BEFORE THE PUBLIC UTILITY COMMISSION
OF UTAH

In the Matter of	)	
	)	Docket No. 11-2035-01
PACIFICORP	)	
	)	SIERRA CLUB'S COMMENTS
2011 Integrated Resource Plan	)	
	)	

I. Introduction and Recommendations

Sierra Club respectfully submits these comments on PacifiCorp's 2011 Integrated Resource Plan (IRP). Sierra Club considers these comments preliminary because it is clear that the company has so far failed to provide the Commission and public with an IRP with enough detail to meet the Commission's acknowledgment standards and guidelines. Specifically, the company must go back and properly evaluate and disclose:

- Environmental externalities and attendant costs;
- Supply-side and demand-side resources on a consistent and comparable basis;
- A description of how social concerns might affect cost effectiveness estimates of resource options; and,
- A planning process so that prevents "premature foreclosure of options."[1]

The Sierra Club actively participated in the stakeholder input process during the development of the 2011 IRP, and raised many of the issues discussed herein. (See Exhibit 1.) The company did not respond to any requests for data related to the topics addressed in these comments, choosing instead to provide only a small amount of materials in the final draft, just days before the company submitted the final IRP.

The IRP's flaws stem from the omission of a series of environmental compliance costs and obligations in its least-cost planning analyses. Until the company discloses

[1] *See* In the Matter of Analysis of an Integrated Resource Plan for PacifiCorp, Report and Order on Standards and Guidelines (Docket No. 90-2035-01).

these costs and attendant regulatory risks, the very validity of the IRP will remain an open question that undermines most, if not all, of the planning exercises and the resulting preferred portfolio. Indeed, as demonstrated by the IRP's conspicuous lack of important environmental costs, and in evidence obtained in the recent Utah and Wyoming rate cases, the company has established a pattern of omitting very real environmental costs in its forward planning efforts. The company's historic failure to disclose these costs and mechanisms as a component of its least-cost compliance strategy has already caused substantive damage to ratepayers. The company's failure to disclose these costs and present a least-cost strategy for meeting current and future compliance obligations in this IRP exposes ratepayers to extraordinary costs and regulatory risks, and is a serious shortcoming in this IRP.

Sierra Club requests that the Commission not acknowledge the 2011 IRP because the filing fails to meet the most basic criteria of a reasonable planning document. We request that the Commission require that the company:

a) Properly account for environmental externalities so that the environmental impacts associated with different plans be explicitly quantified;
b) Present a thorough accounting of applicable current and reasonably foreseeable impending environmental regulations that may result in either substantial compliance costs or operational constraints on both the company's existing and proposed generating resources;
c) Evaluate feasible compliance mechanisms, the costs of those mechanisms (both capital and operational) on both existing and proposed generating resources, as well as evaluate the risk (i.e. probability) and timing of those regulations, and use these evaluations to produce a reference, high, and low trajectory of non-CO_2 environmental compliance costs for their generation fleet;
d) Develop "Continued Use and Operation" studies (CUO) for each applicable generating resource which will test whether ratepayers could be better served through the retirement or curtailment of generating resources with environmental compliance obligations;
e) Use the results of the CUO studies to inform both the IRP "core case" selection and preferred scenario selection; and
f) Provide a revised analysis as an update to the 2011 IRP, instead of considering these improvements in future IRPs. This last is critical given the timely nature of

this IRP, current environmental obligations, and substantial company investments.

To be clear, the issue before the Commission, as addressed in these comments, does not concern specific error within the IRP; rather the central issue concerns egregious and repeated omission of critical data and analyses.

II. The 2011 IRP Does Not Account for Externalities Nor Does It Assess the Costs

According to research conducted for the State of Utah, coal-fired generation, and to a lesser extent natural gas, is responsible for approximately 200 premature mortalities per year in Utah. EPA estimates a value of statistical life ("VSL") of approximately $8 million per premature mortality, and hence an annual social cost of approximately $1.6 billion from Utah generation alone. PacifiCorp coal plants provide a significant percentage of Utah's overall electricity generation. Over the entire PacifiCorp fleet, both in and outside Utah, the company's contribution is likely much greater. In any case, on a dollars per MWh basis, the unaccounted for externality related to premature mortality, is approximately $36 to $43/MWh. The company has omitted any disclosure of these costs in the 2011 IRP.

PacifiCorp is capable of performing such analyses. Moreover, there is abundant public data available on the damages incurred from coal generation on a unit by unit basis. *See* Hidden Costs of Energy (Exhibit 2) Co-Benefits of Energy Efficiency and Renewable Energy in Utah (Exhibit 3).

