BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Application of	)	
PACIFICORP for a Certificate of	)	
Convenience and Necessity Authorizing	)	Docket No. 03-035-29
Construction of the Currant Creek	)	
Power Project	)	

REBUTTAL TESTIMONY OF MARK T. KLEIN

FEBRUARY 11, 2004

Q. Please state your name, business address and present position with PacifiCorp (the Company).

A. My name is Mark T. Klein, my business address is 825 N.E. Multnomah, Suite 600, Portland, Oregon 97232. My present position is Director of Structuring & Pricing, Commercial & Trading, which is part of PacifiCorp's regulated merchant energy transaction business.

Q. Briefly describe your education and business experience.

A. I graduated from the University of Idaho in 1981 with a Bachelor of Science in Mechanical Engineering and from Washington State University in 1985 with a Master of Science in Mechanical Engineering. I am also a registered professional engineer in the state of Texas. I have been employed in the wholesale merchant energy transaction area of PacifiCorp's business since 1996. I have been in my present capacity, first as the Manager of Structuring and currently as the Director of Structuring & Pricing, since 1999.

Q. Please describe your current duties.

A. I am responsible for analysis and valuation of the Company's structured wholesale contracts.

Q. Have you previously testified on behalf of the Company?

A. Yes, I have testified in the State of Idaho and the State of Wyoming.

Q. What is the purpose of this testimony?

A. The purpose of my testimony is to respond to specific comments made by other witnesses regarding; real levelization methodology and evaluating alternatives with unequal lives, development of the Forward Price Curves used in the RFP analysis, use of multiple models to evaluate resource alternatives in the RFP, comparability of resource options, and use of a production cost model for resource selection.

<u>Real Levelization Methodology and Evaluating Alternatives with Unequal Lives</u>

Q. Before you address specific issues regarding the Company's real levelization methodology raised by Messrs. Wolverton, Falkenberg, Graeber, and Banasiewicz would you please provide responses to some of their general issues?

A. One of those general issues raised by some parties is their assertion that the way in which PacifiCorp applied the real-levelization technique to evaluate the bids was inappropriate because it was used for all components (costs and revenues), not just capital components. That assertion is wrong. It was appropriate for the RFP analysis to use real-levelized revenue requirements for all components, including market revenues. The technique of real levelization can and should be used to compare capital and other components where such other components will have a material effect on the analysis over the life of the asset.

The IRP discussed the concept of real levelized revenue requirements and how it is appropriate to use within the context of the IRP for levelizing capital revenue requirements. The concept of real levelized revenue requirements, however, is not exclusively limited to capital. It also is appropriate in other applications, depending upon the circumstances.

Q. Another general issue raised by some parties is that the IRP and RFP used different real levelization approaches. Can you discuss some of the reasons why the IRP and RFP used different approaches?

There are some fundamental differences between the IRP and the RFP which justify the unique and specific use of real-levelization in each. First, the IRP production model utilizes a cost-based approach while the RFP model utilizes a net margin approach. The cost based approach is such that potential types and sizes of resources were included in the Company's resource stack to meet projected load over the 20-year analysis period. The portfolio with the lowest incremental cost and risk was deemed to provide a better level of value to PacifiCorp's customers. The IRP production cost model did not need to consider the market value of the generation in its PVRR because every hour of load was fully met with resources or minor amounts of market purchases. Therefore, the total value of the revenue for all hours of load would be the same in each scenario. Because the revenue would be the same in all scenarios, it could be excluded from the analysis.

In contrast, the RFP model utilizes a net margin approach which values the generation from each competing resource (Company-owned or PPA) in order to determine if that resource provides the highest level of value to customers. Including revenues in the RFP analysis is necessary because the potential resources, based upon their own unique dispatching costs and characteristics, will dispatch into the market at different times, with different market prices, and one needs to include these revenues to reflect the resource's own unique value. For example, a lower heat rate resource would likely dispatch in more hours than a higher heat rate resource. Those additional hours provide additional net margin benefit that must be recognized to the benefit of the lower heat rate resource. The second fundamental difference between the IRP and the RFP is the calculation of capital revenue requirements for the resources considered. The IRP did not designate that all new resources would be Company-owned. However, for costing purposes, the IRP "rate-based", and appropriately use real-levelized capital revenue requirements to recognize a proper amount of costs applicable to the type, cost and life of the resource as explained in the IRP, Appendix J. As long as an appropriate amount of revenue requirement was allocated to the cost-based IRP analysis period, the determination of a residual cost in the IRP beyond the analysis period was not necessary.

The RFP, however, is not limited to the analysis of rate-based resources. The RFP consists of a comparison of rate-based resources as well as resources proposed through a PPA. The RFP continues to provide a proper allocation of capital revenue requirements over the entire life of rate-based resources by utilizing real levelization. This provides for a comparable allocation of return of and return on a resource's cost over all years of the asset's life. However, the revenue requirements associated with the bidder's capacity charge reflect the unique desires or financial needs of each bidder. The capacity charge is typically intended to provide for a return of and return on a bidder's investment. The bidder, however, rather than conforming to a calculation which recovers those costs over the entire life of the asset, can choose to provide a bid which recovers those costs over any period it chooses, at whatever level of return on equity, for whatever reason it deems prudent. For example, some bidders with inadequate financial strength and resources may try to push recovery of all financing costs for a new 35-year generation plant over a 20-year period instead of over the longer expected life. This obviously challenges the competitive ability of that bid. The third difference between the IRP and RFP is centered in the fact that any residual value of a resource owned by a bidder will inure to the full benefit of the bidder, while the residual value of a resource owned by PacifiCorp will continue to inure to the benefit of customers. Through rate basing and levelizing the capital revenue requirements of all resources over their entire life, the IRP effectively recognizes the end-effects beyond the IRP analysis period by properly allocating costs both during and after the IRP analysis period.

