD	SIP – Not required EPA Action – TBD
	Total impacted megawatts in Utah and Wyoming	5,007			

Table 2
Summary of EPA Proposed Incremental NOx Actions
PacifiCorp Partner Operated Units

State	Unit	MW	Ownership Share	Proposed NO_x Controls	Installation requirements
AZ	Cholla Unit 4	395	100%	SCR	SIP – Not required *FIP – Within 5 years; 2017*
CO	Hayden Unit 1	184	24.46%	SCR	SIP – 2015 EPA Approved
CO	Hayden Unit 2	262	12.60%	SCR	SIP – 2016 EPA Approved
CO	Craig Unit 1	435	19.28%	SNCR	SIP – 2017 EPA Approved
CO	Craig Unit 2	428	19.28%	SCR	SIP – 2016 EPA Approved
	Additional megawatts impacted	1,704			

Accelerated and Incremental Costs Are Significant and Unnecessary To Address Regional Haze

In addition to the expenditures already made between 2005 and 2011 to comply with state-imposed Regional Haze requirements, PacifiCorp also plans to spend approximately $800 million from 2012 through 2022 on emissions reduction projects to meet the emission reduction requirements reflected in the Wyoming and Utah Regional

Haze SIPs. Under either EPA's first or second proposed approaches, PacifiCorp would need to accelerate approximately $260 million of that planned capital expenditures in Wyoming alone and would add approximately $40 million in new capital compliance projects (also in Wyoming). Moreover, all of these accelerated and new costs would be pushed into the pre-2018 timeframe and would result in minimal visibility improvement (as will be explained in detail in PacifiCorp's later comments). Along with the capital costs of these new and accelerated projects will come the costs of operating and maintaining the equipment of approximately $7 million to $10 million annually, as well as ongoing capital expenditures of $4 million to $5 million annually for catalyst replacement projects.

In addition, preliminary estimates of the cost of EPA's recently proposed FIP in Arizona for Cholla Unit 4 is approximately $200 million of incremental capital, along with approximately $2 million to $4 million in levelized annual operating and maintenance and catalyst replacement costs.

Piling on to these costs, the EPA-approved SIP in Colorado results in more than $70 million of incremental capital costs to PacifiCorp, along with approximately $3 million to $5 million in levelized annual operating and maintenance and catalyst replacement costs. Notably, none of the costs quoted above include any added costs of EPA's action in response to the Utah SIP, which according to EPA may involve requirements for retrofits of more units owned by PacifiCorp in that state.

Given the number of facilities operated by PacifiCorp and the facilities in which the company has an ownership interest in and is required to pay costs for the installation of Regional Haze-related controls, accelerated and additional controls under the proposed FIP result in approximately $500 million of additional capital expenditures plus an incremental annual cost of $16-24 million to operate those controls in the next five years. In addition, an EPA proposal for stringent control requirements in Utah (i.e., SCR) within five years would add approximately $750 million in capital expenditures plus approximately $7 million to $9 million annually in operating costs and approximately $4 million annually for catalyst replacement projects. All of these costs will be put on the backs of PacifiCorp and its customers in an extremely short time frame, ironically for a program that was designed to gradually achieve reasonable progress towards the goal of natural visibility conditions by 2064 – 52 years from now. Moreover, EPA's proposed actions in Utah and Wyoming are devoid of the recognition of the significant reductions in emissions already achieved under the Wyoming and Utah Regional Haze SIPs and the significant investment made to obtain those emission reductions.

Compliance with the MATS Adds Incremental Costs and Impacts Available Generation

In addition to the Regional Haze requirements, PacifiCorp's coal-fueled generating fleet, including the BART-eligible units, must accommodate controls for compliance with the

Mercury and Air Toxics Standards ("MATS") during the same timeframe. While the scrubbers and baghouses already installed at many of the PacifiCorp facilities pursuant to the Utah and Wyoming Regional Haze SIPs position the company well to comply with the acid gas and non-mercury metals limits under the MATS requirements, additional work will be necessary, particularly at PacifiCorp's Wyoming facilities, to comply with the mercury emission limits by April 2015. Further, PacifiCorp has not yet identified a viable control suite that will allow it to comply with the MATS provisions at the Carbon plant in Utah. As a result, while not finally determined, it is anticipated that Carbon Units 1 and 2 will be required to be shut down in the 2015 timeframe, resulting in the loss[5] of 172 megawatts of generation from PacifiCorp's system. The anticipated loss of this generating resource places additional strain on PacifiCorp's remaining baseload generation and will likely require transmission system modifications to address the resulting lack of generation in that area. Closure of the Carbon plant would also result in an increase in costs to PacifiCorp's customers for removal costs and recovery of plant costs.

PacifiCorp's Customers Cannot Absorb Increasing Environmental Costs, Particularly When Implemented in a Short Period of Time Period

To accommodate, among other cost increases, the costs of the environmental controls already installed on PacifiCorp's coal-fueled generating facilities, PacifiCorp has filed with its utility regulatory authorities annual cases to increase customer rates. PacifiCorp's customers and AARP (among others) have consistently participated in these cases to express concerns regarding increases in electric rates. While EPA may view its proposal to accelerate the installation of controls and require additional controls at PacifiCorp's facilities as just another utility complaining to avoid the consequences of large investments in controls, EPA's proposal has a very real impact on customers.

As Paul Anderson of Mountain Cement Company, a member of the Wyoming Industrial Energy Consumers, testified at the public hearing in Cheyenne on June 26, 2012:

> Our power costs are a significant component of our manufacturing costs. So we're very sensitive to impacts on rates of – of capital investments that are required and other things. This proposal that would speed up the required capital investment is going to have a significant impact on the capital requirements of the utility companies, which then, as a regulated utility, they have the ability to pass on those rates to the rate payers. This will impact every person in the state of Wyoming, from the residential people to the small business operators to the industrial users.[6]

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[5] In addition, if the Carbon units are taken out of service and the resulting emissions are eliminated, the state of Utah and EPA should take that into account in determining reasonable progress under the Regional Haze program.

[6] See Transcript of Public Hearing Proceedings from June 26, 2012, available at: http://www.regulations.gov/#!documentDetail;D=EPA-R08-OAR-2012-0026-0035, pages 34-35.

