UTAH PUBLIC SERVICE COMMISSION

I. Introduction to the 2011 Integrated Resource Plan and Interwest Recommendations.

Interwest again commends PacifiCorp for a thorough and understandable 2011 Integrated Resource Plan (the "IRP") which describes sophisticated modeling and included an extensive public input process. The IRP assumes that state and federal energy policies will continue to emphasize strong support for development of renewables. IRP Vol. 1, Chapter 4, p. 82; Addendum, p. 1. This is consistent with the purposes of effective integrated resource planning: to minimize costs and risks to electricity customers. Interwest's comments are intended to support these goals. While PacifiCorp's "Green Resource Future" advances the chosen portfolio, it is incomplete and not well-supported by the modeling and requires additional renewable investment in earlier planning years. The integrated planning effort requires additional analysis in several areas: coal plant investments, wind integration costs, wind cost assumptions, transmission cost allocation, and solar investments.

The IRP modeling did not reflect the consistent benefits to Utah electricity customers from additional renewable energy acquisition in the early planning years. Wind capacity additions exhibited the greatest variability across portfolios, ranging from zero to over 2,700 MW. IRP Vol. 1, Chapter 1, p. 7. PacifiCorp indicates that selection of wind and other renewable resources is highly sensitive to natural gas prices, CO2 costs, and availability of the federal production tax credit. On the other hand, PacifiCorp admits that renewable portfolio standards and public policy will continue to promote a green energy future. Therefore, Interwest will highlight some of the ways that the IRP modeling unfairly discriminated against renewable energy to the detriment of PacifiCorp's electricity customers.

Scenario planning has become a useful foundation for effective integrated resource planning, so Interwest requests that the Utah Commission adopt scenario planning principles into its analysis of the PacifiCorp IRP. The risks and costs of long-term capital investments, including the CCCT generation in the 2015-2018 period expose the regulatory uncertainty and ambiguity of the environment in which these decisions are to be made.[1] To its credit, PacifiCorp has acknowledged that the future is uncertain and that its modeling failed to inject sufficient risk mitigation, so it injected diversity including larger renewable generation resources into the mix. Least cost/least risk modeling provides a path for Commissions and utilities towards an uncertain future. This is consistent with the move towards scenario planning over

[1] See M. Cooper, "Least Cost Planning for the 21st Century Electricity Supply", Presented to Colorado Public Utilities Comm. Aug. 23, 2011, including Slide 13 of 20, "Risk Analysis: Avg. CEC/Lazard 2010 cost: Lazard Risk, Balancing Costs and Risks of Various Resources", and Slide 18 of 20, "Ambiguity and Levelized Cost: A Road Map for Resource Acquisition". Cooper's presentation to the CO PUC is attached as **Exhibit A** and is also found as August 23, 2011 presentation, at https://www.dora.state.co.us/pls/efi/EFI.Show_Docket?p_session_id=&p_docket_id=11M-003ALL.

traditional resource planning: choosing a set of resources that provide a regret-free solution under widely different projections for the future.[2]

II. PacifiCorp's modeled wind costs are too high and discriminate arbitrarily against wind resources.

PacifiCorp's assumed capital costs for wind energy exceed the low costs which are experienced in markets where competitive bidding of renewable energy reveals additional savings for consumers.[3] While the wind costs are stated to be based on actual project experience in both the Pacific Northwest and Wyoming, as well as current projections,[4] these cost assumptions ignore dramatic decreases in market prices for levelized power supplies from wind facilities and wind turbine costs, which are projected to continue across all wind markets in published reports. PacifiCorp itself notes that "capital costs, in general have decreased due to the slow-down of the economy in 2009 and 2010." IRP Vol. I, Chapter 6, p. 112. Given the current emphasis on renewable generation, the Company anticipates the cost benefits for these technologies to be available sooner than the projected savings for IGCC facilities, which are not projected by the Company to occur until after 2025. Id. Therefore, the lower cost of wind facilities in the near term are a missed opportunity when wind facility investment is delayed. While the Company indicates it cannot assure customers and generators of transmission availability on its own lines, there are several other large-scale transmission development projects which will provide access to the grid, with some availability anticipated earlier than Energy Gateway.[5]

