Slater Consulting
P.O. Box 2449, Robbinsville, NC 28771
(828) 479-4814 Fax (810) 454-5124

March 25, 2010

Dr. Philip Powlick, Director
Utah Division of Public Utilities
Heber Wells Building 4th Floor
160 East 300 South
Salt Lake City, Utah 84111

RE: Rocky Mountain Power's Net Power Cost Request in Docket No. 10-035-13

Dear Phil:

On February 1ST, 2010, Rocky Mountain Power (RMP) filed an Application for Alternative Cost Recovery concerning two major additions — a new transmission line (Ben Lomond to Terminal) and a new scrubber for Dave Johnston Unit 3. On February 25th, Slater Consulting was engaged to evaluate and analyze Rocky Mountain Power's requested increase in Net Power Costs (NPC) that were claimed as the direct result of the Company's additions, that is, the new transmission line and the new scrubber. RMP's requested increase in Net Power Costs was originally presented in the testimony of Dr. Hui Shu, and totaled $1.6 million, or approximately $0.67 million for Utah. In response to OCS data request 3.1, the Company made a correction that reduced the NPC impact by $0.6 million. Then in response to DPU data request 2.4, Dr. Shu again corrected the NPC computations. The current NPC increase requested by the Company is $1.0 million, or approximately $0.42 million for Utah.

Terminal to Ben Lomond Transmission Segment

Although the Company claims that the additional transmission line will "increase reliability and capacity"[2], Dr. Shu finds no impact on NPC, because the new line is fully contained within one "bubble" of RMP's transmission model within GRID. In other words, the transmission modeling within GRID is not sufficiently detailed to show any NPC reductions that may result from the addition of the line. Expanding the GRID transmission modeling to show the NPC benefits from the new line would be a major undertaking, and would not be worthwhile for this purpose.

In combination with the Populus to Ben Lomond section, which is to be included in a subsequent case, the Company claims that the new Ben Lomond to Terminal line will "increase transfer capability from north to south and south to north across the Company's transmission system."[3] So presumably, the Company will present NPC reductions for the two lines as a part of the upcoming filing for the Populus to Ben Lomond transmission addition.

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[1] See line 31 on page 2 of Dr. Shu's direct testimony
[2] See lines 66-68 on page 3 of Dr. Shu's direct testimony
[3] See lines 273-275 on page 12 of Mr. Cupparo's direct testimony.

Dave Johnston Unit 3 Scrubber

Dave Johnston Unit 3 is a nominal 230 megawatt coal-fired generating unit located in central Wyoming, which has been operating under a 220 megawatt output limitation due to Wyoming sulfur dioxide emissions limitations[4]. The new scrubber on the generating unit will impact NPC in two ways — the maximum output of the unit and the heat rate (or efficiency) of the unit.

Dave Johnston 3 Output — Mr. Teply's direct testimony seems to claim that Dave Johnston 3 will be available at a higher maximum output with the new scrubber in place[5]. However, the Company's response to DPU data request 1.17 indicates that the unit would require additional capital investments to attain a maximum output in excess of 215.8 megawatts — the current 220 megawatts less the 4.2 megawatts necessary to power the scrubber. The additional capital investments are expected to be completed during the 2014 planned outage, and would increase the maximum output of the unit to 225.8 megawatts once that planned outage is completed.

Confusing the matter even further, the GRID modeling in the base GRID study establishing the NPC assumed that the capital investments discussed above would be made by May 1, 2010. So within the GRID base case, Dave Johnston 3 is shown with a maximum output of 220 megawatts in the first 10 months, and a maximum output of 230 megawatts in the last two months. Rather than correct the base case to show 220 megawatts in all months, the Company chose to model the change by reducing the maximum output to 215.8 megawatts for the first ten months, and to 225.8 megawatts for the last two months. The impact of the Company's modeling choice on the change to NPC is not material, and would likely underestimate the NPC change at worst.

Dave Johnston 3 Heat Rate — The additional power required to operate the new scrubber means that, to achieve the same level of net generation, the unit must burn additional fuel, or said another way, will have a higher heat rate. In direct testimony, Dr. Shu claimed that the "average heat rate is expected to increase by [redacted] British Thermal units per kilowatt-hour of generation."[6]

However, the original GRID results produced by Dr. Shu did not reflect the [redacted] Btu/KWh increase described in Dr. Shu's testimony. The attached chart compares the original Dave Johnston 3 heat rate curve with the revised curve used by Dr. Shu. Clearly Dr. Shu's original GRID modeling of the increase to heat rate is excessive, ranging from [redacted] Btu/KWI) to [redacted] Btu/KWh, rather than the [redacted] Btu/KWh given in direct testimony.