Testimony by the Citizens Utility Board in Oregon has been very pointed on the issue of increasing rates:

> [R]ates for Oregon customers have gone through the roof. . .[t]he primary driver of higher rates has been capital investments. . .It would be helpful if the Company saw capital investments as costs that can be avoided. . .[7]

Additional position statements by the Citizens' Utility Board of Oregon indicate that:

> The double-digit increase that went into effect on January 1 of this year is already proving to be too much for customers to handle. This fact is most easily demonstrated through a review of the number of disconnection notices issued yearly for the last few years. The average number of disconnection notices in 2011 has increased by over 10 percent from previous years on a month-to-month basis. In addition, the average amount of arrearage from residential customers, i.e., the total amount that customers are behind on their bills, has also increased by nearly 25% on a month-to-month basis over previous years.
>
> The primary cause of these rate increases is the massive capital investment MEHC is injecting into PacifiCorp. PacifiCorp's capital investment in coal clean air projects, new wind generation, new transmission lines, and new combined cycle combustion turbines is expected to be in the billions of dollars. . . customers cannot afford this level of investment.[8]

In recent Wyoming Public Service Commission rate proceedings, the AARP expressed the concerns of their 95,000 members in Wyoming about rate hikes:

> This is hardship, unbelievable. [An e-mail] from Mrs. Mary Brandt in Pinedale says. . .this is not the time to raise prices on basics, such as utilities. . .this hike would be just another hardship and discouragement to employers who would be forced to pass this cost on to their customers, many of which are also struggling. . . The point is that the people of

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[7] See Oregon Docket UE 246, CUB/100/Jenks-Feighner/pages 12-15, available at: http://edocs.puc.state.or.us/efdocs/HTB/ue246htb152816.pdf

[8] See Opening Comments of the Citizens' Utility Board of Oregon before the Public Utility Commission of Oregon, LC 52, In the Matter of PacifiCorp dba Pacific Power 2011 Integrated Resource Plan, pages 1-2, available at: http://edocs.puc.state.or.us/efdocs/HAC/lc52hac132518.pdf

> Wyoming, and particularly AARP members who are on fixed incomes, and many of them are, simply can't afford to have further rate hikes.[9]

As demonstrated by these groups and individuals, PacifiCorp's customers have already felt the burden of installing emission controls to address Regional Haze; they should not be further burdened by EPA's proposed acceleration of costs, particularly when Wyoming has developed a SIP that takes into consideration the Regional Haze requirements <u>and</u> their impact on electricity consumers.

The very first of the five BART factors stated in the Clean Air Act is "the costs of compliance." CAA §169A(g)(2). Surely the rate burden placed on electricity customers of a multi-state system like PacifiCorp's as a result of varied actions by EPA in separate states is among the "costs of compliance" Congress intended EPA to consider in the Regional Haze program.

<u>EPA's Primary Proposal Increases Risk to PacifiCorp's System</u>

As a regulated utility, PacifiCorp has a legal obligation to supply reliable electric service at reasonable rates as set by state utility commissions; it also has a legal requirement to supply its customers as much electricity as they want, when they want it. While the installation of emissions controls on multiple units in a short period of time creates substantial challenges from a project management perspective, these challenges are exacerbated by increased risk factors that jeopardize PacifiCorp's ability to meet its underlying utility obligations:

1. <u>Additional Exposure to Market Power Purchases</u> - The compressed tie-in outage schedule proposed by the EPA under the first and second alternatives for the Jim Bridger plant will increase the risk and cost to PacifiCorp's operations and customers by requiring the purchase of substitute power in the electricity markets. Typically, generation owners, including PacifiCorp, conduct periodic maintenance and repairs during long planned outages in the spring and fall "shoulder months." This is the time when daily loads decline from their summer and winter peaks and substantial amounts of capacity can be removed from service (for maintenance, retrofits, etc.) without degrading system reliability. Environmental retrofit "tie-ins" planned long enough in advance can be incorporated into existing outage schedules (which are also planned long in advance) in order to minimize the time that such generation is not available, particularly because a substantial amount of major environmental retrofit project construction work occurs on site while the unit is in service. However, the "tie-in" outage generally is longer than a typically scheduled maintenance outage, and therefore such outages generally need to be extended by several weeks in order to place the

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[9] See In the Matter of the Application of Rocky Mountain Power for Approval of a General Rate Increase in its Retail Electrical Service Rates in Wyoming of $62.8 Million Per Year or 10.4 Percent, Docket No. 2000-405-ER-11 (Record No. 13034), Transcript of Hearing Proceedings before the Public Service Commission of the State of Wyoming.

environmental control equipment into service. When multiple major retrofits occur at many units during a short time frame across a regional system, such outage extensions can materially affect the balance between loads (i.e., electricity demand) and available resources (i.e., electricity supply).

When an imbalance between load and available resources exists, utilities are forced to purchase electricity in the market, if it is available. A multitude of factors can impact electricity market prices, including planned or forced outages, fuel prices, and availability of intermittent resources (i.e., renewables), as well as natural conditions over which entities have no control, such as seasonal temperature variations, wildfires (which, of course, are themselves unexpected and significant contributors to Regional Haze) that may impact transmission facilities, etc. As PacifiCorp is required to take facilities out of service for retrofit equipment tie-ins, it will be forced to make up any load and resource imbalances with power purchases, which have the potential to significantly increase its costs to customers of generation.

<u>2. Management of Planned Outages</u> - The management of planned outages over time also affects the timing of retrofit construction. Generation owners, including PacifiCorp, often find it necessary and advantageous to begin construction sufficiently in advance of a compliance deadline in order to time the retrofit “tie-in” outage to coincide with a lengthy planned outage, thus minimizing the amount of additional time the unit is out of service to complete the retrofit. This approach affords generation owners limited flexibility to manage availability of generating units. This limited flexibility, however, is subject to practical limitations of not expending funds too far ahead of compliance deadlines, the required maintenance on individual units, and market drivers such as labor and equipment availability—all while balancing overall outage schedules with market power costs and system reliability considerations. When major control projects are not coordinated with existing outage schedules (such as when EPA unilaterally announces in a FIP a date by which controls must be installed), a unit will be required to either have a second outage to tie-in control equipment, or accelerate or defer the normal planned maintenance schedule. Both of these scenarios increase risk for the unit in question – these risks include added costs, decreased availability potentially during high demand for electricity, and decreased reliability. This is especially true where, as in PacifiCorp’s case, a large number of units with multiple control projects must be managed within relatively short periods of time.

