In the Matter of the Application of PacifiCorp for Approval of an IRP-Based Avoided Cost Methodology for QF Project Larger Than One Megawatt

Docket 03-035-14

DPU Exhibit 2.0SR

Surrebuttal Testimony of Andrea Coon
Division of Public Utilities

September 19, 2005

Q. Please state your name and the party you represent.

A. My name is Andrea Coon. I represent the Division of Public Utilities (Division).

Q. Have you previously filed testimony in this matter?

A. Yes. I filed direct testimony on behalf of the Division on July 29, 2005 and rebuttal testimony on September 8, 2005.

Q. What is the purpose of this surrebuttal testimony?

A. The purpose of this surrrebuttal testimony is to respond to the rebuttal testimony filed by various intervening parties on September 8, 2005.

Q. In what order will you respond to the interveners?

A. The Division will first address Wasatch Wind witness Collins, followed by UAE witness Henry, US Magnesium witness Swenson, and then address a few comments regarding the position taken by Committee witness Hayet.

<u>Wasatch Wind</u>

Q. First, in Wasatch Wind witness' Dr. Collins testimony, he refers to a data response in which the Division listed five scenarios that were run by the Division. Did the Division make a correction to this data response?

A. Yes, due to a miscommunication among Division personnel, I believed that the information requested by Dr. Collins had been deleted when the Division "rebooted" GRID the first time. The response reflected what I believed to be true at that time. Last week, I discovered that a backup disk existed and can list off the scenarios that were run. The Division made 6 runs prior to the first "crash" of the GRID due to inadequate memory. These runs were: Pre-Dispatched 2005-2014, Pre-Dispatched 2015-2025, Standard Mode 2005-2014, Standard Mode 2015-2025, Standard Mode with Normalized Hydro

2005-2014, Standard Mode with Normalized Hydro 2015-2025, Type I-II 2005-2014, and Type I-II with Normalized Hydro 2005-2014. In addition, the Division ran a scenario meant to look at a 5 MW resource, but the GRID did not finish the run, as it had a hard drive failure and had to be returned to PacifiCorp for repairs.

Q. In Dr. Collins testimony, he states that because the Division has made only five runs of the GRID model for this case, they have insufficient evidence to support its use. Does the Division agree with this assertion?

A. Absolutely not. The Division is a little surprised that Dr. Collins would make such an assertion for several reasons. First, Dr. Collins apparently believes that the Division operates in a vacuum. Otherwise, why would we disregard the work on vetting the model done by other parties in this case as well as in earlier dockets during which previous iterations of this model were used? There were technical conferences and data requests that led to an exchange of information between the parties in this docket. The Division possesses runs requested or made by PacifiCorp, the Division, the Committee, the Wind Projects, and Spring Canyon and has examined each of these runs. Each of the major parties has an analyst doing work on the GRID. The Division sees no reason to disregard the work being done by such analysts as Mr. Hayet of the Committee or Mr. Swenson from US Magnesium and the Wind Projects. Particularly given the time constraints that the Division and other parties were facing in order to file testimony by the due date, it would have been a poor use of time for the Division to undertake to redo the work being done by these other parties.

Second, it is unclear to the Division what method was used to reach a statistically significant number of 30. The Division is just not sure what the point would have been. Although I myself am not a statistician, I consulted colleagues within the Division who are more expert in the field of statistics as to what the purpose of running 30 runs would have been. It was the opinion of these experts that the reason to run 30 runs would have been to build a

distribution. It was also their considered opinion that the time to have been running a statistical analysis was when the model equations were being developed, not when testing the model for logical consistency. The Division looks at this model as an optimization model. As such, the model is meant to minimize power costs subject to the system constraints as shown in the model. Optimization, by its very nature, is a mathematical problem, not a statistical one. Therefore, the Division rejects this criticism as unfounded and immaterial. Dr. Powell discusses this issue in more detail in his surrebuttal testimony.

Third, I am not sure why Dr. Collins would expect the Division to ignore several years of use of the GRID model. To the best of the Division's knowledge, GRID has been used in several dockets over the past 4 years, including two rate cases and the MSP process (in which multi year scenarios were run). During the last rate case, for example, the same Division analysts working on this case ran nearly three-dozen scenarios. A Division analyst and an outside consultant did similar work for the rate case proceeding. These runs are all in addition to the runs for MSP, the rate cases, and this docket made by other parties. Ignoring previous knowledge or experience would have been irrational.