The RFP, however, must recognize the terminal value effects between bids, which are for a period less than the entire life of the NBA asset, and the NBA. To do otherwise would be imprudent and would increase overall costs to the ratepayer. Just as real levelizing allocates an appropriate capital revenue requirement among all years of a rate-based asset for comparison purposes, real levelizing the residual value across all years is also appropriate and necessary. Terminal value is not just the capital cost. Terminal value includes all net value of all components of the revenue requirement of a generation resource, including market value of power produced, fuel, O&M, return, taxes and capital. For this very reason, it is appropriate and necessary within the RFP to calculate real levelized revenue requirements for each of these components so that an appropriate value of a resource can be recognized during the bid period to compare to the value of a bid over that same period.

Q. Can you describe any other benefits to using a margin-based real levelization methodology as was employed in the RFP?

A. Net margin real levelization is the only appropriate method for evaluating competing bids and resources in the RFP. To do otherwise and only evaluate the cost side on a real levelized basis, would lead to selection of a resource that would not dispatch economically all the time. Further, evaluating on a cost basis alone might lead to gaming by bidders where low cost bids are submitted on inefficient or out of market resources. For example, a bidder might submit a low cost offer on a high heat rate resource in order to be short-listed and then seek to materially change its offer to the disadvantage of customers or other bidders.

Q. Could you please summarize your general comments?

A. Yes. In summary, because the RFP valuation is a margin-based approach, the use of real levelized revenue requirements for all components of cost and revenue is necessary to recognize the end-effects or residual value of Company-owned resources with lives that extend beyond the bid analysis period. Doing so will acknowledge and properly assess, for comparison purposes, the value of the NBA during the bid period of the PPAs that the NBA is compared against.

Q. Would you now please address some of the specific issues raised by other parties, beginning with Mr. Falkenberg?

A. Mr. Falkenberg asserts that "the use of a real levelized capital cost revenue requirement is an accepted analytical technique for dealing with resources with unequal lives," but that assertion is only partially accurate. While real levelized capital costs are certainly an appropriate technique for dealing with the capital component of the analysis, Mr. Falkenberg fails to consider that there are other costs (and revenues) besides capital costs that should be considered in evaluating an asset's value. These other components (revenues, O&M, fuel) contribute to the valuation of a long-lived resource throughout the resource's entire life and must be considered in a real-levelized fashion if the analysis period is shorter than the full asset economic life.

Q. Is real levelization intended to address disparities in the actual physical useful lives of assets?

A. Yes, and it is also intended to address the revenue and cost differences between these physical assets over their useful lives. Likewise, real levelization is intended to allocate these cost differences over their useful lives such that comparisons can appropriately be made against resources such as PPAs, which may have shorter periods than the life of the assets to which they are being compared.

Q. Mr. Wolverton states that "the IRP speaks only to capital costs for the levelization process" and indicates that only capital was real levelized in the IRP analysis. Is it true that capital was the only cost that was real levelized?

A. No. As explained in Appendix J, of the 2003 IRP, real levelizing provides for a value in beginning year's dollars which escalate through time at the rate of inflation. Because incremental resource O&M was escalated at the rate of inflation, it effectively was captured in the IRP analysis period as a real levelized cost. Fuel was not real-levelized in the IRP only due to the impracticalities of having to run the model well beyond the IRP planning horizon.

Q. Mr. Wolverton provides as UAE Exhibit 1.3 and 1.4 his example of "what happens when different market and cost assumptions are used for the out years." Do you agree with Mr. Wolverton's analysis and conclusions?

A. No. Mr. Wolverton's analysis contains several errors and, contrary to his assertion, does not "essentially replicate the method used by PacifiCorp in its NBA analysis". He also incorrectly draws the conclusion that "elements that should not be included in a real levelized cost analysis at all are significantly affecting the comparison".

Q. What errors were introduced in Mr. Wolverton's representation of the RFP methodology?

A. Mr. Wolverton incorrectly states in his testimony and labels on his spreadsheet that he analyzed the net return on a $ per 100 MWh basis. In actuality, his analysis is based on a $ per 10 MWh basis. Additionally, he levelized costs on a MWh basis, instead of MW-month basis. Because Mr. Wolverton used MWhs, rather than the MW-months used in the RFP, to account for the size difference of the various resources being analyzed he has effectively missed the reason for the RFP. The Company is seeking capacity in the RFP, not energy, as Mr. Wolverton's analysis assumes.

Further, Mr. Wolverton miscalculated how real levelization was calculated and applied in the RFP in deriving a $ per 100 MW-month value. Ignoring the issue about using MWhs versus MWs for now, UAE exhibits 1.3 and 1.4

incorrectly calculate “$ per 100 MWh” by dividing the present value of net return by total nominal MWhs, rather than dividing it by the present value of MWhs, as performed in the RFP analysis. This is mathematically incorrect. If the calculation is performed correctly, the resulting PVRR on either a MW or MWh basis over any term should be equal. This understates by more than 40% the actual present value on a $ per 100 MW- month of a Company owned resource over a bid period shorter than its life.

Another error that causes one to question the competence of Mr. Wolverton’s analysis and conclusions is in his calculation of the $ per 100 MWh cost of the “Peaking Bid” in column M of UAE Exhibits 1.3 and 1.4. His calculation takes the present value of five years of net return and divides it by the sum of ten years of MWhs. This inattention to detail is, in our view symptomatic of his general approach.

Q. Have you corrected the calculations of UAE exhibits 1.3 and 1.4?

A. Yes. They are provided as Exhibit UP&L __(MTK-1R), entitled Corrected UAE Exhibit 1.3 and Exhibit UP&L __(MTK-2R), entitled Corrected UAE Exhibit 1.4.

Q. How do the corrected results differ from those presented by Mr. Wolverton?

A. The results now show that the value of the company-owned asset is the same present value per 100 MWh whether it is evaluated over 10 years or 5 years. Again, using MWhs instead of MWs is misleading because using MWs is intended to adjust for the capacity size differences of the resources evaluated, not the output, which is accounted for in the Net Return present value.

Q. Mr. Wolverton asserts that "elements that should not be included in a real levelized cost analysis at all are significantly affecting the comparison." Is he correct?