Additionally, the joint ownership of many units in the Western U.S. creates an added dynamic whereby changes in planned outages for the tie-in of controls may significantly impact a joint owner’s ability to serve its underlying load.

<u>3. Enhanced Risk Associated with Resource Availability</u> - In the Western U.S., the prevalence of hydropower and its typical seasonal output profile means that much more planned outage time occurs in the spring than in the fall. In fact, PacifiCorp historically conducts approximately 90% of its planned outages (measured in MW-days out of service) for fossil units during the spring, when hydropower typically is abundant and

can be relied upon as a firm resource to meet customer demands. While hydropower affords a resource adequacy cushion in average years, drought conditions can reduce this cushion significantly. Not only does hydropower availability influence the resource adequacy cushion, PacifiCorp's analysis of the system impacts associated with past dry years show they can reduce the availability of system resources by as much as 400 available megawatts. In terms of planning for multiple control projects on multiple units required under a FIP in an extremely short time frame, the chance of an inadequate "cushion" from hydropower resources (for reasons outside of PacifiCorp's control) only adds to the risk of PacifiCorp being unable to meet its electricity supply obligations or being able to do so at an unfair cost to its customers.

<u>4. Planning for Adequate Generation and Reasonable Costs</u> - PacifiCorp performs load and resource assessments as part of its biennial Integrated Resource Plan ("IRP"). These assessments focus on load and resource conditions forecasted during the summer peak. Recognizing that the impact of major emission controls retrofit project "tie-in" outages would be felt primarily in the Spring months, the IRP Load & Resource balance framework has been extended to those months to provide additional information pertaining to PacifiCorp's planning considerations.

Resource planning requires forecasts of peak hour loads and available resources to meet those loads. The supply/demand balance methodology used in PacifiCorp's IRPs compares peak load (plus a planning reserve margin) against owned and firm resources, including thermal capacity, hydroelectric capacity, renewables and qualifying facilities, demand-side management resources (DSM), and net firm purchases. Although the IRP focuses on July system peak conditions, monthly load and resource projections through 2022 can be constructed using other data that PacifiCorp utilizes for 10-year modeling outlooks.

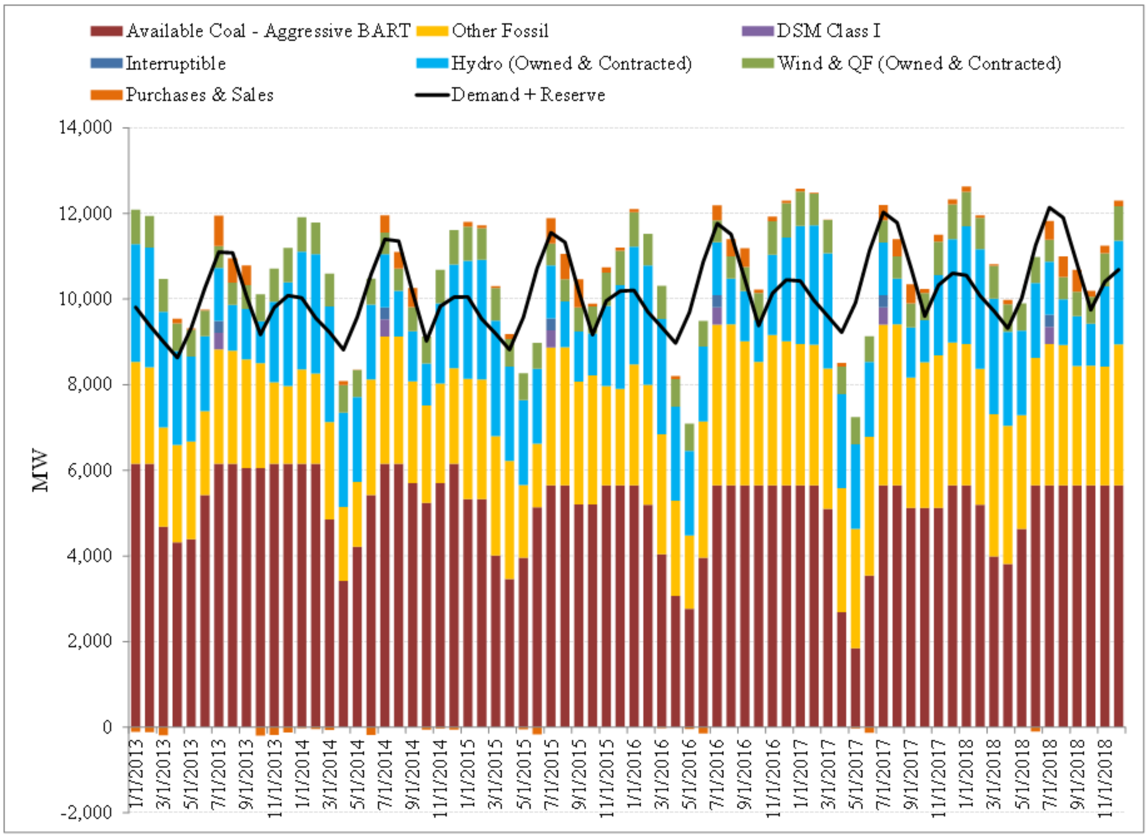
PacifiCorp has examined two scenarios to evaluate the implications of complying with EPA's proposed and prospective actions on Regional Haze proposals throughout the Western U.S., particularly those regions impacting PacifiCorp operations. The scenarios include:

A. A "SIP Scenario" that reflects retrofit plans and compliance dates under currently proposed State Implementation Plans in Wyoming, Utah, and Arizona, as well as the approved plan in Colorado; and,

B. An "EPA Aggressive BART Scenario" that depicts EPA's proposed FIP in Wyoming, EPA's proposed FIP in Arizona, a FIP in Utah that would require installation of SCR at PacifiCorp's units within five years, and Colorado's approved SIP.