Sierra Club is requesting that the Commission require the company to affirmatively account for these costs in choosing its resource portfolios, new resource acquisition, the use and retrofit of existing resources, and the acquisition of renewable energy and energy efficiency. This information is not only required as a component of the IRP, Utahans are entitled to understand the very real public health impacts associated with fossil fuel generation. This is particularly true because the company produces coal-fired power in Utah and Wyoming but then sends a sizeable portion of that power to Oregon, a state that will soon retire its only coal-fired plant based on public health and environmental concerns.

Pollution from PacifiCorp's coal plants create social harms that are not reflected in the company's rates. Environmental regulations, such as those described below,

force PacifiCorp to account for the externalities caused by coal-fired generation. By omitting regulatory compliance costs from the IRP, PacifiCorp has distorted the true costs of its coal-fleet and therefore prevented the Commission from accurately assessing its least-cost planning analysis. PacifiCorp further amplifies this distortion by omitting an assessment that considers and incorporates public health costs, such as premature mortality, that will persist even after regulatory compliance measures are implemented. The IRP must consider these externalities and their attendant costs.

The Commission must order the company to perform an externalities assessment before acknowledging the 2011 IRP.

III. Mounting Environmental Costs for PacifiCorp's Coal Fleet

The U.S. coal fleet is facing mounting costs to comply with federal environmental regulations designed to protect human health and the environment. PacifiCorp is not immune to these costs. Indeed, according to documents filed with the Wyoming Department of Environmental Quality, "from 2005 through 2010 PacifiCorp has spent more than $1.2 billion in capital dollars [to reduce emissions at its existing coal-fueled generation units.]" (See Exhibit 4.) In 2011, PacifiCorp requested double-digit rate increases in Wyoming and Utah, a large fraction of which can be directly attributed to these mounting costs.

These costs will continue to impact PacifiCorp's fleet for years to come. According to the company:

> *It is anticipated that the total costs for all projects that have been committed to will exceed $2.7 billion by the end of 2022. The total costs (which include capital, O&M and other costs) that will have been incurred by customers to pay for these pollution control projects during the period 2005 through 2023, are expected to exceed $4.2 billion, and by 2030 the annual costs to customers for these projects will have reached $360 million per year.* (Id.)

These costs are not simply small incremental improvements to maintain the company's existing units, rather they are significant capital improvements which rival the net value of the coal plants they are meant to control. According to Senior Vice President of MEHC, Cathy Woollums:

PacifiCorp's fossil steam generation units currently have a cumulative net value (after depreciation) of approximately $3.38 billion. Just compare that current value – $3.38 billion – to the estimated $1.3 billion in additional environmental control project capital costs PacifiCorp will spend between now and 2022, and that gives you a relative sense of the cost of these emissions control devices to our customers. (See Exhibit 5 Testimony of Cathy S. Woollums. Senior Vice President and Chief Environmental Counsel, MidAmerican Energy Holdings Company, Testimony to U.S. Senate Committee on Environment and Public Works, June 15, 2011.)

Given these tremendous costs to customers, and the implications for the economic condition of the company's coal fleet, the company is responsible for fully describing these costs in its central planning document. Yet there is no mention that the company has current compliance obligations, much less future costs, in the 2011 IRP or its appendices.

IV. Cleaning up the Coal Fleet

The Environmental Protection Agency ("EPA") has promulgated and proposed a series of rules that will directly affect the company's coal fleet. There are three categories of non-greenhouse gas rules that aim to curb air pollutant emissions:

- The ongoing EPA action on state **Regional Haze rules** ("BART"), designed to improve visibility in national parks and other Class 1 public lands;
- The proposed **air toxics rule** for utility steam generating units ("MACT"), designed to protect human health by reducing emissions of hazardous air pollutants (HAPs) and mercury (Hg) from oil and coal-burning units; and,
- The proposed strengthening of **National Ambient Air Quality Standards** (NAAQS) on **sulfur dioxide** (SO_2), **particulates** ($PM_{2.5}$), and **nitrogen dioxide** (NO_2) designed to protect human health, reduce premature mortality, and reduce environmental harms from emissions.

There are two sets of Clean Water Act rules proposed and expected that would impact the PacifiCorp fleet:

- the proposed **cooling water intake structures rule**, designed to protect fisheries and aquatic organisms from being trapped by cooling water screens, or uptake into cooling systems, and,

- the expected **effluent limitation guidelines**, restricting toxic releases into waterways from steam power plant structures and effluent ponds.

Finally EPA will issue a final rule regulating the disposal and storage of **coal combustion residuals** (CCR) including ash and other wastes to prevent toxic releases into ground and surface waters.