A. No. Ironically, Mr. Wolverton's example demonstrates the reason why cost and revenue elements of the NBA outside of the bid period should be used and why using real levelized costs for all elements, including market prices, is necessary. Consider his example, in which the Company can acquire a 10-year resource or a 5-year purchase agreement. It is projected (in Mr. Wolverton's admittedly extreme example) that market prices are expected to double in year six. If the Company acquires a 5-year resource, the Company would then need to acquire additional resources in year 6. In the meantime, market prices just doubled. Clearly, the price of procuring a power agreement in year 6 will reflect the fact that market prices just doubled, and the opportunity that the Company had to procure a 10-year resource for the benefit of its customers at a lower cost would have been long gone. In this example, the only real winner of ignoring the market price projections for years 6 through 10 is the bidder, who will have full use and benefit of its resource beginning in year 6 to capture the higher market prices.

Q. Does this imply that a bidder can never win a bid against a Company-owned resource?

A. Absolutely not. If the bidder allocates the after-bid period terminal value of its asset across all years of the asset's life, then the bid period becomes more economic. Superior resources, competitively priced will be evaluated as being more valuable to the ratepayer. Pricing strategy is a critical issue behind submitting a bid. For example, Spring Canyon's bid was financially impaired because it was priced to recover all of its financing costs over the 20-year bid period and ignored the terminal value after the bid.

Q. Mr. Falkenberg's testimony contains a lengthy description of his interpretation of how the Company analyzed the NBA over 36 years. Is this description accurate?

A. No. The first error appears to be some sort of transcription error between Mr. Falkenberg's testimony and his exhibits. Mr. Falkenberg asserts that the real levelized capital revenue requirement for fiscal year 2007 is $2.8 million, which he claims is about 5% of the amount the Company will seek from customers in 2006. In fact, Mr. Falkenberg's correct number is $24.2 million, and can be found stated in Exhibit RJF/4. This error is important to note, as Mr. Falkenberg later used this figure as a basis for an argument against the Company's analysis.

Second, Mr. Falkenberg asserts that the over the first 20 years of the Currant Creek project, the NPV revenue requirement is computed as less than $34 million, compared to $120 million on a nominal basis. Thus, he concludes that PacifiCorp's real levelization method "excludes" $86 million of the cost of the NBA from the bid evaluation. As an initial matter, $67 million of this $86 million figure, even by Mr. Falkenberg's own evaluation criteria, is treated correctly. Of the $86 million quoted, Mr. Falkenberg's own exhibit shows that $67 million is directly related to capital (see Exhibit RJF/4). Mr. Falkenberg has stated in his testimony that "the use of a real levelized capital cost revenue requirement is an accepted analytical technique for dealing with resources with unequal lives".

While PacifiCorp believes and will explain why none of the $86 million has been or should be excluded, at the very least Mr. Falkenberg by his own testimony should acknowledge that $67 million of the $86 million is treated correctly, which should leave only $19 million in dispute.

With respect to the remaining $19 million, Mr. Falkenberg's testimony incorrectly implies that the real levelized revenue requirement should equate on an annual basis to the nominal revenue requirement. In fact, the calculation of nominal revenue requirements is necessary to determine the net year-by- year cost or benefit to ratepayers. In contrast, the use of real levelized revenue requirements on all components restates these nominal revenue requirements for comparative purposes and is a perfectly legitimate technique for evaluating resource options. The present value of both nominal and real levelized revenue requirement is exactly the same over the life of the NBA asset, and Mr. Falkenberg is incorrect to imply that any revenue requirement cost has been inappropriately excluded from the analysis through his misapplied comparison of segments of nominal versus real levelized revenue requirements.

Q. Are there any other examples in Mr. Falkenberg's testimony of misrepresentations regarding the comparison of nominal versus real levelized revenue requirements?

A. Yes. Mr. Falkenberg states that 100% of bidders' costs were compared to only 28% of the cost of the NBA in the first 20 years, and later in his testimony, he asserts that "the methodology used by the Company would apply this device to shift 72% of the cost of the NBA out of the first 20 years." Mr. Falkenberg's calculations are derived by dividing the 20-year real levelized net PVRR (Present Value of Revenue Requirements) by the "20-year" nominal net PVRR.

Mr. Falkenberg suggests PacifiCorp has shifted costs during the bid period to out of period by using real levelization methodology. Mr. Falkenberg apparently switches from a cost valuation to a net valuation (revenue less cost) to misrepresent the resource costs (he simply divides a small number by a big number). A simple example illustrates the way Mr. Falkenberg misrepresents the facts. Assume Project A has $200 of revenue and $210 of expense for a net of cost of $10. Assume Project B has $200 of revenue and $205 of expense for a net cost of $5. According to Mr. Falkenberg's representation, Project B costs 50% less than Project A ($5 divided $10). Obviously this misrepresents the fact that Project B actually costs only 2.4% less than Project A ($210 less $205 then divided by $210). Mr. Falkenberg's exhibit RJF/4 leaves out the detail required to perform an accurate comparison of the resource on a real levelized basis.

Q. Have you prepared an exhibit to clarify the cost comparison Mr. Falkenberg should have used in his evaluation?

A. Yes. Included with my testimony is Exhibit UP&L __(MTK-3R), which presents the same revenue requirement dollars as Mr. Falkenberg's Exhibit RJF/4, but includes additional cost component detail for real levelized revenue requirements.

Q. What does Exhibit UP&L __(MTK-3R) demonstrate?

A. It demonstrates that on a cost basis alone over the first 20 years, 98% ($1,503,449 divided by $1,533,952) of the nominal PVRR costs are included in the 20-year real levelized PVRR. In summary the correct analysis shows that 98% of the costs were included, not the 28% suggest by Mr. Falkenberg.