Electricity customers across the country have benefitted from a sharp decline in turbine costs and wind power contract prices overall. Some dramatic examples from Colorado reveal opportunities for customers in Utah and elsewhere in the PacifiCorp service area. Wind acquisitions should not be artificially constrained for business operations reasons as indicated in the IRP. For example, pursuant to a Request For Proposal ("RFP") issued by Xcel Energy in late 2010, wind costs proposed to Public Service Company of Colorado reflected over 45% decrease from the 2009 RFP issued out of its 2007 Electric Resource Plan.[6] These prices are contingent upon completion and benefit from financial benefits including the Production Tax

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[2] Similarly, WECC has engaged in intensive scenario planning studies, also presented to NARUC; B. Nickell, Director, Transmission Planning, WECC; http://www.narucmeetings.org/Presentations/Nickell_presentation.pdf.

[3] http://www.xcelenergy.com/About_Us/Energy_News/News_Releases/Xcel_Energy_seeks_more_low-cost_wind_energy.

[4] IRP, Vol. I, Chapter 6, p. 111.

[5] The Wyoming Infrastructure Authority promotes several projects. http://wyia.org/projects/. Potential curtailment risks will not likely discourage wind energy developers from proposing competitive projects in a renewable RFP or additional QF acquisitions, some of which PacifiCorp indicates it will pursue. Utah consumers would benefit from a requirement that PacifiCorp investigate additional wind acquisitions in this low-cost market for wind energy.

[6] See attached Exhibit ___, "Limon I and Limon II Price Comparisons", Exhibit No. KJH-2 to Kurtis J. Haeger Direct Testimony dated August 18, 2011 filed in 11A-689E, *In the Matter of the Application of Public Service Company of Colorado for Approval of 200 MW Wind Power Purchase Agreement*, which reflects wind energy prices of $29.36/MWh in Year 1 through $47.22/MWh in Year 25 from the RFP issued in late 2010, and wind energy prices of $27.50/MWh in Year 1 increasing to $52.98/MWh in Year 25 as part of the latest proposed acquisition. Industrial energy consumers and electricity customers throughout the PacifiCorp service area should benefit from recent cost reductions in all types of renewable energy and energy efficiency.

Credit, which expires at the end of 2012. Production Tax Credits have been extended repeatedly in the past and are likely to be extend again. Even if the renewable PTC is not extended in its current form, the reduced prices from market competition will still bring lower prices to benefit Utah consumers.

As stated, while prices are lower throughout most markets, wind energy, especially wind contracts, provide low costs and low risks to electricity consumers.

Along those lines, PacifiCorp can purchase wind from Colorado and from other surrounding areas pending expansion of its own transmission system, other transmission alternatives and PPA wind contracts. They have benefitted from 25 MW of PSCo-owned wind at Arlington, dynamically scheduled West in exchange for coal power from their share of Craig coal plants. Interwest asks whether that dynamic schedule could be expanded to the benefit of both PacifiCorp electricity customers, and the customers of other surrounding utilities, while providing a near-term solution for transmission limitations? PacifiCorp could purchase economic wind from Colorado. This would provide lower costs, as well as geographic and time of production diversity benefits.

Wind costs will drop due to competitive pressures more quickly in markets which require competitive bidding on a level playing field. In Colorado, where competitive bidding is required by statute and Public Utility Commission Rules, levelized wind costs have dropped to the range of $33/MWh. In other markets, wind costs have dropped significantly.[7]

PacifiCorp's wind costs are inflated both because they ignore current lower turbine prices, and also because Wyoming market is actually higher than the surrounding markets and because their utility-owned examples are less efficient than those which would have been acquired through a more fully integrated competitive market.