Figure 1 below shows the monthly load and resource balance between 2012 and 2018 for an EPA Aggressive BART Scenario, incorporating the impact of potential emission control retrofit "tie-in" outage schedules that could reasonably be anticipated to result from EPA's ongoing SIP reviews based on past EPA actions across the country. [10]

Figure 1
PacifiCorp System Load and Demand versus Available Resources
EPA Aggressive BART Scenario - Forecasted 2013 through 2018



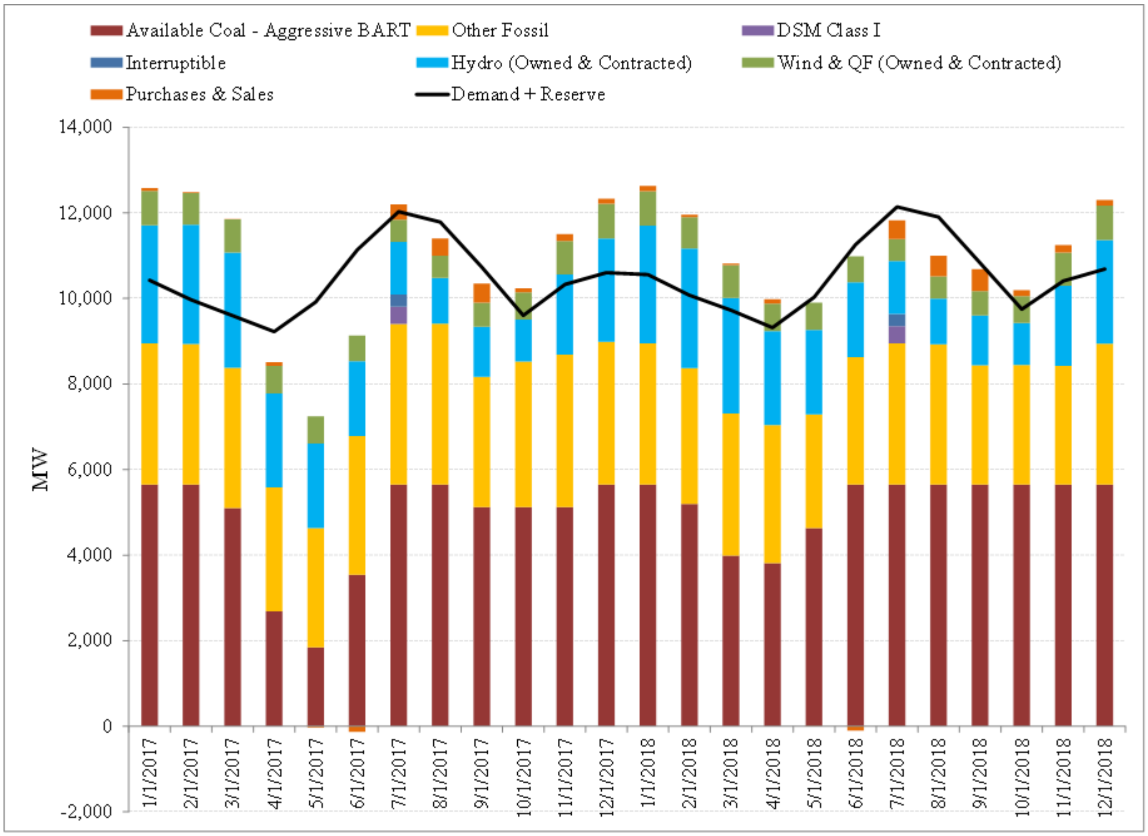
Note: Negative figures correspond to net firm contract sales.

Figure 1 above clearly shows the reduction in coal capacity that occurs each Spring under the planned outage schedules that generally coincide with lower Spring demand. Notably, in the Spring of 2017, primarily as a result of the additional outages required to tie in the SCRs potentially required under the EPA Aggressive BART scenario, demand significantly outstrips supply. Figure 2 below magnifies 2017 and 2018 to more closely examine these years.

[Figure 2 on next page]

[10] Details regarding the requirements and timing under the Aggressive BART Scenario is provided in the next section.

Figure 2
PacifiCorp System Load and Demand versus Available Resources
EPA Aggressive BART Scenario - Forecasted 2017 through 2018

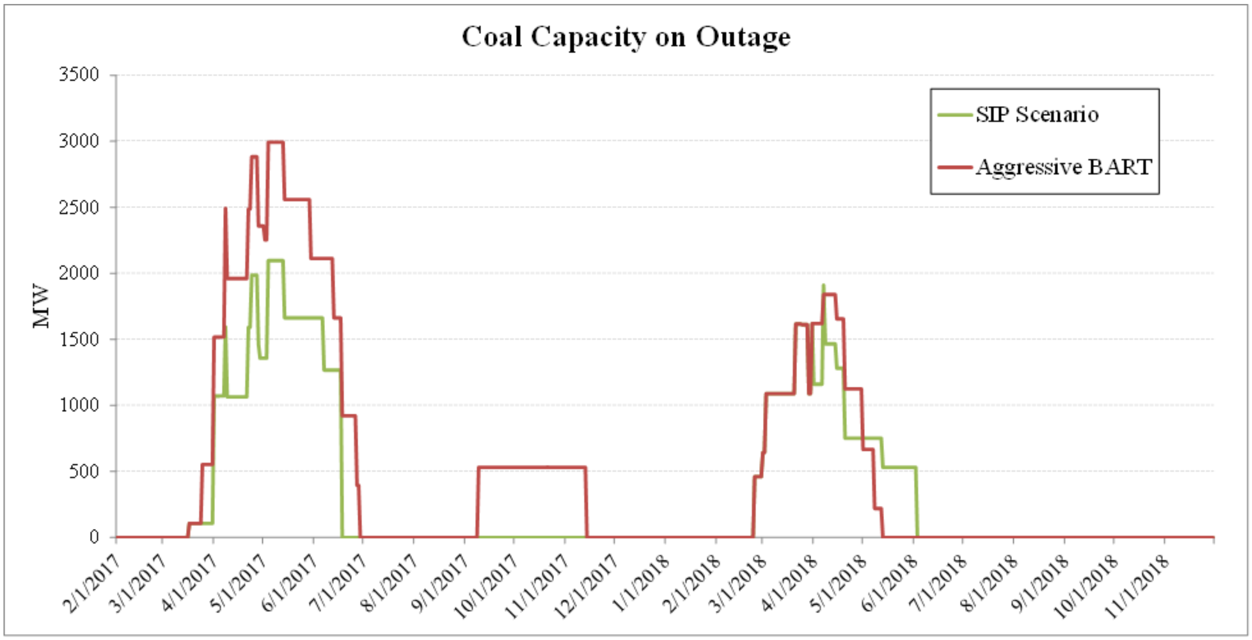


Note: Negative figures correspond to net firm contract sales.