These environmental compliance obligations have a significant impact on the operation and economics of the coal fleet, and should play a significant role in planning. Several studies, released by major research and investment organizations, have indicated that numerous plants in the U.S. coal fleet could face retirement in the face of high environmental obligations. The North American Reliability Corporation (NERC) published a study on the impact of emerging EPA rules and regulations[2] at the end of 2010 predicting 6-25 GW of economic retirements given strict EPA regulations. The Brattle Group followed shortly after with a similar study[3] estimating 50-66 GW of retirements by 2020. Other financial sector assessments by Credit Suisse[4] and Bernstein Research[5] confirmed these findings with similar retirement expectations. A January, 2011 study of coal plants in the Western Electric Coordinating Council (WECC) found that, under a strict environmental control scenario, a full half of PacifiCorp's coal units would fall into the bottom 25% of least economic coal units in the WECC region.[6]

These studies, which estimated that the worst performing and most polluting coal plants in the country would retire under economic pressure, uniformly suffer from a single flaw: each study assumed that utilities actually examine the forward-going costs of operation under a rational planning framework. In the most fundamental

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[2] 2010 Special Reliability Assessment Scenario. November 29, 2010. NERC

[3] Potential Coal Plant Retirements Under Emerging Environmental Regulations. December 8, 2010. The Brattle Group. *http://www.brattle.com/_documents/UploadLibrary/Upload898.pdf*

[4] Growth From Subtraction. September 23, 2010. Credit Suisse. Available online at *http://epw.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=b42de70d-b814-4410-831d-34b180846a19*

[5] U.S. Utilities: Coal-Fired Generation Is Squeezed in the Vice of EPA Regulation; Who Wins and Who Loses? October, 2010. Bernstein Research. Available online at *http://207.114.134.6/coal/oh/downloads/bernstein-report.pdf*

[6] WECC Coal Plant Retirement Based on Forward-Going Economic Merit. January 10, 2011. Western Grid Group for WECC. http://www.wecc.biz/committees/BOD/TEPPC/TAS/SWG/10March2011/Lists/Minutes/1/WECC%20Coal%20Retirement%20Criteria%201-10-2011%20Final.pdf

planning document, an IRP, PacifiCorp has failed to disclose the costs its coal fleet faces, and failed to meaningfully examine the economic merit of its generating fleet.[7]

V. 2011 IRP Coal Plant Utilization Study

PacifiCorp's 2008 IRP Update, published in 2010, acknowledged that impending environmental regulations will significantly impact coal generators:

> *There are currently a multitude of environmental regulations which are in various stages of being promulgated… Each of these regulations will have an impact on the utility industry and could affect environmental control requirements, limit operations, change dispatch, and could ultimately determine the economic viability of PacifiCorp's generation assets. The US Environmental Protection Agency has undertaken a multi-pronged approach to minimize air, land, and water-based environmental impacts. Aside from potential greenhouse gas regulation, no single regulation is likely to materially impact the industry; however, in concert they are expected to have a significant impact – especially on the coal fueled generating units that supply approximately 50% of the nation's electricity.*

Despite the company's own dire forecast, the 2011 IRP failed to examine the "significant impact" that these regulations could have on the economic merit of the PacifiCorp coal fleet.

The 2011 IRP proposes a series of "coal plant utilization sensitivity" cases that are "intended to pave the way for future refinement of the modeling approach" but are "<u>not</u> intended to draw conclusions on the disposition of individual generating units or desirability of specific strategies to respond to future regulatory developments." (2011 IRP p. 180) To the best of our understanding, these five cases are the only circumstances in which the company assigns any dollar cost for compliance with just two of the rules listed above, the regional haze rule (colloquially, BART) and the proposed air toxics rule (MACT). In these marginalized sensitivities, the company does not estimate the

[7] It can be argued that the company has not only failed to examine the economic merit of their existing fleet by comprehensively reviewing all environmental costs, but have engaged in an incremental or piecemeal approach to new capital expenditures, layering them over time such that the total effect is not made clear.

costs for coal ash remediation, cooling water intake or effluent mitigation, or any of the expected NAAQS.[8]