Wyoming and surrounding states served by PacifiCorp will soon experience additional wind cost savings when it acquires additional wind. In the event that the Wyoming and other commissions require the Company to include more wind earlier in the planning period, responses to an RFP would produce real information about whether wind developers could withstand curtailment necessary from transmission constraints which now exist, minimized by more efficient balancing operational measures. Therefore Interwest recommends that the Utah Commission not acknowledge the IRP in this regard and to review modification to its action plan related to wind energy acquisitions in the near term.

PacifiCorp should address how it can acquire larger amounts of wind, solar and geothermal energy overall earlier in the planning period. Interwest appreciates its emphasis on wind in the later years to reduce projected risks and costs related to fossil fuel generation resources.

III. The 2010 WIND INTEGRATION STUDY SHOULD BE DISREGARDED UNTIL IT IS REVISED BASED ON MORE REPRESENTATIVE MODELING AND UNTIL BALANCING AREA PRACTICES AND METHODOLOGY ARE IMPROVED.

[7] See generally, NREL Energy Technology Cost and Performance Data July 2010, http://www.nrel.gov/analysis/costs.html;

1. The Wind Integration Study is flawed and should not be used for ratemaking or generation acquisition decisions.

PacifiCorp's wind resources are representative generic resources included in the IRP models for planning purposes. Vol. 1, Chapter 6, p. 114. Cost and performance attributes of specific resources are identified as part of the acquisition process. An estimate for wind integration costs based on the 2010 Wind Integration Study of $9.80MWh, as been added in Tables 6.3 through 6.6. Id. However, overall the 2010 Wind Integration Study was deeply flawed in both its modeling and resulting analysis and should be disregarded by this Commission.

The Wind Integration Study incorporated some improved modeling over the previous effort from the Company, and the Company received significant public input. PacifiCorp has advanced their methodology in small ways over previous efforts, including by using the Company's own generation instead of off system transactions, consistent with recommendations from stakeholders. They retained an outside consultant, and state a desire to improve their education and performance about wind integration overall. However, their balancing area operations and wind integration cost analysis remains substandard and should be improved to reach industry standards before they are allowed to impose integration costs on variable resources.

Several modeling and computation errors were pointed out by independent experts, including the National Renewable Laboratory consultant with whom the Company was required to consult under order from the Wyoming Commission. PacifiCorp did not respond to this input. The results are not credible and the Company should not be allowed to impose a wind integration cost until the errors are resolved and it implements cost-saving improvements to its balancing operations.

Wind integration is a highly technical matter, and its variable and uncertain nature requires the power system with significant wind or solar penetration to be operated differently. Calculating the integration costs of variable generation is quite difficult. NREL recently reported on what analysis techniques work, and common mistakes that are made by utilities, some of which were repeated by PacifiCorp in its 2010 Wind Integration Study despite ample warning by independent experts.[8] In addition, PacifiCorp is slow to include best practices in its balancing operations, which placed undue cost burdens on consumers. Therefore PacifiCorp should be precluded from incorporating wind integration costs in its planning, ratemaking and bid evaluation practices until these deficiencies are resolved.

The Wind Integration Study and estimated costs affect resource planning in several ways. Wind integration costs of $9.70 were incorporated into wind capital costs based on a 25-year project live expectancy and generation performance. Vol. I, p. 129. PacifiCorp conducted only

[8] Cost-Causation and Integration Cost Analysis for Variable Generation, Milligan, Ela, Hodge, Kriby, Lew, National Renewable Energy Laboratory, Clark DeCesaro, Lynn, U.S. Dept. of Energy, June 2011. http://www.nrel.gov/wind/systemsintegration/publications.html. This report makes wind integration fairly easy to understand and elucidates some common errors of thinking and analysis which seep into wind integration studies.

one sensitivity analysis using a lower wind integration cost which would more closely match its own actual operating practices and more efficient balancing measures. In the Addendum, the company indicates that the lower cost resulted in 81 MW of additional wind in this singular modeling effort. IRP Addendum, pg. 26.[9]