Dr. Shu admits as much in response to OCS data requests 2.9 and 3.1, in which she revised the heat rate impact to [redacted] Btu/KWh and reduces the total NPC impacts from $1.6 million to $1.0. Dr. Shu's computation of the [redacted] Btu/KWh heat rate increase was computed as follows:

[redacted]

Where [redacted] is the average design heat rate at [redacted] MW.

[4] See lines 29-30 and lines 40-41 of Mr. Teply's direct testimony.
[5] See lines 43-46 on page 2 of Mr. Teply's direct testimony.
[6] See lines 25-27 on page 2 of Dr. Shu's direct testimony.

However, Dr. Shu's GRID implementation of the change again fails to match the computed heat rate change. The modified heat rate curve used in GRID produces an average [redacted] Btu/KWh increase in the Dave Johnston average heat rate, as shown in the attached chart, rather than the claimed [redacted] Btu/KWh increase. The Company's response to OCS data request 5.1 states that the change to the heat rate curve is "due to Additional Aux Load of [redacted] MW and other contributions." However, there is no description of these "other contributions".

In any case, I have performed a GRID analysis using only the [redacted] Btu/KWh increase to the Dave Johnston 3 heat rate curve, which showed that the increase to NPC would be $0.98 million (rather than $1.0 million), had the Company used only the [redacted] Btu/KWh increase.

In the first revised response to OCS data request 2.8, Dr. Shu revises the heat rate impact once again, to [redacted] Btu/KWh, using the following formula:

[redacted]

Where [redacted] is the actual average heat rate experienced at Dave Johnston 3 over the four year period 2005-2008. Dr. Shu also revised her GRID analysis, finding that this final change in heat rate has no material impact on the NPC.

Conversion of Dave Johnston Unit 3 to Natural Gas

In OCS data request 4.4, the OCS raises the question of whether Dave Johnston Unit 3 should have been converted to natural gas in lieu of adding the scrubber to Dave Johnston Unit 3. The Company's response is a generic one, and does not provide any specifics concerning the unit in question. However, we agree with the Company that converting Dave Johnston 3 to natural gas would not be the preferred course.

With the scrubber, the unit has an average heat rate at maximum of approximately [redacted] Btu/KWh. Burning natural gas, the unit would have a similar heat rate, if not higher. The resulting gas unit would have average fuel costs of approximately $57 per MWh burning $5 per MMBtu natural gas. Burning coal, with the scrubber in place, the unit would have average fuel costs of under $10 per MWh, so there is an increased fuel cost of about $47 per MWh. There is a savings in CO2 production of about 0.6 tons/MWh in converting to natural gas, so to equalize the $47 increase in fuel costs, CO2 taxes would need to be approximately $78 per ton.

Looking at the conversion to natural gas from an operating perspective, the converted generating unit would have the operating costs of a peaking unit, but the operating characteristics of a base load unit. It would be competing on a price basis with peaking units (such as combustion turbines) that can be brought on-line within an hour, and can be taken off-line quickly also. The natural gas-fired Dave Johnston 3 would require as much as six hours to come on-line, and could not be cycled off quickly. If the unit ran at all, it would be forced to run for no less than a day, and more likely for a week. System reliability would suffer, because the unit would not normally be running, and could not be called upon quickly to respond to emergencies. This is why no one proposes today to construct natural gas-fired boiler units — they cannot compete economically or operationally with modern combustion turbines or combined cycle units.

Conclusions & Recommendations

The Company's requested total $1.0 million increase to Net Power Costs is a reasonably accurate approximation of the costs that will be incurred from the capacity degradation and heat rate degradation due to the Dave Johnston Unit 3 scrubber and the addition of the Ben Lomond to Terminal transmission line. Also, the Company's decision to add the scrubber at Dave Johnston Unit 3 rather than convert the unit to natural gas was the proper decision.

In future Rocky Mountain Power rate cases, we recommend that the Division verify the following:

- Savings from increased transfer capabilities due to the completion of the Ben Lomond to Terminal and the Populus to Ben Lomond lines are properly reflected in NPC;
- The actual recorded Dave Johnston Unit 3 heat rates (after completion of the scrubber) compare reasonably well to the projected heat rates used for the unit in this case;
- The actual recorded maximum output of Dave Johnston Unit 3 (after completion of the scrubber) does not exceed 215.8 megawatts; and
- The Net Power Costs after the Dave Johnston Unit 3 planned outage in 2014 properly reflect the increased maximum output of 225.8 megawatts for the unit.

Let me know if you have any questions on these issues, or need any additional information regarding these issues.

Sincerely,

George W. Evans
Vice President