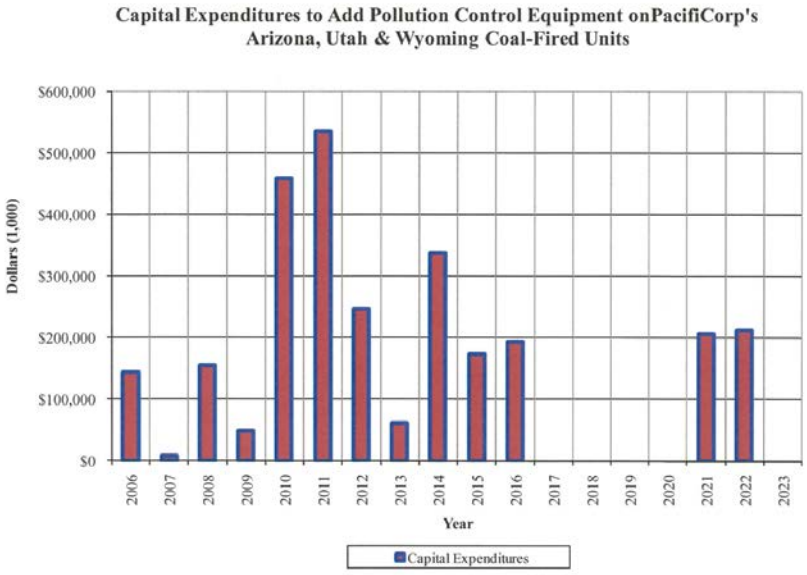
Indeed, even the company's 2011 IRP interpretation of federal regional haze rule requirements is fraught with errors and omissions. For example, there is evidence that the EPA will not accept Utah or Wyoming's regional haze plans, and will require additional costly selective catalytic reduction (SCR) systems on more of PacifiCorp's units. Ms. Woollums testified to this costly potential in her Senate testimony:

> *Unfortunately, recent discussions with the Utah and Wyoming Departments of Environmental Quality suggest that EPA Region 8 believes it may be necessary, for purposes of Regional Haze BART requirements, to install another five SCR in Wyoming and four SCR in Utah, combined with the five planned installations, within a five-year time period—potentially requiring 14 SCR by 2017 and an additional $1.7 billion to $2 billion in costs.* (Exhibit 5 at p. 10)

A correctly executed "coal plant utilization" study would evaluate the relative economic merit of maintaining a coal plant facing environmental compliance versus retiring the plant and replacing the power with either market purchases or new generation, as required. In fact, the PacifiCorp modeling framework is well equipped to examine exactly this question by evaluating the system cost and financial risk associated with maintaining any given plant, or a cohort of plants, versus retiring them *before environmental compliance deadlines*. Retiring *after* compliance deadlines results in unnecessary capital expenditures and unfortunate stranded costs for non-useful environmental controls.

The largest environmental deadlines looming are the final EPA approved regional haze rules and requirement to meet toxic air emissions limits. Indeed, the company's emissions planning document [Exhibit 4] suggests that PacifiCorp will make most of its environmental investments prior to these deadlines (see figure below).

[8] Stakeholder phone call with the PacifiCorp IRP team confirmed that the costs in the 2011 IRP are similar, if not identical, to those in the Emissions Reduction Plan, presumably the same as filed in Wyoming and attached as **Exhibit 4**.



The 2011 IRP, however notes that "Coal units are not specified with a shut-down date; in other words, the units are assumed to operate past 2030 unless the model chooses a replacement. System Optimizer is allowed to select the gas plant betterment option for any year after 2016." This artificial date restriction prevents the model from allowing any plant to retire in order to avoid large capital expenditures, and commits essentially all of the expenses.[9]

Unfortunately, there are other problems too. For example, it is unclear if the company's model adds capital expenses to the remaining plant balance, which would further provide a disincentive to retire coal plants with new capital expenditures. Despite an advanced modeling framework, the company only allows coal plants to be replaced by a "gas betterment option" rather than by the same type of portfolio choices which are available for new capacity – there is no reason to believe that a coal plant cannot be replaced by a combination of gas, DSM, renewable energy, market purchases, and even underutilized capacity in other coal plants, a combination which would likely be less expensive than a one-to-one gas replacement.[10]

According to recent company testimony in both the Wyoming and Utah general rate cases, these sensitivities have been developed to simply test the system, and the

[9] Sierra Club confirmed this fact on a stakeholder call with PacifiCorp.

[10] It is unclear if the "gas betterment option" is a rebuild of the existing plant with gas infrastructure, a replacement of the boiler to handle natural gas, or a completely new and efficient gas combined cycle unit.

company may consider their use in the next IRP cycle. However, this is unacceptable because most of the environmental costs will be realized or committed by the next IRP in 2013/2014. Thus, these costs must be rationally considered now, in the 2011 IRP.