PacifiCorp commenced its Wind Integration Study modeling early in 2010, and received early input that the modeling was flawed.[10] The consultation notes from NREL engineer Michael Milligan, Ph.D reveal some of the same errors highlighted in the stakeholder input. He states on several occasions that a technical review committee provides valid opportunities for input and strict peer review standards and is essential to more accurate results and compliance with best practices. NREL comments indicated "great improvement", but continuing resolvable concerns about double counting of reserve requirements.[11]

The method used to simulate wind plants was flawed. Dr. Milligan and others have pointed this out repeatedly. The treatment of load following and regulations errors overlap resulting in double counting of reserves. PacifiCorp appears to use 30 minute wind data and a 10 minute persistence forecast to generate the regulation error term. This inherently also includes variability and uncertain from the load following.

In addition, PacifiCorp has double-counted the errors computed from some of its wind farms. Rolling Hills (99 MW wind farm) is located adjacent to Genrock (128 MW wind farm); they are essentially one combined wind farm in operations. Morengo and Goodnoe are also double counted. These farms should not be included in the intra-hour results because they receive integration services from BPA.

The models that PacifiCorp uses for forecasting are of poor quality. The last 10 minutes should be used for regulation following rather than the last hour average. When analyzing persistence one always should use the most current data.

The review of the Wind Integration Study by Randall Falkenburg, a copy of which is attached as Exhibit ____reveals that these errors continued through the modeling development, calculations, and release of the report despite repeated alarms from several sources. The Company indicated that it was unable to correct some of the errors due to lack of resources dedicated to completing the Study, while stakeholders indicated that fairly simple resolutions were available. Expert advice was repeatedly ignored.

Some of these errors were first revealed in response to the 2008 Wind Integration Study. Several reputable stakeholders with expertise in the area of wind integration analysis have

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[9] Importantly, System Optimizer was constrained to select wind of 200 MW per year with the exception of emissions hard cap cases. Vo. 1, p. 130. The Company notes that the effect of the annual limits is to spread wind addition cross multiple years rather than to cap the cumulative total wind added to a portfolio.

[10] See stakeholder comments, including Renewable Northwest Project, NREL and Interwest comments found at http://www.pacificorp.com/es/irp/wind_integration.html.

[11] NREL comments are found at http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/Wind_Integration/2010WICS_NREL2-Comments_ProjectMethod_5-5-10.pdf

recommended a qualified technical review committee to be used since the 2008 Integrated Resource Plan and its associated wind integration study were published.

PacifiCorp has not only refused to rely on this simple procedural technical review committee support from independent experts, they refuse to substantively incorporate and recognize the input from a single consultant whose input was recognized as being important by the Wyoming Public Service Commission from the 2009 General Rate Case.[12] They have refused to incorporate the top experts in the field available through the National Renewable Energy Laboratories on a technical review committee and to follow the UWIG Principles. This red flag reveals a continued rigidity and resistance to expert input in this vital area which should cause the Commissions to take more stringent look at commitments from PacifiCorp to rely on a technical review committee or technical input from the public in the future. Therefore, even though the Company has now stated intentions to use a technical review committee, the Commissions should place strict mandates upon how the technical review process will play out in order for the process to result in actual peer review. The orders should require that the members of the technical review committee be chosen by the Commissions who regulate PacifiCorp in its various states, or chosen from NREL-sponsored experts to assure diligent inquiry and independent peer review, and specific requirement that UWIG Principles be incorporated into the process.

2. PacifiCorp should be leading the advance towards more efficient balancing area practices.

As recommended by stakeholders in previous dockets, PacifiCorp should be required to balance between east and west resources. Thereafter, they should be required to incorporate the developing energy imbalance market tools to allow them to access the most flexibility and economic efficiencies available, with decreased reserve level requirements. http://www.westgov.org/EIMcr/documents/eim-spsc.pdf.

First, PacifiCorp should be required to use more advanced wind forecasting methods and geographic diversity available from the existing system to allow for integration of economic wind resources.

Second, PacifiCorp should be required to schedule more frequently, pursuant to the newest agreement within the Joint Initiatives project. FERC is requiring more frequent scheduling. It should be implemented because it will have the impact of very substantial reductions in wind integration costs.