Q. Dr. Collins states that the Division's goal of looking for logical consistency is hampered by a lack of a "null hypothesis or apriori criteria." Does the Division agree with this assessment?

A. Absolutely not. What the Division was testing for was a logical outcome given the inputs. It is not difficult to look for a logical outcome given some change in assumptions. For example, if one was to change the output at the hydro facilities owned or operated by PacifiCorp, power costs would either increase or decrease based upon the manner in which hydro output changes. If you assume an adverse federal decision and permanently decrease the capacity of a hydro facility, it is logical to expect power costs to increase. This is logical because the Company's hydro facilities are low-cost facilities.

Decreasing the capacity available from such a facility would lead to greater use of thermal resources, which generally carry greater costs. The manner in which the thermal facilities were affected would depend upon how much transmission was available to transfer thermal power from east to west. It would also depend on market prices, whether the power could be purchased on the market for less or more than the cost of wheeling power. Looking for logical consistency would entail examining the manner in which the system is dispatched given the new constraints. It would be logical to see increasing power costs with higher levels of market purchases from either COB or Mid-C as well as increased thermal generation and higher wheeling costs. If something other than the changes that are expected occurs, then the analyst would need to determine whether the results made sense. This is a very non-specific example, but I hope that it demonstrates that knowing the internal equations is not a necessary condition for determining logical consistency. The Division believes that determining logical consistency of this complex model is best accomplished by using knowledge of the system and some good old-fashioned intuition rather than dissecting the equations.

Q. Another of Dr. Collins' complaints is that the Division has not run a wind scenario. Is this accurate?

A. Yes. The Division did, however, request from PacifiCorp a run for a 50 MW wind resource. It was provided on June 20, 2005 as DPU informal 3 and detailed in response to CCS 12.1 on August 11, 2005. The run was for a 50 MW wind resource in the eastern control area using the attributes from PacifiCorp's Foote Creek facility. So, although the Division did not perform the run, due to some computer problems, the run was performed and the information was available for the various parties to examine. In addition, the Division has also received 2 additional wind runs from PacifiCorp. The first is an additional 50 MW run, the second is a 99 MW run, both using the attributes of PacifiCorp's Foote Creek facility.

Q. Dr. Collins seemed to claim that because PacifiCorp is the only utility in the country to use GRID, there aren't any consulting firms that are "up

to speed on the workings" of the model. Does the Division have any evidence to indicate that this is incorrect?

A. Yes. The Division knows of at least five consultants or firms that would need very little training in order to "come up to speed" on using GRID. Two of these consulting firms have this docket to thank for their experience with the model. The Division and the Committee have both used consulting firms either in this docket or in past dockets during which GRID has been used. In addition, although I have not conducted a statistically significant survey, I know that at least some parties in PacifiCorp's other large jurisdictions have used consultants in past rate cases using GRID as well. So while the Division will admit that the field of consultants that are "up to speed" on GRID is limited, we also believe that if a Utah QF wants a consultant that has some experience with the model there are two Utah based firms that could provide one.

Q. Dr. Collins has determined that PacifiCorp should pay for the cost of training QF developers to use the GRID. Does the Division agree with this determination?

A. Not entirely. While the Division would agree to having regularly scheduled training sessions on the GRID, say semi-annually, we believe that the developers should pay some nominal fee to defray the costs of this training that would otherwise be picked up, in the end, by ratepayers. A nominal fee would also insure that only serious developers would either attend or hire a consultant to attend the training.

Q. Dr. Collins outlined why he disagrees with your agreement with PacifiCorp's suggested adjustments. Would you care to respond to his criticisms?