Q. **Do you agree with the Mr. Falkenberg's statement that "If a bidder complied with the 20-year term specified by the RFP, it would have lost to Currant Creek by $86 million (NPV). To win, the bidder would have to have offered to absorb more than 20% of the project capital costs…."?**

A. No. This statement is not true. Besides incorrectly implying that a bidder would finance it's resource as calculated in a regulated nominal revenue requirement fashion, the bidder has the full useful life of the asset to recover its costs and profits. For the first 20 years, the bidder's revenue would derive from the PPA; for the last 15 years, the revenue would come from the market. Mr. Falkenberg chooses to ignore the fact that the bidder has full access to the plant's residual value after the term of the PPA.

Q. **These witnesses contend that PacifiCorp inappropriately applied the real-levelization technique by taking into account future variable costs and revenues past year 20. Why is it appropriate to take future variable costs and revenues past year 20 into account?**

A. In the RFP process, PacifiCorp was committed to evaluating proposals using a Present Value Revenue Requirement (PVRR) perspective. This means that PacifiCorp needed to determine, using a PVRR analysis, what customers could expect to incur over the entire life, not just the first 20 years, of the resource alternative. Since it is undeniable that customers will have access to power from Currant Creek in years 21-35 of its life, Mr. Wolverton's suggestion that we ignore the value associated with this later time period in our analysis is not, in our view, a valid suggestion. Real-levelization is an appropriate and accepted industry practice for dealing with the difficult problem of analyzing resource alternatives of unequal terms. PacifiCorp believes it is entirely appropriate to take into account variable costs and revenues for the entire term of the alternative being analyzed. The use of variable costs and projected revenues in the real-levelization process is entirely appropriate and in the best interests of customers.

Q. Mr. Falkenberg states "Assuming all bidders were allowed a fair and equal opportunity to bid for a term equal to the life of the NBA, but chose not to do so, then PacifiCorp's approach does not produce a mathematical bias." Is a mathematical bias contingent upon a bidder having a "choice" to bid for a longer period?

A. No. Mr. Falkenberg's statement does not make sense. He is confusing a bidder being allowed to choose a bid period, regardless of the period chosen, with whether an analysis methodology is valid or not. PacifiCorp is confident that they have chosen an analysis methodology that is unbiased in evaluating the financial merits of proposed bids against each other and against the NBA, regardless of the length of the bids. A bidder's ability to choose the period of their bid does not affect the integrity of the analysis methodology.

Q. Mr. Falkenberg states that if bidders had been asked to bid for 36 years, the cost of the NBA would have increased by $86 million. Is this a correct statement?

A. No. The cost of the NBA is not dependent upon the length of the bid. The cost of the NBA is the same over its full 35.75 year operating life. Because PacifiCorp uses an appropriate real levelized methodology, the $ per 100 MW-month value for the NBA does not change based on the length of the bid period. The $ per 100 MW-month value is the same for a 20-year period as it is for a 36-year period.

Q. Do you agree with Mr. Falkenberg's claim of $21 million of serious errors in favor of the NBA?

A. No. His testimony describes an evaluation approach that is flawed, limited in scope, and not applicable to the more complex circumstances of the RFP. Further, Mr. Falkenberg provides no detail in Exhibit RJF/4 to substantiate his claim.

Q. Please explain.

A. Mr. Falkenberg states that real levelization is only applicable for capital costs. He then creates a scenario where real levelization can be applied to the decision to delay a plant for one year. He describes an analysis in which a 20-year plant could be built in the first year (Plan A), or the exact same 20-year plant could be built in the second year with the first year's power need made up from purchase power (Plan B). The only difference between the costs of the two would be one year of inflation. He then states that the 20-year plant would have the exact same operating costs and revenue credits each year except the first and last. He then claims that the "use of real levelization technique provides an elegant solution to this vexing problem." PacifiCorp certainly agrees that real levelization is an elegant solution to this vexing problem. Because all plant operating costs and revenues are the same, they cancel out in every year except year 1 and year 21.

(Not coincidently, because the operating costs would escalate at an inflation rate, the year 1 and year 21 operating costs would be the same as year 1 and year 21 of the real levelized operating cost.) Likewise, the value of the power produced in year 1 in Plan A and year 21 in Plan B would have the same value as the power purchased in those years, so those values cancel out as well. Thus, the only "vexing problem" in this scenario is deciding how to account for the 1-year mismatch in capital, which real levelization handles quite nicely. Because Mr. Falkenberg's scenario assumes a 20-year plant versus a 20-year plant, his simplified analysis can simply ignore the more complex issues associated with analyzing a 35.75-year resource with a 20-year resource.

Q. What is unique to the RFP situation that requires more analysis than just a simplified approach of levelizing capital?

A. The following are some of the RFP characteristics which show why the RFP evaluation requires an approach different than the simplified approach Mr. Falkenberg presented.

- the NBA CCCT has a life of 35 years;
- the bids to which the NBA is compared may or may not have a life less than 35 years;
- although some resources may appear to be similar, each resource has its own unique MW capacity, heat rate curves, O&M pricing structure (either by stated bid or projections, in the case of the NBA), capacity payment or capital cost, financing rates (either implicit in the bid, or through PacifiCorp financing), fuel cost, etc.; and

- each resource uniquely dispatches into the market, possibly at different times based on heat rate, operating costs, operating hour limitations, etc. Associated with the different dispatch is the resulting different value of power produced.

Q. Does Mr. Falkenberg's simplified methodology adequately address these issues?

A. No, it does not. The RFP is a net margin calculation as described earlier in my testimony. Therefore, it must consider all components of the net margin PVRR. Unfortunately, because the revenues and expenses are so unique to every resource, whether PPA, turnkey or NBA, these revenue and expenses do not just cancel each other out. Additionally, because the NBA provides power up to 35.75 years, the value of the years beyond the bid period are just as important to recognize as the need to recognize the capital cost beyond the bid period. To do otherwise would eliminate the consideration of a valid cost or benefit of an asset dedicated to serving the ratepayers, and ignoring these outer period benefits is grossly incorrect. Just as using real levelization is appropriate for capital, so is using real levelization appropriate for the other components, revenue and operating expenses.

Q. Mr. Falkenberg presents a hypothetical analysis of how PacifiCorp would analyze a 1-year delay in plant construction in his exhibit RJF/5. Do you agree with his representation?