Third, PacifiCorp should be required to incorporate cost-savings by acquiring resources that provide geographic and time of production diversity.

[12] Stipulation and Settlement Agreement, Para. 23, 20000-352-ER-09, In the Matter of the Application of Rocky Mountain Power to Increase its Retail Electric Utility Service Rates In Wyoming, Consisting of a Rate Increase of Approximately $70.9 M per year, before the Wyoming Public Service Commission.

All of the foregoing should be integrated from current resources available to the Company for more efficient operations overall. At a minimum, PacifiCorp should be held off from implementing integration costs until they have made more progress toward "least cost integration" through achieving the foregoing steps towards cost savings available in its current systems.

A. Modern Wind Forecasting Tools Are Available to Reduce Integration Reserve Requirements.

PacifiCorp should be required to enhance its wind forecasting tools. William Mahoney, a program director at the National Center for Atmospheric Research ("NCAR") explains the importance of wind forecasting, "One of the major obstacles that has prevented more widespread use of wind energy is the difficulty in predicting when and how strongly the wind will blow at the wind farms . . . . These forecasts are a critical step in getting more energy from wind . . ." (University Corporation for Atmospheric Research 2009). "Accurate forecasting allows operators to achieve favorable trading performances on the electricity markets. The further in advance an operator can make a reliable estimate about how much electricity he will produce, the more profit he can make. Network operators require reliable and accurate data to absorb the growing share of wind power and anticipate shortages due to rapid changes in wind speed and direction" (Humpert 2011, 2).

Several wind integration studies have estimated that the potential annual operating cost savings from using wind forecasting in the day-ahead market range from $20 million to $510 million (Gardner 2011, 29). An NREL study found that even a relatively modest 10% improvement in wind generation forecasts would reduce WECC operating costs by about $28M per year with 14% wind energy penetration, and more with higher penetration.[13] NERC, in their report titled "NERC IVGTF Task 2.1 Report – Variable Generation Power Forecasting for Operations," describe a study in which General Electric ("GE") examined what the electric system in New York would look like with 10 percent wind capacity (3, 300 MW of wind on a 33,000 MW peak load system). Three forecasting scenarios and their outcomes are described:

> In the base scenario, unit commitment algorithms ignored wind and dealt with the wind power as it became available in real-time. A second scenario used a simulated state-of-the-art wind plant output forecast in the unit commitment program, which led to a variable cost reduction of $95 million ($10.70/MWh of wind energy generated) when compared to the base scenario. A third scenario used a perfect next day wind plant output forecast in the unit commitment, which provided an additional savings of $25 million ($2.80/MWh of wind energy generated) over the second scenario. As can be seen, most of the economic benefit of a wind power forecast can be realized with a currently-available forecasting system.

[13] Lew and Milligan, National Renewable Energy Laboratory; Jordan and Piwko, GE Energy, "The Value of Wind Power Forecasting", Preprint, Presented at the 91st American Meterological Society Ann. Meeting, the Second Conference on Weather, Climate and the New Energy Economy, Wash. D.C. Jan 26, 2011, p. 8.

1. (NERC IVGTF Task 2.1 Report 2010, p. 5).[14]

Typically, forecasting accuracy improves when larger geographic areas are considered. [15]

Forecasting provides a tremendous opportunity for the wind energy sector to cut costs and become a more reliable resource for the electricity system. Other benefits of improved wind forecasting include but are not limited to: a) reduced imbalance charges and penalties; b) competitive knowledge advantages in real time and day ahead energy market trading; c) more efficient project construction, operations, and maintenance planning; d) reduction in occurrence or length of curtailments, resulting in cost savings; and e) reductions in fossil fuel use.
Gardner 2011, 29-30. PacifiCorp should be required to meet modern standards of balancing authority practices before any wind integration costs are considered for regulatory purposes. Many of their practices are resulting in inefficient wasteful and costly allocation of resources.