In order to see how the additional EPA Aggressive BART outage time could impact the PacifiCorp system, a more granular picture is helpful. The outage schedule is optimized (and as forecast conditions change, re-optimized) to (1) fit as much planned outage time as necessary to maintain the coal units properly while minimizing the impact on reliability and (2) to rationalize the deployment of labor and equipment resources across the fossil fleet. Additional planned outage days necessary to complete emission control retrofits are accommodated using the same criteria – namely to minimize the overall peak (combined MW) outage impact while scheduling the extended outages to “fit” into the low-load Spring season without unduly extending the overall outage season back into the winter months or forward into the summer months. Figure 3 below shows two (optimized) planned outage schedules through the 2017 and 2018 outage planning window, under the SIP Scenario and the EPA Aggressive BART scenario.

[Figure 3 on next page]

Figure 3
PacifiCorp Coal Capacity on Planned Outage
Current SIP Obligations versus EPA Aggressive BART Scenario
Forecasted 2017 through 2018



As shown in Figure 3 above, the outage season in the Spring of 2017 would begin identically during the third week of March, but the EPA Aggressive BART scenario outages would exceed the SIP Scenario outages about a week after, and remain higher for the duration of the outage season, which would be extended through the end of June in the EPA Aggressive BART Scenario. For most of April and May, the difference between the two scenarios is over 900 MW of additional coal capacity that will be out of production due to the emissions control retrofit “tie-in” outage extensions.

The outage season in the Fall of 2017 would result in approximately 500 MW of previously available coal capacity being out of production for a period of time, and the Spring 2018 outage would begin identically at the end of February with an extended peak outage duration under the EPA Aggressive BART scenario.

Since available replacement power is likely to cost more than PacifiCorp coal generation, those additional costs should be ascribed to complying with the Regional Haze Program, should the EPA Aggressive BART Scenario become required. While there would be some additional resource adequacy risk involved, quantifying that risk in terms of the increased probability of failing to meet load requires a much more complex analysis. However, the figure does depict the challenges that PacifiCorp would face in maintaining reliability under a more stringent program to curb Regional Haze, particularly in 2017.

The additional outage time required for retrofits in the 2017 through 2018 period under the EPA Aggressive BART scenario poses challenges and risks for PacifiCorp. Meeting those challenges would require procuring additional resources during the outage months beyond those currently envisioned in the IRP, which may or may not be readily obtainable in the market (depending on prevailing conditions at the time) and at unknown costs.

5. Planning for Grid Reliability

Similar to the potential system resource adequacy risk discussed above, quantifying the reliability risks that PacifiCorp's transmission system may face under the EPA Aggressive BART scenario requires a much more complex analysis than can reasonably be completed in the timeframe requested by the EPA for this preliminary assessment. However, the incremental localized reduction in available coal capacity underlying the EPA Aggressive BART outage planning scenario depicted in Figure 3 above would be expected to pose operational challenges and risks for PacifiCorp. These challenges unnecessarily pose increased risks and cost to customers that EPA's third proposed alternative would minimize.

Unprecedented Level of Retrofit Activity

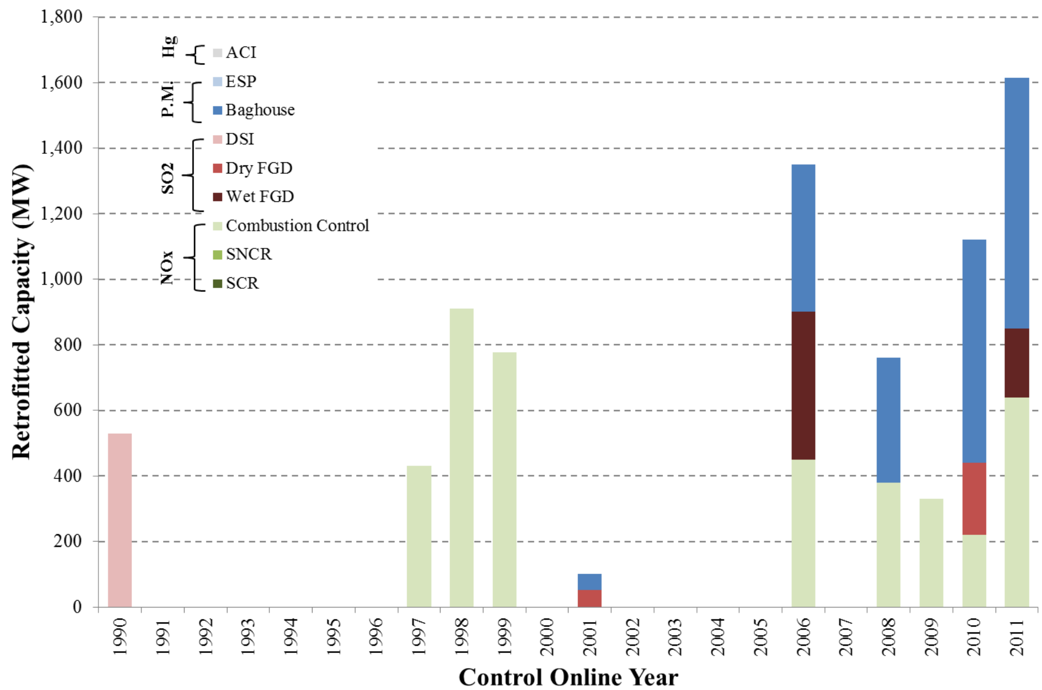
The EPA's FIP would result in an unprecedented level of retrofit activity on PacifiCorp's system, creating significant new issues not previously experienced, including those described below:

Historic Retrofit Activity

For historical perspective, a view of the environmental retrofits completed at power plants in the PacifiCorp region over the past two decades is detailed below in Figure 4 by in-service year and technology type.