A. No. It appears that his written description of how he would analyze the situation is more accurate than his actual analysis. His analysis inaccurately assumes that the RFP analysis is similar to this simplified scenario. Second, he makes incorrect representations of how PacifiCorp would treat such an analysis. Third, in both Schedule 1 and Schedule 2 of his exhibit, he compares net margin (expenses minus revenue credits) against expenses only. There may be other errors as well, but the inaccuracies described so far, illustrate the problem with Mr. Falkenberg's exhibit.

Q. Mr. Graeber states that "the single most important issue that insurmountably favors Currant Creek is PacifiCorp's skewed analysis of Bid 135 on a 20-year operating basis against Currant Creek's operations over a 38-year period." Please comment on this assertion.

A. Mr. Graeber fails to recognize that the plant being bid in number 135 has value beyond the bid period which will inure to the sole benefit of Spring Canyon's owners without any associated financing costs. Spring Canyon could have offset the capital cost of their plant with the value beyond the bid period which would have resulted in a more competitive offer. He also misstates the operating life of Currant Creek as 38 years, but it is actually 35 years from the time the Combined Cycle CT is in service, for a total of 35.75 years when including the Simple Cycle operations.

Q. But doesn't PacifiCorp's real levelization of costs and revenues "even out the tremendous advantage that comparing a 20 year contract to a 38 year plant amortization gives PacifiCorp" as stated by Mr. Graeber?

A. Yes. Appropriately allocating costs and revenues over the life of the NBA through real levelizing will appropriately reflect the comparative economics of a longer life asset over the bid period. Bid strategies designed to recover costs in an accelerated fashion will result in an uneconomic bid.

Q. Mr. Banasiewicz paraphrases from the IRP, Appendix J, that "the use of the Real Levelized Revenue Requirement methodology is a legitimate method to analyze different types of resource assets with different design lives", and therefore cannot be used on similar type assets with similar design lives, such as Currant Creek and the Spring Canyon project. Do you agree?

A. No. Mr. Banasiewicz is misinterpreting the explanation provided in Appendix J regarding some appropriate uses of real levelization, particularly as applied within the context of the IRP. Appendix J is not intended to be all-inclusive of every conceivable situation in which real levelization is appropriate or useful. Sound judgment, like everything in life, is still required. It's like saying that because someone tells you a pick-up truck is good for hauling boats it can't be used unless you are going to the lake.

Contrary to Mr. Banasiewicz' assertion, the analysis comparing Spring Canyon's bid 135 to Currant Creek is not an asset to asset comparison. Currant Creek is an asset, to be owned and operated for the benefit of the ratepayers over its 35.75-year life. Spring Canyon's bid is a 20-year agreement, or option if you will, that Spring Canyon has created, backed by an asset, and priced based on Spring Canyon's perceived construction cost, operating cost, financing cost, and profit expectations. It should be noted that Appendix J does address comparing an asset to market purchases. Bid 135 is a market purchase in the form of a PPA.

Q. Spring Canyon quotes the IRP that the design life of a combustion turbine is 25 years, therefore Currant Creek's life should be limited to 25 years. Is the NBA inconsistent with the RFP?

A. No. The 25-year life in the IRP referred to is specifically designated as a simple cycle combustion turbine, not a combined cycle CT. Currant Creek's combined cycle combustion turbine life is consistent with the 35-year life used in the IRP.

Q. Given all the complaints about real levelization by Messrs. Wolverton, Falkenberg, Graeber and Banasiewicz, would the decision to build Currant Creek have changed if the plant were valued under the assumption that it had a useful asset life of 20 years including recovery of capital costs.

A. No, even under a 20 year valuation analysis Currant Creek would have remained the most economic alternative. Exhibit UP&L **__**(MTK-10R) clearly shows Currant Creek as the most economic resource on either a 20 year or 35 year basis. This despite the fact that it is highly unlikely that the Commission would authorize this form of accelerated cost recovery.

<u>Development of the Forward Price Curves used in the RFP Analysis</u>

Q. Can you briefly describe the Midas model and the methodology used by PacifiCorp to create its power and natural gas forward price curves?

A. Midas is an hourly, chronological dispatch model that PacifiCorp licenses from MS Gerber to forecast long range market prices. PacifiCorp's long range forecast consists of forward market prices for the first three years, a blend between forward market and Midas prices for the next three years, and Midas prices exclusively through 2020. Beyond 2020 an escalation of 3% is applied.

Q. Mr. Falkenberg claims there is a discrepancy between the Midas model results and the Company's representation of Currant Creek. Is he mistaken?

A. He is mistaken and he was warned of this mistake in the Company's response to data request CCS6-13. In that response the Company cautioned that the Midas model should not be used to represent the operation of any particular generating unit, which is exactly what he has done. He makes a similar mistake drawing conclusions regarding Currant Creek duct firing operations from Midas results.

Q. Why is he in error in this regard?

A. As the Company pointed out to him in response to CCS 6-13, the Midas model was used in this case solely for the purpose of projecting long-range market prices. Used in this fashion, the model identifies the operating costs of generating units that are on the margin in each hour in each relevant market, which reasonably represent market clearing prices. However, because there are thousands of generating units modeled in the Western System, the model makes simplifying assumptions as to their operations. The model also makes simplifying assumptions regarding the addition of new generating capacity in the future. While these simplifications speed up analyses considerably, they do not detract from the model's ability to properly identify the marginal units and market prices.

Q. Then was Mr. Falkenberg in error by concluding that the Midas model predicts a 67% capacity factor for Current Creek operations?

A. Yes, on two counts. First, for the reasons explained above, Midas results he used should not be relied upon for a forecast of any particular unit's operation. Second, he has selectively sampled Midas results to represent the capacity factor results shown in CCS Exhibit RJF/2.