B. PacifiCorp Adopt Enhanced Curtailment Calculator and Energy Imbalance Market tools.

PacifiCorp should be commended for their forward-looking participation in sub-regional coordination group potential projects and regional initiatives. IRP Vol. I, p. 55. However, it is time to put these measures into practice.

PacifiCorp and other interested parties have supported technical exploration and helped develop programs aimed at achieving transmission system efficiencies and accommodating increased levels of variable energy resources for years.[16] These tools include dynamic system scheduling, intra-hour transmission scheduling business practices, and intra-hour transaction accelerator platform. PacifiCorp is participating in the development, testing and early stages of implementation of these programs, including both the Efficient Dispatch Toolkit (EDT") and the Energy Curtailment Calculator ("ECC"). IRP Vol. 1, pp 55-56. PacifiCorp indicates that it will continue to participate directly in the development of the EDT and, should the concept come to fruition, will base its ultimate decision on whether to participate on the costs and benefits to customers and the impact on transmission system reliability. IRP Vol. I, pp. 56-57.

PacifiCorp should be required to incorporate these tools as soon as they are available. Until they are available, high integration charges should not be implemented: consumers will be

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[14] NERC includes other attainable recommendations for PacifiCorp in this report, and includes among its recommendations the following statement:

> The benefits of larger balancing areas with fewer transmission constraints are overwhelming. Resolving transmission constraints is critical because larger balancing areas lose much of the benefits associated with size if constraints are in play. Different parts f the country are exploring how to achieve the benefits of larger areas through direct balancing area consolidation or through efforts at "virtual consolidation" where separate balancing areas work together on particular issues. …
> NERC, p. 55.

[15] NERC, p. 44. Many thanks to Ryan Citron, DU Law LLM 2011 for assimilating research re: forecasting.

[16] Additional information can be found in "New Tools for Integrating Variable Energy Generation Within the Western Interconnection" a White Paper Prepared by the Western Interstate Energy Board, January 2011, found at http://www.westgov.org/EIMcr/documents/eim-hli.pdf
and "Energy Imbalance Market", Powerpoint Oxley, Larson, Ravenscroft and Chaset, http://www.westgov.org/EIMcr/documents/eim-spsc.pdf

paying more, or bid analysis will be skewed, by lack of progress toward best utility integration practices. Until the Company reaches the state of the art for "least cost integration" the Commissions should deny their request for high integration charges.

IV. PACIFICORP SHOULD DEVELOP ADDITIONAL SOLAR POWER TO BENEFIT UTAH CONSUMERS.

A. One of the strong benefits of solar power to Utah electricity customers is its ability to shave off peak loads. Utah has high peak loads due to its weather patterns. The IRP deserves greater scrutiny because of the weak solar program implementation by PacifiCorp in the context of Utah's exceptional solar energy resources with higher altitudes and potential benefits to Utah electricity consumers.

PacifiCorp should quantify the economic benefits of meeting a portion of its peak load through additional solar energy acquisitions. PacifiCorp should gather more data about the installed costs of photovoltaic generation through both tracking and fixed tilt systems. There is ample published data about photovoltaic costs and the dramatic reductions in solar equipment in recent years, including information about the robust markets in California and Arizona. PacifiCorp's desire to retain only its own resources and to rely on its own information reduces the credibility of the IRP overall in the areas of renewable energy, which is a fast-evolving market which has experienced dramatic price reductions. In addition to the published information, however, PacifiCorp apparently failed to incorporate a response to the range of bid prices it received in its own 2 MW solar RFP in January 2011. IRP, Vol. 1, Chapter 6, p. 133.

PacifiCorp defined three types of solar resources: a concentrating PV system and two types of solar thermal projects. Id. The modeled concentrative solar tower represents a singular technology which is competing with more commercial photovoltaic technologies, which are more established and are generally produced at lower cost. Therefore photovoltaic resources should be given more attention and analysis of their benefits related to cost and performance.