In summary, the coal plant utilization sensitivities are insufficient because:

1. The sensitivities are excluded, *a priori*, from consideration in the base cases, marginalizing their utility and effectively committing the utility to another 2-3 years of major investments without the benefit of regulatory or intervener oversight;
2. The sensitivities knowingly underestimate the compliance obligations faced by the company, both rationalizing that unknown costs must be zero costs;
3. The sensitivities fail to account for the risks of compliance obligations beyond those envisioned by the company, such as the newly recognized requirement for additional SCR to meet federally approved regional haze rules;
4. The sensitivities limit the replacement option for any retiring plant to be an ill-defined "gas betterment", rather than a potentially lower cost portfolio; and,
5. The sensitivities, by design, cannot avoid the vast majority of environmental obligation costs, undermining their potential utility.

In failing to take the risk that these environmental obligations pose to the coal fleet seriously, the company risks undercutting the validity of other parts of the IRP as well. For example, a coal plant retirement might require additional capacity, change off-system sales patterns, and modify transmission requirements. New capacity might be located closer to load centers than existing coal generators, thereby freeing transmission constraints or requirements for expensive new transmission. The IRP should provide the opportunity to examine all of these ramifications.

VI. Recommendations

As described here, the 2011 IRP failed to examine important costs facing the existing coal fleet; costs that could fundamentally change the face of PacifiCorp generation. It is unclear why the company chose to sideline these considerations. When asked in the recent rate case whether the company had used the 2008 or 2011 IRPs to test the cost effectiveness of environmental upgrades, the company responded:

No specific cost-effectiveness analyses of the environmental upgrades at issue in this docket were performed by the company or external parties as part of the 2008 or 2011 IRPs. Consistent with current state IRP guidelines, the company's IRP process and associated system planning models have focused on the economics and risks of acquiring future resources rather than potential investments connected with existing assets.[11]

Clearly, the company's view that its IRP is only a structure for investigating "future resources" is a flawed understanding of the utility of an IRP. The company is charged with finding a least-cost solution to meet customer demand. Ignoring solutions which might involve the retirement or replacement of an existing generating asset does nothing to benefit ratepayers, public health and the environment.

Therefore, Sierra Club recommends that the Commission not acknowledge the 2011 IRP until the company performs Transparent environmental compliance planning that include;

- Unit-by-unit Continued Use and Operation studies; and,
- Re-evaluate the preferred scenario, including new transmission initiatives.

A. Transparent Environmental Compliance Planning

- At the time of the IRP submission, the company must evaluate and disclose all applicable existing, proposed, and reasonably foreseeable environmental regulations.
- The company should both describe how each regulation may impact each of its generating units, to the extent known; and describe the compliance options available to meet those obligations.
- The company should characterize the risk of any given proposed or foreseeable regulation being promulgated in such a way that it would substantively impact the company's generating units, and characterize the costs which could be faced under such a ruling (both capital and operational).
- The company should create a reference obligation cost trajectory for each unit, as well as a "strict" (high cost) case and a "less restrictive" (low cost) case.
- The company must make the control cost assumptions and engineering considerations available for review to all parties.

[11] Discovery Response to Sierra Club 3.1, Utah Docket 10-035-124

B. Continued Use and Operation Studies

- The company should develop "Continued Use and Operation" studies (CUO) for each applicable generating resource.
- The CUO studies should test the economic merit of continued use with environmental retrofits against the retirement and *optimized portfolio* replacement of each unit or cohort of units subject to substantial environmental obligations.
- The CUO studies should evaluate the risk of retirement under the reference obligation cost trajectory, and high and low cost cases.
- The CUO studies should effectively allow feasible replacements as of the first year of the IRP analysis, or the earliest substantive environmental compliance deadline.

C. Re-Evaluate Preferred Scenario

- The company should use the results of the CUO studies to inform both the IRP "core case" selection and preferred scenario selection.
- The company should re-evaluate the requirement for additional transmission initiatives (i.e. Gateway) given the results of the CUO studies.

Given the timely nature of this IRP, current environmental obligations, and substantial company investments, the company must provide a revised analysis as an update to the 2011 IRP, rather than implementing such improvements in a future IRP.

We are confident that the company has already commenced some of this work. For example it supplied rudimentary retirement studies in the Wyoming rate case docket that simply tested the company's first-level assumption of costs, without taking into account the reasonably expected full range of costs expected at each plant. (See Exhibit 6.) The studies were flawed because they came much too late, failed to reasonably take into account future regulations, and other things, they nonetheless can serve as a starting point for an in-depth unit by unit analysis for the Commission and parties.

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IV. Conclusion

Sierra Club looks forward to commenting on the IRP once the company provides the analyses necessary for the company itself, the regulators and the public to evaluate the enormous costs facing its coal-fired units.

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Respectfully submitted,

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