Q. How so?

A. He represents that the CCCT annual capacity factors in the second column of CCS Exhibit RJF/2 represent predictions for "a new Utah combined cycle plant" (CCS 2D Randall Falkenberg, page 12, lines 9-10). In truth, the numbers in his exhibit represent the average capacity factors of only certain CCCT units that Midas simulates for Utah. For example, he lists 49.1% capacity factor for 2009, while two other generating units operated at 66.3% and 90.8%. On average, the model shows units with average annual capacity factors ranging from 68% to 91%. Exhibit UP&L __(MTK-4R) compares the annual capacity factors of each Utah CCCT unit represented and their averages with Falkenberg's selected results.

Q. Did Falkenberg err in his claim that peaking units in Midas with 3% capacity factors calls PacifiCorp's Current Creek duct-firing assumptions into question?

A. He did. Again, in its long-range price forecasting mode the Midas model should not be relied upon as for a forecast of any particular unit's operation. Moreover, Falkenberg erred in equating the operating costs of peaking units to those of duct-firing capacity. The heat rates of simple cycle combustion turbines in Midas have heat rates of 10,233 and 12,176 Btu/kWh while Currant Creek's duct firing heat rate is in the 9,300's. In addition, the CT's in Midas have variable O&M costs of between $3 and $4/MWh which are also properly included in running costs, whereas duct-firing capacity has little or no variable O&M (for example

PacifiCorp calculates $.10/MWh for Currant Creek duct firing O&M). Considering these differences, the running cost of CTs in Midas is in the range of $45 and $52/MWh assuming $4/MMBtu gas, whereas the running cost of duct-firing is $37/MWh. The CTs' running costs are between 22% and 40% higher than duct firing.

Q. Is Mr. Falkenberg incorrect in his assertion that Midas model results suggest resource additions are not needed in Utah before 2008?

A. He is incorrect again in drawing such conclusions from Midas model results. Midas determines new capacity needs from a broad regional perspective, not from detailed utility and constrained geographic perspective. The simplified resource adequacy criteria employed in Midas cannot replicate a more detailed analysis such as an integrated resource plan for each entity in the WECC, and it need not do so in order to produce reasonable long term price forecasts. It should be obvious that PacifiCorp's IRP and economic analysis of the NBA and RFP bids should be the authoritative and definitive sources for such conclusions.

Q. Does Falkenberg draw flawed conclusions from his erroneous assumptions provided in his testimony?

A. He does. He concludes from erroneous assumptions that there are illogical inconsistencies between Midas results and subsequent analysis when there are none. In fact, his erroneous assumptions are the source of the inconsistencies he cites. He also concludes that there may be errors in the Mona price basis adjustment from the erroneous assumptions.

Q. How does PacifiCorp develop Mona prices from Midas results?

A. PacifiCorp uses Midas results for the Palo Verde trading hub and then applies a market price differential between Palo Verde and Mona.

Q. Do Midas model results present a reasonable projection of future prices at major western market points?

A. Yes, they do. PacifiCorp relies on these price projections for all of our financial analyses and SEC accounting/reporting purposes. Our forward curves are subjected to rigorous review by our own independent Risk Management organization and auditing by our external auditors each quarter.

Q. How does the forward price curve in years 1-20 compare to that in 21-35?

A PacifiCorp has prepared Exhibit UP&L __(MTK-5R) which shows annual prices for several different power delivery patterns out 35 years. As can be seen, the escalation rate in years 1-20 is quite comparable to the escalation rate in years 21-35.

Q. Mr. Wolverton believes it is imperative to assess the differences between market prices and production costs over the long haul since production costs will have a significant impact on market prices. Did PacifiCorp perform this assessment?

A. Yes. Such an analysis is inherent in the tool that PacifiCorp uses to produce our long-dated forward prices. The Midas model that PacifiCorp uses performs just such a fundamental analysis in assessing future pricing and is appropriate for production of forward prices.

<u>Use of Multiple Models to Evaluate Resource Alternatives in the RFP</u>

Q. Can you comment on the claims by Messrs. Olive and Banasiewicz that the Company used one model for valuing the NBA (Currant Creek), and an entirely different model for all other bidders?

A. This claim is absolutely false. All build/turnkey bids were evaluated using a build/turnkey model (NBA model modified for the respective offer), while all PPA bids were evaluated using a PPA model.

Q. Why are two models necessary?

A. Two models are necessary due to the nature of PPAs versus that of a build/turnkey bids. PPA bids most often have defined delivery patterns (5x8, 6x8, 7x16, 7x24, etc), varying levels of firmness, and capacity offers expressed on a demand or rateable basis over the life of the PPA. As a result, an extremely flexible model is needed to value all of these bids with varying inputs. Build/turnkey bids do not have defined patterns, are unit contingent, and have capacity offers expressed in an upfront cash payment. This upfront cash payment along with associated return, depreciation and tax effects must to be levelized over the life of the plant when placed into rate base. In summary, two models are needed because the structures and economics of PPAs are entirely different than owning the asset thru either a self-build or turnkey build.

Q. Do the two models produce completely different results?

A. Absolutely not. The two models produce component PVRR results that are within 5% of each other. PacifiCorp has prepared Exhibit UP&L __(MTK-6R) which shows the result of DPU Data Request 2.5 which was a request to compare the result of the NBA from the build/turnkey model with the result of the NBA from the PPA model.

Q. Why are the results so close if the models are different?

A. Both models utilize identical forward price curves, hourly scalars, dispatch logic, capacity & heat rate degradation logic, reserve cost logic, and plant availability logic. In summary, all inputs into the models are the same and the fundamental logic behind the models is the same. Therefore, it's not surprising that the results of the models are extremely close.

Q. Is it true that the PPA model dispatches against one price, such as 7x8, 7x16, or 7x24, while the Build/Turnkey model dispatches against three 8-hour block prices, 7x8 (HE 7-14), 7x8 (HE 15-22), & 7x8 (HE 23-6)?

A. It is true that the PPA model dispatches against one price, while the Build/Turnkey model dispatches against three prices.

Q. In the case of a PPA that has a defined delivery pattern as 7x16 (HE 7-22), doesn't the additional 8 hours of dispatch used in the Build/Turnkey model favor the valuation of Currant Creek?