PacifiCorp indicates that several programs are under development: "Development of PV resources in Utah will be studied with Sandia National Laboratories." IRP, Vol. 1, Chapter 6, p. 133. The Action Plan indicates that the utility is "working with" Utah parties on photovoltaics. IRP, Vol. 1, p. 14 and Action Plan, p. 254. During the public input process PacifiCorp received comments from stakeholders requesting more input and indicating that its cost assumptions were too high.[17] Therefore Interwest recommends that the Utah Commission require additional concrete action items including further analysis of the peak shaving potential of photovoltaic resources in Utah as part of the IRP Update.

V. FULL GATEWAY EXPANSION IS COST EFFECTIVE

Interwest supports the full Energy Gateway expansion scenario proposed by PacifiCorp as the most prudent strategy given regulatory uncertainty, benefits from resource diversity, and

[17] See reference to Cadmus Report in Action Plan, Vol. II, p. 39; however, there were still significant discrepancies between public input related to costs and PacifiCorp assumptions. See, e.g., SunEdison comments, attached as Exhibit ___.

the long lead time for adding new transmission facilities. Vol. 1, Chapter 4, p. 47. The costs and risks of deferring Energy Gateway expansion far outweigh the cost savings and consumer benefits of full completion.

Energy Gateway provides the necessary capacity for the Company to be aligned with a green and stable-priced resource future. Vol. 1, Chapter 4, p. 82. Transmission provides resource diversity, which allows future resource acquisition decisions to be more flexible and economic. Failure to complete a well-planned transmission development scenario will severely constrain all resource generation decisions throughout the planning period, not just renewable generation resource opportunities.

PacifiCorp should be applauded as leaders in planning for transmission for clean resources by their Energy Gateway development, which has launched them towards their Green Resource Future in advance of most of their transmission development competitors. Their planning should be encouraged with approvals and subsequent investments in the planned projects. PacifiCorp should be allowed to incorporate costs related to its transmission buildout, assuming they continue to follow the several Commission's requirements for comprehensive analysis of these upgrades, including Wyoming's newly-adopted expanded CPCN and nontraditional ratemaking requirements.[18] The Energy Gateway system will allow more economic renewable resources to be brought online, with increased geographic diversity available to serve PacifiCorp's load and reduced reserve requirements. PacifiCorp's consumers will benefit as system costs are reduced.[19] The Commission and parties should make sure that consumers get their fair share of these system cost reductions, just as they make sure that electricity customers pay their fair share for the investments that make the system savings possible.

The costs of Energy Gateway should not be unfairly placed on the shoulders of wind energy. The transmission development is vital to serve several functions, most importantly, to improve reliability for PacifiCorp consumers, to increase diversity in the generation resources, and to provide access to economic power. Additional transmission can reduce costs, and PacifiCorp's economic analysis suggests.[20] The proposed Energy Gateway development apparently complies with the five-factor tests to fall within the "network facilities" definition under the NERC *Mansfield* criteria. Therefore, as network facilities (as opposed to "gen-ties"), the cost must be allocated between and among all of the generation resources within the PacifiCorp system. The IRP fails to indicate that they are so allocated; rather, PacifiCorp

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[18] "Stipulation and Agreement", *In the Matter of the Application of Rocky Mountain Power for Approval of a General Rate Increase in Its Electric Retail Service Rates in Wyoming, of $97.3 Million Per Annum or An Average Overall Increase of 17.3 Percent*, Docket No. 20000-384-ER-10, Sec. 13, p. 5, found at http://psc.state.wy.us/pscdocs/dwnload/RMP/StipulationAgreement.pdf.

[19] See "Green Power Superhighways", AmericanWind Energy Association and Solar Energy Industry Association, http://www.awea.org/documents/issues/upload/GreenPowerSuperhighways.pdf.

[20] See also the American Wind Energy Association fact sheet including data from several regional systems: "Green Power Transmission and Consumer Savings", found at: http://www.awea.org/learnabout/publications/upload/Transmission_and_Consumer_Savings.pdf. Also cited in Interwest's comments to PacifiCorp dated Feb. 25, 2011 when the transmission sections of the draft IRP were published.

suggests that wind energy is allocated the cost in "wind-only" bubbles. This is unduly discriminatory and devalues the PacifiCorp modeling results.