A. Yes. Dr. Collins may have not appreciated that my testimony was mainly concerned with thermal generation. Note that I deferred an issue to Dr. Abdulle that would have been a direct link to wind generation and also didn't

address wind capacity payments, green tags, or really anything else having to do only with wind generation. To evaluate properly Utah's needs and means to meet those needs, it is necessary to consider thermal generation as well as wind generation. Even if all 1400 MW of wind energy contained in the IRP are obtained in PacifiCorp's system, thermal energy is still going to provide the majority of energy in the near future, especially in Utah. Therefore, in general, I left most of the renewable questions to Dr. Abdulle. As to Dr. Collins' disagreement with the proposed adjustments, I still believe that in order to make avoided costs as accurate as possible, the actual operating characteristics of the QF should be accounted for. This is reason that the Division sees for the proposed adjustments and we therefore stand by our original recommendation.

Q. Dr. Collins states that non-firm transmission should be modeled because without it the coal plants are backed down at night. Has the Division examined whether or not the coal plants are actually running all out except when down for maintenance?

A. We have. As I showed in rebuttal, the coal plants are not running all out in all hours. There appears to be a curve that follows the loads. This naturally means that in peak months, the plants run more and in shoulder months the plants run less. During shoulder months some plants may run full out, but this is usually because some other plant is down for maintenance. The Division would not be opposed to examining some reasonable compromise on non-firm transmission, but Dr. Collins, to the best of our knowledge, has not proposed one. Dr Collins has never provided the Division with any sort of evidence to show that just because there is non-firm transmission available means that there is a ready market or buyer for power, during these hours of availability, on the other end.

Q. Dr. Collins states that ignoring "non-firm transmission for off-system sales would lower avoided costs." What would including non-firm

transmission for off-system sales over a 20-year period during which neither the transmission nor the buyer might actually be available do to avoided costs?

A. It would raise them; meaning that ratepayers would be responsible for paying higher avoided costs for 20 years or more depending on the contract. As the Division stated in rebuttal testimony, we exercise caution because our recommendations, if accepted by the Commission, can have an extremely long-term effect on the ratepayers and economic well being of Utah in general. Additionally, to date, the Division has not seen any data to suggest how non-firm transmission could be taken into account.

Q. Dr. Collins states that although there are some wind resources listed in the model, "to my knowledge they are not included in the dispatch." Would you care to respond?

A. Well, the Division is unsure of why Dr. Collins would have wind resources put into a dispatch stack, since "wind resources by their very nature are not dispatchable."[1] I believe that what Dr. Collins is trying to say is that wind resources are not properly included in the model. This is true of the IRP wind resources, which PacifiCorp has indicated will be modified, but there are wind resources contained within GRID, although I believe that Dr. Collins has been unable to find them since he stated that it was his understanding that there are no wind resources contained within the model.[2] According to a conversation that the Division had with Dr. Collins on September 7th, he has been unable to run any scenarios on his own. It would also appear that he has been unable to examine the basic inputs of the model. The Division wonders why Dr. Collins would dismiss a model on which he has not performed an examination or analysis.

[1] Wasatch Wind response to DPU1.19WW.

[2] Wasatch Wind response to DPU 1.14WW.

UAE

Q. In his testimony, UAE witness Hutch Henry states that the GRID computer "cannot be connected to a printer, a computer network or the internet." Has the Division found this to be a problem?

A. Well, yes and no. Due to the memory problems and then the drive failure that we have experienced, it may have made things easier to put the model on a network. But I also understand that the reason PacifiCorp has requested that the GRID not be connected to a network, a network printer, or the Internet is due to licensing concerns over Oracle and other software contained within GRID. The Division was able to email PacifiCorp data from the GRID by means of a removable USB drive. Granted it did add some time to the process, but my computer expert estimated the time addition to be in the range of 3-5 minutes per email.

Q. Mr. Henry states that no person outside of the company has had the "time to do a complete and satisfactory validation of the model." Does the Division agree with this statement?

A. No. Although I do understand that UAE and other parties are treating this as a brand new model, this model is not new. It has been validated by use in rate cases in every state, except California, within PacifiCorp's service territory. Between the Division and the Committee, during the last rate case alone, this model was run **dozens** of times. These runs were done changing **dozens** of different inputs, sometimes one at a time to show individual input effects, sometimes changing several at a time to show cumulative effects. This is not a new model. It is a model that has been benchmarked. The details of the benchmarks were outlined in PacifiCorp's response to DPU 5.4PC. The most recent benchmark, in fact, was against the Henwood model used in the IRP. The results of this study were presented to parties during a technical conference on June 24, 2005.