A. No, the additional hours dispatched in the Build/Turnkey model actually hurts the economics of Currant Creek as compared to a 7x16 PPA. The simple reason is that CO_2 costs are taxed after dispatch and the spark-spread margin (the spread between the market price of energy and the incremental cost of producing the energy) in hours ending 2300-0600 (graveyard) applied to the Build/Turnkey model do not cover the full cost of the CO_2 tax. If we limit the Build/Turnkey model to dispatch over the 7x16 block only, while disabling the ability to run during the graveyard hours, the economics will improve for the very reason stated above. PacifiCorp has prepared Exhibit UP&L __(MTK-7R) which shows that the economics of the NBA in the Build/Turnkey model without dispatch limitations are worse than the economics of the NBA in the Build/Turnkey model when limiting dispatch opportunities to a 7x16 block only. The Build/Turnkey model yields a conservative result by penalizing Currant Creek due to overall uneconomic dispatch during the graveyard hours.

Q. Even if Currant Creek doesn't run during the graveyard hours, won't dispatching over two 8 hour blocks (HE 7-14 & 15-22) benefit the Build/Turnkey model relative to the PPA model which may be dispatching over a single 16 hour block as Mr. Olive asserts?

A. No. Given that the two 8 hour blocks are broken down into two unit contingent prices, while the PPA model only has one unit contingent price, the PPA model actually has a higher 7x16 price to dispatch against as compared to the effective 7x16 price in the Build/Turnkey model. PacifiCorp has created exhibits Exhibit UP&L __(MTK-8R) and Exhibit UP&L __(MTK-9R) which show that the unit contingent 7x16 price in the PPA model is slightly higher ($.48/MWh on average) than the effective Build/Turnkey model's 7x16 unit contingent price. This effective 7x16 price can be calculated by averaging the unit contingent 7x8 (HE 7-14) & 7x8 (HE 15-22) unit contingent prices. As a result, the spark spread is higher for the 16 hour block used in the PPA model than the two 8 hour block used in the Build/Turnkey model. Mr. Olive's assertion is just plain wrong.

Comparability of Resource Options

Q. Before you address specific issues raised by Messrs. Wolverton, Falkenberg, Graeber, Olive and Banasiewicz would you please provide a general response to the comparability of resource issue?

A. A basic premise in choosing the least cost option in the RFP was selection on a best net margin basis. PacifiCorp identified a capacity shortage not an energy shortage so the appropriate method to compare resources is on a capacity basis. For this reason PacifiCorp used a net PVVR per 100 MW – month basis to perform the evaluations and make the selections. For every bid submitted, PacifiCorp made all reasonable efforts to maximize this metric on behalf of the bidders by maximizing the difference between revenues (economic sales against market) and all costs (capacity, fixed, variable, fuel, transmission, etc.).

Q. Can you explain how PacifiCorp maximized this metric on behalf of the bidders?

A. Yes, PacifiCorp looked at different delivery patterns for electricity (7x16, 7x24, 7x8, etc.) that maximized the market revenue while minimizing the variable, fuel and carbon costs. It's for this reason that the final delivery patterns that determined each bid and resource net PVVR per 100 MW-month basis differ. Real levelization methodology fits determination of this metric for very well for all types of resource comparisons.

Q. Is this method for comparing resources robust enough to handle differences between simple-cycle combustion turbine resources or variety of other resources and combined-cycle combustion turbine resources?

A. Yes. Remember for the peaker category, PacifiCorp was seeking the least cost resource alternatives that had an online date by June 2005 and were fully dispatchable on a daily basis at PacifiCorp's option. To the extent that all resources met these criteria they could be compared on a best net margin basis as measured by net PVRR per 100 MW- month basis. It is to the benefit of PacifiCorp's customers that the most efficient least cost resource be selected. Resources that have lower running costs and dispatch more economically will provide greater benefit to PacifiCorp's customers and as expected these resources will score higher than less efficient resources. In summary, simple cycle combustion turbine resources as well as other resource alternatives can compete against combined cycle gas turbine resources if their all-in costs reflect the fact they may not dispatch as much as a combined cycle plant.

Q. Who has control of the costs used to evaluate the resources and bids?

A. Each bidder in the RFP had direct control of the costs submitted for evaluation. PacifiCorp gave each bidder ample opportunity to clarify these costs.

Q. How do you respond to Mr. Wolverton's comment "The nature of PacifiCorp's NBA makes it difficult to analyze bids that offer only a portion of what the NBA offers. In particular, it is extremely difficult to analyze a peaking bid against the NBA and provide a meaningful comparison of options. A comparison of the NBA against solely peaking proposals (or, for that matter, against solely base-load proposals) is a significant analytic challenge. PacifiCorp's approach does not meet that challenge"?

A. PacifiCorp's IRP identified a capacity need in Utah in 2005. The IRP provided a clear analytic method to handle different asset lives. PacifiCorp's RFP and subsequent pre-bid conferences provide clear information on how the bids would be evaluated. The evaluation methodology described above removed any analytic challenge in providing meaningful comparisons of the options. Mr. Wolverton's statement is wrong.

Q. Can you respond to Mr. Wolverton's statement that PacifiCorp should have looked at a combination of peaking bids and baseload bids and compared that outcome to the NBA?

A. To perform the analysis suggested by Mr. Wolverton would require that PacifiCorp look at a minimum of 1,484 combinations (28 peaker, and 53 baseload bids). If PacifiCorp had to analyze each bid with three different delivery patterns (7x16, 7x24 and 7x8) in each bid category (13 superpeak, 28 peaker and 53 baseload) the number of combinations exceeds 7.18 trillion. Mr. Wolverton's suggestion is incredible, impractical and beyond belief.

Q. Witnesses for Spring Canyon, the Committee, and UAE express concern that the NBA model allows the resource to dispatch for a large number of hours in a year. Should this be a concern to the Commission?