[Figure 4 on next page]

Figure 4
Historical Quantities of Retrofits in PacifiCorp Region



Notes:
All generation fuel types are represented; individual units may be represented more than once if subject to multiple retrofits.

As shown in Figure 4 above, the pace of retrofitting environmental controls has accelerated substantially in the past six years, with significant capacity retrofitted with enhanced controls for NO_x, SO_2, and PM, with some units receiving controls for all three pollutants. Note that while Figure 4 is a plot of the equipment online date, construction of the individual retrofits may be presumed to occur before the in-service year.

Because implementation and retrofit of these controls vary significantly in capital costs and project complexity, in order to normalize the data set, all types of major environmental retrofit projects are converted into their wet FGD equivalent MW according to the conversion rates in Table 3 below. Following the convention used by the EPA in a recent study, this conversion is based on the capital costs of each type of control upgrade as listed.[11] Using these conversions, one MW of upgrades from any type of control technology would be normalized to have the same capital cost and approximate supply chain implications.

[Table 3 on next page]

[11] *An Assessment of the Feasibility of Retrofits for the Mercury and Air Toxics Standards Rule*. December 16, 2011. Retrieved from http://www.epa.gov/ttn/atw/utility/revised_retrofit_feasibility_tsd_121611.pdf

Table 3
Wet FGD Equivalence of Retrofit Technologies

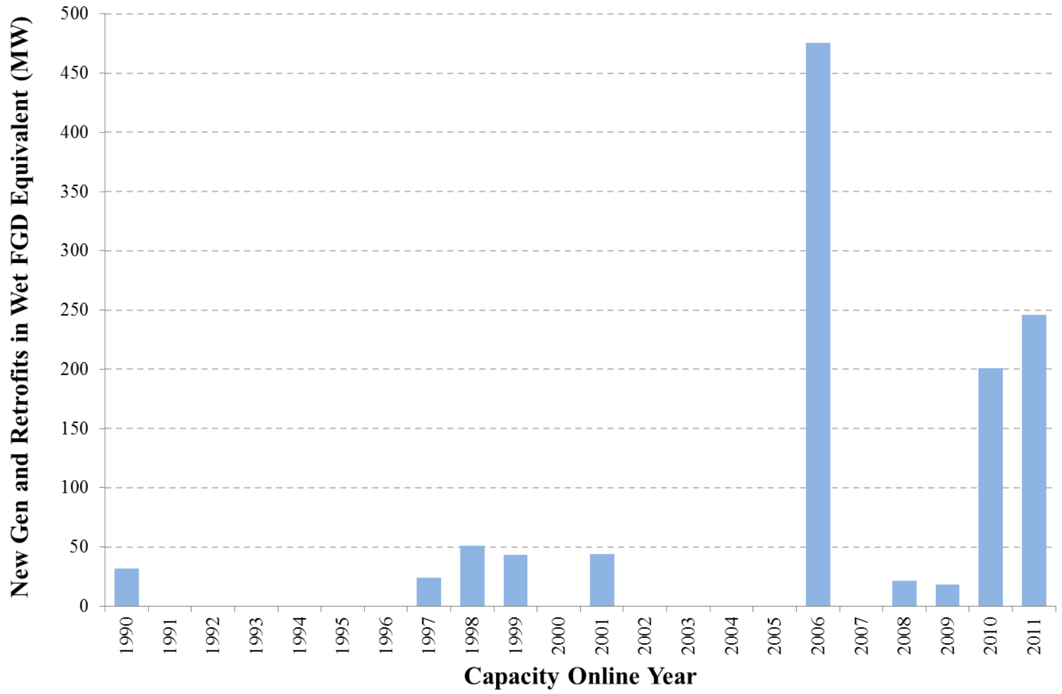
Retrofit Equipment	**Capital Cost** *(2011$/kW)*	**Wet FGD Equivalent** *(MW)*
Coal		
SCR	$223	0.33
SNCR	$51	0.07
Dry FGD	$585	0.86
Wet FGD	**$683**	**1.00**
DSI	$41	0.06
Baghouse	$353	0.52
ESP	$70	0.10
ACI	$26	0.04
Combustion Controls	$41	0.06
Wet FGD Upgrades	--	0.20
Dry FGD Upgrades	--	0.20
ESP Upgrades	--	0.10
Oil/Gas		
Coal SCR		--
Coal SNCR		--
SCR	$64	0.09
SNCR	$13	0.02

Sources and Notes:
Capital costs of retrofit on coal plants from EPA: *IPM Base Case v.4.10.* Chapter 5. August 2010 and EEI: *Potential Impacts of Environmental Regulation on the U.S. Generation Fleet. Final Report.* January 2011.
Oil/gas costs from year 2004 estimate inflated by ratio of coal SCR and SNCR cost inflation between 2004 and 2011 from the same sources.

The total control retrofits reported in Figure 4 above can be converted into their wet FGD equivalent values as shown below in Figure 5.

[Figure 5 on next page]

Figure 5
Historical Retrofits in PacifiCorp Region on a Wet FGD Equivalent Basis



Notes:
Retrofit and new construction MW converted into Wet FGD equivalent basis from Table 1.