GRID is a model whose inputs have been dissected, even if not all in the most recent process. The Division is not claiming to have examined every input in this iteration of the model. The time limitations as well as the memory problems and our recent drive failure associated with this iteration simply didn't allow for it. We have been, however, following the efforts of other parties in this area and are generally aware of the outcomes. Although the Division would have liked to be able to run more scenarios, the fact remains that the inputs that have been the focus of UAE and other intervening parties largely have to do with the price that comes out of the model, not the methodology. It would be the Division's expectation that the inputs would be examined carefully on a regular basis just as they are for rate case proceedings, perhaps in conjunction with the semi-annual training. But the Division does not agree that this model has not been validated. The Division does, however, agree that if this model is selected for long-term use in determining avoided costs that the intricacies of the model must continue to be examined. Every time changes are made to the assumptions, either the reason for the changes must be obvious, such as a new quarterly price forecast release, or PacifiCorp must be able to explain why the changes are being made.

US Magnesium

Q. In his rebuttal testimony for US Magnesium, its witness Roger Swenson discusses the idea that the GRID model cannot be optimizing correctly due to the addition of two base load units, one in 2009 and one in 2011. Does the Division agree with this position?

A. No. As much as we would like to believe a base load resource in 2009 would alleviate power supply needs for some time to come, the 2004 IRP indicates that not only would a base load resource (a CCCT) be needed in 2009, it also added another base load resource in 2011. At this point, the Division has not been shown a reason to deviate from the IRP resources and timing. We are,

however, eagerly awaiting an IRP update that may further address the possible timing of the IRP selected resources. At present, we have also not been convinced that changing the 2011 plant from a coal resource to a CCCT is reasonable.

Committee

Q. In his rebuttal testimony, Committee of Consumer Services witness Mr. Hayet lays out what could best be described as a compromise position on several issues. Has the Division reviewed these suggestions?

A. We have. The Division believes that for the most part Mr. Hayet's suggestions could be adopted as a reasonable compromise. The Division is still uncomfortable with the suggestion as presented for wind, for the reasons outlined in our rebuttal testimony dealing with price floors as well as issues that will be further addressed by Dr. Abdulle. The other area with which the Division has previously disagreed with Mr. Hayet is that the Division has indicated that it would be willing to consider a tolling arrangement as long as some hedge could be devised that would allow the prices being paid to the QF to simulate PacifiCorp's avoided costs.

Q. Has the Division given any more thought to what form a reasonable, transparent hedge for a tolling arrangement would look like?

A. We have. Although our proposal is not completely "fleshed out," the Division believes that it could be a reasonable method that would simulate PacifiCorp's actual avoided gas costs. First, the tolling arrangement would only be good for the hours in which PacifiCorp would be dispatching the QF. Given PacifiCorp's current load and resource mix, these hours could probably be defined as either on peak or High Load Hours. During the dispatch hours, the idea is to simulate or approximate the costs that PacifiCorp would actually be avoiding. The Division's understanding of PacifiCorp's gas procurement strategy is that around 80% of forecasted needs are purchased forward 24-36

months. This means that only about 20% of gas costs are actually being purchased in a short-term market situation. In the last rate case, PacifiCorp did file a forecast test year, in which recovery of gas costs was based upon a blend of actual contract costs and market forecast ones. These costs, as presented in documentation for the rate case, would be a simulation or approximation of the actual gas costs that PacifiCorp would be avoiding if it obtained energy from a QF rather than producing it in one of its own gas plants. The Division believes that it would be reasonable to set the gas index rate to be paid to the QF to be equivalent to that which PacifiCorp is actually recovering in order to preserve ratepayer indifference. This index rate could be reset on a regular basis, either at the same time as a rate case or at predetermined intervals, during which PacifiCorp's new contract prices and forward market prices could be blended. This method would promote transparency because interested interveners, again either in the context of a rate case or at whatever predetermined interval the Commission chose, can examine all of the contracts and the forward market price curve being used to determine the index price to be used for the next forward period. During the non-dispatch hours, the price would be set by means of a GRID run.

Q. Does this conclude your rebuttal testimony?

A. Yes it does.