A. No. The NBA model contains a variety of dispatch regimes that can be utilized to evaluate the NBA or any asset-based offer. The Company chose to use the "7X24" dispatch regime which allows the NBA resource to dispatch all hours it is deemed economic. Contrary to the implicit criticisms of the interveners, this regime is not the regime that produces the optimal PVRR for Currant Creek. The seven day per week, 16-hours per day regime ("7X16") produces the optimal PVRR for Currant Creek. For example, under the 7X24 regime, the PVRR for Currant Creek is ($68,298) per 100 MW-month. However, under the 7X16 regime, the PVRR for Currant Creek is ($63,448) per 100 MW-month, a 7.6 % improvement. The improvement is due to limiting dispatch to only those hours when economic to do so when the cost of CO2 is included in the overall evaluation. PacifiCorp chose the 7X24 regime in order to provide a conservative view of the Currant Creek economics. Representatives from Spring Canyon and the consultants for the Committee (Mr. Falkenberg and Mr. Hayet) were informed of this during various technical work sessions. This is but one of several examples of PacifiCorp applying conservative assumptions to the economic analysis of the NBA.

Q. Spring Canyon witness Banasiewicz claims that the PVRR of Currant Creek is overstated due to the Build/Turnkey model dispatching the duct fire capacity beyond the air permit limit of 3,500 hours per year. Does dispatching the duct fired capacity beyond the air permit hour limit improve the PVRR of Currant Creek?

A. No, for the very same reason as stated above. Limiting the duct fired capacity of Currant Creek to dispatching 3,500 hours per year, improves the Currant Creek economics.

Q. Spring Canyon witness Banasiewicz states in his testimony that PacifiCorp used incorrect input values in evaluating bid 135. Two such inputs were

output and heat rate. Does Mr. Banasiewicz's corrected output and heat rate levels seem reasonable?

A. No. The revised figures Mr. Banasiewicz provided, which vary by month, have a pre-degradation annual average output of 434 MWs, and an annual average heat rate of 6,948. Referring back to Table 1 of Section 2 of Spring Canyon's bid 135 response, the new figures provided by Mr. Banasiewicz would have you believe that the annual average ambient temperature at their proposed plant three miles west of Mona is below freezing.

Q. Mr. Banasiewicz states in his testimony that the two facilities (bid 135 and Currant Creek) utilize identical technologies, and that similar plant availability will be achieved by both units. Assuming the plant availability proposed in Mr. Banasiewicz's testimony, do his revised figures improve or impair the economics of the NBA?

A. Using the revised plant availability information provided by Mr. Banasiewicz improves the economics of Currant Creek. PacifiCorp used a lower, more conservative value for plant availability at Currant Creek.

Q. Taking into account all the arguably valid changes Mr. Banasiewicz's claims should be made to both bid 135 and Currant Creek, what are the new $PVRRs per kW-mo for each?

A. For bid 135 the resultant PVRR is ($1.69)/kW-mo and for Currant Creek ($.64)/kW-mo. Please see Exhibit UP&L __(MTK-11R)**.** Even with these after-the-fact, assertions by Spring Canyon, with which PacifiCorp does not agree, Currant Creek is still clearly the most economic option.

Q. Mr. Falkenberg contends that PacifiCorp assumed Current Creek to operate at a high capacity factor (87%) while evaluating bidders against much lower capacity factors. Was this the case?

A. No. As the Committee and its consultants were informed (Mr. Falkenberg included), the PPA model has a high level of flexibility. This allowed PacifiCorp to model proposals under a variety of dispatch scenarios. As validated by Navigant, PacifiCorp chose the dispatch regime that provides each proposal with the most economical PVRR. In contrast, PacifiCorp chose a 7X24 dispatch scenario for Currant Creek even though Currant Creek's PVRR is more economical with at 7X16 dispatch regime. This was done to provide a conservative view of the economics surrounding the NBA.

<u>Use of a Production Cost Model for Resource Selection</u>

Q. Can you address concerns by Mr. Falkenberg about PacifiCorp's evaluation methodology and the fact that a production cost model was not used in the evaluation?

A. As Mr. Falkenberg is aware, PacifiCorp's IRP methodology used a production cost model to establish the most economic resource portfolios. The production cost model used in the development of the portfolio took into consideration all the factors that Mr. Falkenberg claims were neglected in the actual RFP modeling. These factors include: loads, reserves, transmission constraints, presence and absence of other units on the system, unit start-times, unit ramp rates, etc. The results of these modeling efforts were identification of two resource categories required to meet pending Utah capacity needs. PacifiCorp's 2003A RFP was a direct outcome of the IRP modeling process. The peaker category addresses capacity needs in 2005 and the baseload category addresses capacity needs in 2007. Therefore, Mr. Falkenberg's claim that a production cost model was not used is inaccurate; it was the foundation for the RFP 2003A solicitation.

Q. Is it practical to use a production model to evaluate every bid received in the RFP?

A. No, it is not practical and would not lead to a different outcome. PacifiCorp received over 100 bids for evaluation over a three week period. There was not sufficient time to evaluate each bid and model every single parameter required for a production cost model run. Further a production cost model looks at dispatch of the resource on an hourly basis. Using a production cost model after the resource timing and requirements had already been determined through the IRP modeling effort is not necessary due to the robust nature of PacifiCorp's NBA and PPA models.

Q. Beside time constraints are their other problems associated with using production cost models for this type of analysis.

A. Yes. Model transparency and ease of use are the likely issues with RFP bidders. Production cost models like the Build/Turnkey and PPA models still require parameter entry and assumptions about the resource and system affected. A production cost model, like the Build/Turnkey and PPA models, requires entry of forward price curves for power and gas. Given the apparent difficulties that certain RFP bidders had in understanding the spreadsheet models, the use of a production cost model would only have exacerbated the problem. Production cost models are simply not as transparent as spreadsheet models. In this RFP process, PacifiCorp tried to use a modeling approach that interested third parties could access, understand and validate. For this reason alone, use of a production cost model would have been unworkable as interveners would have had little hope to review the underlying evaluation in order to confirm PacifiCorp's results.

Q. Does this conclude your testimony?

A. Yes.