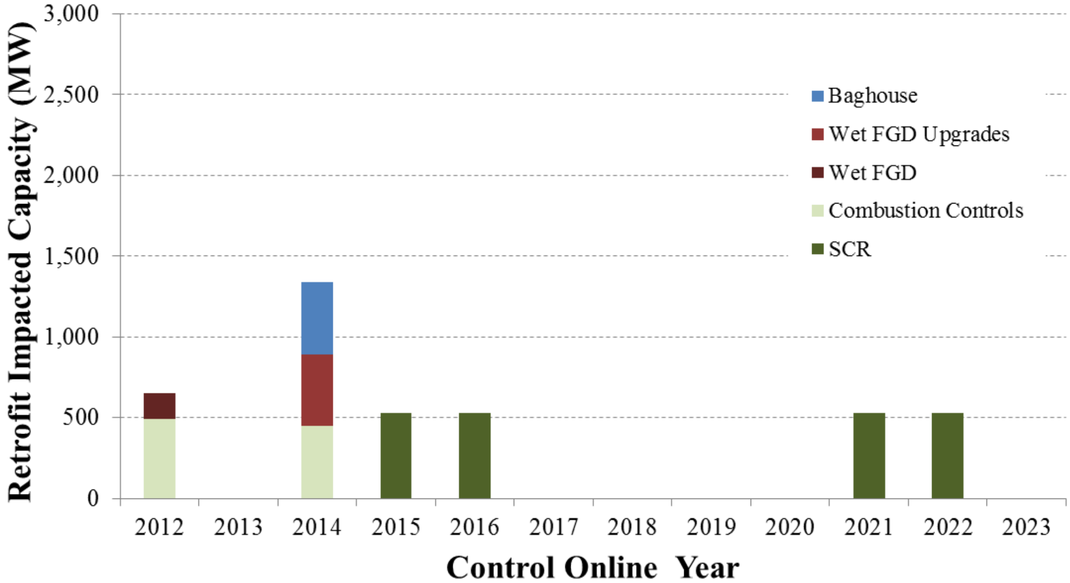
As seen on Figure 5 above, 2006 represented the year when PacifiCorp placed into service the greatest amount of retrofit equipment – about 475 MW on a wet FGD basis. The next highest years – 2011 (246 MW) and 2010 (201 MW) are only about half that level.

<u>Potential Regional Haze Program Retrofit Activity</u>

Two scenarios have been analyzed under two different retrofit compliance assumptions. The "SIP Scenario" reflects the retrofits and compliance dates under the currently proposed State Implementation Plans and the "EPA Aggressive BART" depicts proposed and prospective actions by the EPA requiring more stringent application of the Regional Haze program beyond the levels proposed by the respective States. For each scenario, the impacted capacity for various types of retrofit equipment by the retrofit online date is summarized.

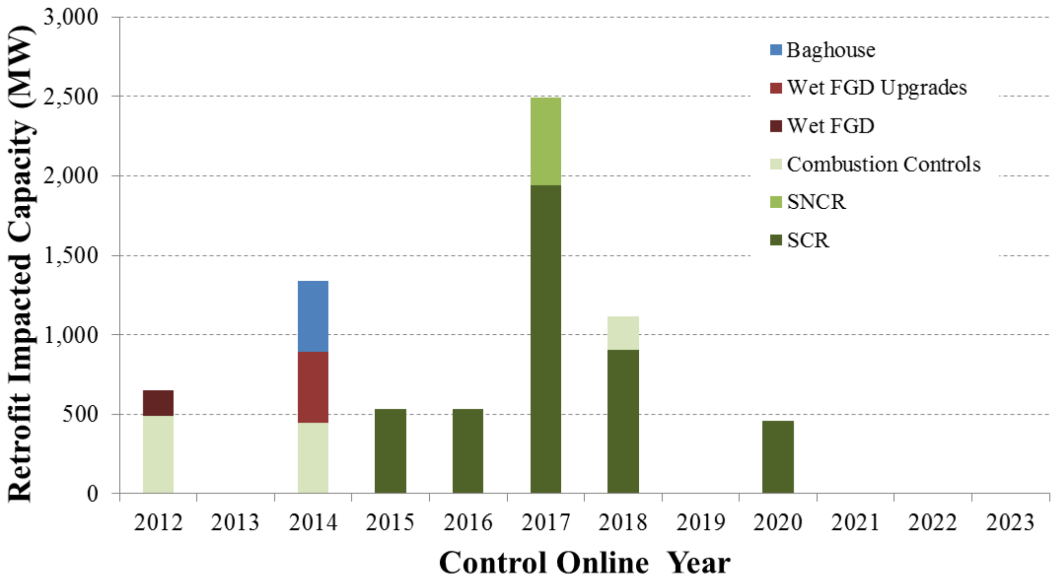
[Figure 6 on next page]

Figure 6
Projected Retrofits in PacifiCorp System
SIP Scenario



The retrofit equipment online schedules under the SIP assumptions are plotted in Figure 6, and similarly, Figure 7 depicts the online schedules for the retrofits under EPA Aggressive BART assumptions.

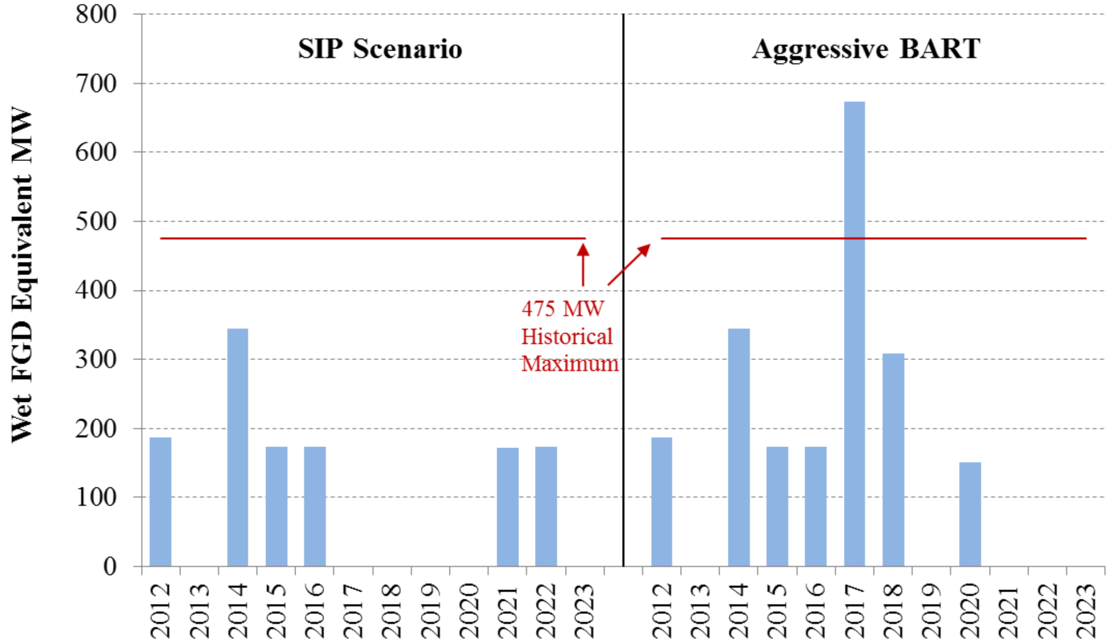
Figure 7
Projected Retrofit in PacifiCorp System
EPA Aggressive BART Scenario



In order to compare with historic levels of retrofit activity, retrofit impacted capacities under the SIP and EPA Aggressive BART scenarios were converted into Wet FGD equivalents in Figure 8, along with the historic annual benchmark of 475 MW.