Despite the deficiency in renewable energy generation included in the portfolios based on system optimizing analysis, PacifiCorp included additional wind energy based on business analysis of risks and costs to consumers over the longer run. Interwest supports this addition, but supports the stakeholders who suggest that the need to re-insert additional wind energy into the portfolio proves that the modeling failed PacifiCorp and their consumers. This renewable energy investment should be included earlier in the planning period to avoid investment in more risky investments.

VI. INVESTMENT IN AGING COAL PLANTS IS UNECONOMIC

PacifiCorp projects substantial investment in its aging coal fleet to upgrade them and achieve regulatory compliance. These investments will sink valuable resources into inefficient equipment when stable-priced renewable and secure lower emitting generation resources are available. The decisions should not be made on a piecemeal basis, but rather as a comprehensive coordinated fashion across PacifiCorp's service area, and in fact, the Western Interconnection. This discussion would also benefit from a strong infusion of scenario planning concepts.

When rate payer dollars are invested in other less emissions-saving resource alternatives, they are not available for reduced cost and stable-priced renewable energy acquisitions. These investments must be carefully analyzed on a system-wide basis. Therefore, PacifiCorp fails to develop its "Green Energy Future" portfolio in a manner which is consistent with its stated goals.

PacifiCorp will likely be required to expedite retirement of coal plants under the enhanced CPCN and nontraditional ratemaking review required in Wyoming. The regulatory and health costs of greenhouse gas and carbon emissions will not diminish because of recent political wrangling in the Washington which provides even more legislative environment uncertainty. Legislative uncertainty at the national level will simply shift controls under the Clean Air Act and other environmental controls to the Environmental Protection Agency and the states. Risks and costs to consumers will not lessen.[21]

Coal plant retirement to avoid costly investments in environmental retrofits on obsolete equipment will save consumers money. PacifiCorp will now be required to better justify its coal plant equipment installations under the enhanced CPCN and nontraditional ratemaking requirements in Wyoming. However, additional regulatory oversight in the form of a comprehensive review of the PacifiCorp generation fleet and more economic alternatives should be considered prior to acceptance of site-specific proposals.

[21] See "Clean Air Benefits Outweigh the Costs", James Martin, EPA, Region 8, presented to NARUC's Western Conference of Public Utilities Commissioners, June, 2011, found at http://www.narucmeetings.org/Presentations/Martin_presentation.pdf.

The comprehensive analysis should include quantitative risks and costs including:

Water usage[22]
C02 and Greenhouse gas emission—risks and costs
Capital costs of retrofits
Opportunities for stable cost renewables

WECC has modeled the cost savings to be achieved by coal plant transitions.[23] Coal plant transitions to install environmental controls to extend their working life, or transitions to natural gas will be required at huge costs to consumers over the planning period. The modeling performed by PacifiCorp was not complete to fully analyze the cost savings available from alternative energies which will become more available to electricity consumers as transmission constraints are relieved and integration practices become modernized.

[22] PacifiCorp's coal fleet uses significant amounts of water, the costs of which and risks of drought will increase over time. IRP, Vol. 2, Appendix L, p. 263.

[23] "Environmental Controls and the WECC Coal Fleet"; Fisher, PhD, Beiwald, Synapse Energy Economics, Inc., Jan. 23, 2011, found at:

http://www.wecc.biz/committees/BOD/TEPPC/TAS/SWG/10March2011/Lists/Minutes/1/WGG_Coal_Plant_Database_Documentation_Final.pdf;
"WECC Coal Plant Retirement Based on Forward-Going Economic Merit"; Fisher and Beiwald, Synapse Energy Economics; Western Grid Group, January 10, 2011, found at
http://www.wecc.biz/committees/BOD/TEPPC/TAS/SWG/10March2011/Lists/Minutes/1/WECC%20Coal%20Retirement%20Criteria%201-10-2011%20Final.pdf