The differences between the SIP Scenario and the Aggressive BART Scenario are fairly substantial on an equivalent Wet FGD basis. In the SIP Scenario, only one year exceeds the 2010-2011 levels of retrofit investment (of about 225 MW/year), while retrofits placed in service in 2017 (675 MW) substantially exceed the previous historic maximum of 475 MW by 200 MW and two years are above the 2010-2011 level. The control installation requirements under the EPA Aggressive BART Scenario would result in more work, less time, and increased costs.

Figure 8
Projected Retrofit in PacifiCorp System Relative to Historical Maximum



Notes:
Historical maximum from Figure 5 above.
Conversions to Wet FGD equivalent from Table 3 above.

Supply Chain and Labor Considerations

When considered independently from other environmental requirements, the retrofits required under either Regional Haze compliance scenario are not anticipated to impose undue stress on the national supply chain for specialized labor, materials and equipment. However, analyses of compliance with the Mercury and Air Toxics Standard (MATS) have raised concerns that requiring much of the U.S. coal fleet to retrofit or retire in a 3 to 5 year time frame (partially overlapping the compliance time period under the Regional Haze Program) will challenge the equipment construction industry. A study performed for the Midwest Independent Transmission System Operator (MISO) analyzed compliance with MATS by 2015-2016 and identified potential bottlenecks in labor and equipment that might accompany the retrofit and capacity replacement activities in that region.[12] PacifiCorp is not aware of any study that has assessed the potential interaction between the Regional Haze Program requirements and other environmental requirements such as the investments implied by MATS. In addition to the MATS requirements, additional pressure will be placed on labor and equipment from the Cross-State Air Pollution Rule ("CSAPR") or its successor, as utilities in the Eastern U.S. install scrubbers and SCR or SNCR to meet their obligations under a Transport Rule. To the extent that MATS and CSAPR or other environmental requirements create pressure on labor and equipment supplies, that pressure will be increased by the Regional Haze requirements for installation of controls within a five year period as is being proposed and/or adopted by EPA in the Western U.S.

Figure 8 shows that over half of the PacifiCorp retrofit activity in the SIP Scenario occurs in the 2014-2016 timeframe, during which coal units across the U.S. will likely comply with MATS and compete for many of the same resources. This raises the prospect of higher costs and delays associated with completing retrofit projects in this timeframe, assuming that MATS compliance stays on its current schedule. Moreover, while the MATS compliance schedule will not accelerate, there remains a possibility that the MATS compliance deadlines could be delayed as a result of legislative or other action at the national level. If this were to happen, some of the stress on supply chains would be alleviated under the SIP Scenario. However, any delayed compliance with MATS would then coincide with the retrofits necessary to comply with the EPA Aggressive BART scenario. There is also some overlap between the labor and equipment markets for environmental retrofits and new capacity construction, both regionally and nationally, which may affect the accessibility and cost of these resources during a period of aggressive Regional Haze Program retrofits.

Wyoming and EPA are Legally Required to Consider the Economic and System Impacts on PacifiCorp and Its Customers

EPA must include the information provided herein as part of its analysis of Wyoming's Regional Haze SIP and EPA's proposed Regional Haze FIP. As EPA's Regional Haze guidance, Appendix Y, explains:

> There may be unusual circumstances that justify taking into consideration the . . . economic effects of requiring the use of a given control technology. These effects would include effects on product prices. . .

[12] See *Supply Chain and Outage Analysis of MISO Coal Retrofits for MATS* by The Brattle Group, May 2012. This report also surveyed other supply chain studies, providing a range of potential effects from MATS compliance.

> Where these effects are judged to have a severe impact on plant operations you may consider them in the selection process, but you may wish to provide an economic analysis that demonstrates, in sufficient detail, for public review, the specific economic effects, parameters, and reasoning.

Appendix Y, IV.E.3. Given the large number of BART impacted units owned by PacifiCorp in different states, these "unusual circumstances" justify Wyoming's BART actions on PacifiCorp's facilities and PacifiCorp's customers.

Regional Haze is Primarily a State Issue and the Wyoming SIP Schedule Should be Maintained

The Clean Air Act and EPA's own rules require Regional Haze requirements to be determined and implemented at the state level. In Wyoming, however, EPA has elected to reject part of Wyoming's carefully-crafted SIP and replace it with its own. This is not how the Regional Haze program is supposed to work. PacifiCorp believes that EPA's proposal fails to give proper deference to the State of Wyoming's Regional Haze determinations as required by the Clean Air Act.

The Wyoming Department of Environmental Quality conducted a robust BART analysis. In doing so, it exercised the very discretion contemplated by the Clean Air Act in applying the relevant factors to its BART determinations. These factors, found in EPA's own requirements, included consideration of issues such as those identified herein. The EPA should not substitute its judgment for that of Wyoming, particularly when Wyoming has taken into consideration the issues that are important to the State of Wyoming, its citizens, PacifiCorp and our customers, such as grid reliability, costs and the complexity of PacifiCorp's integrated electricity system and resources.

PacifiCorp urges EPA to adopt the third proposed approach, providing additional time for PacifiCorp to manage the system impacts of controls and costs. The emission reductions achieved by accelerating the SCR at the Jim Bridger facility by four to five years pale in comparison to the emission reductions already achieved under the Wyoming Regional Haze SIP. PacifiCorp's later comments will address this issue in more detail. Moreover, nothing in this submission should be interpreted as PacifiCorp's agreement with any of EPA's proposed Regional Haze FIP. As PacifiCorp will explain in its later comments, PacifiCorp completely disagrees with EPA's proposed Regional Haze FIP.

PacifiCorp appreciates the opportunity to provide comments on the EPA alternative

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proposals for PacifiCorp's Jim Bridger Units 1, 2, 3, and 4 NO_x BART. Additional, extensive comments on the balance of EPA's proposed action will follow.

Respectfully submitted,

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