

Application No. 18-04-____
Exhibit PAC/506
Witness: Rick T. Link

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

PACIFICORP

Exhibit Accompanying Direct Testimony of

Rick T. Link

SO Model Results for Gas Price Scenarios with Base CO₂ by Cost Category

April 2018

Exhibit PAC/506									
SO Model Results for Gas Price Scenarios with Base CO2 by Cost Category									
Scenario	Jim Bridger 3&4 Coal-fueled Operation (PVRR \$ million)			Jim Bridger 3&4 Gas-fueled Operation (PVRR \$ million)			PVRR(d) (Benefit)/Cost of SCR Investment		
	High Gas Base CO2	Base Case (Sep' 2012 OFPC)	Low Gas Base CO2	High Gas Base CO2	Base Case (Sep' 2012 OFPC)	Low Gas Base CO2	High Gas Base CO2	Base Case (Sep' 2012 OFPC)	Low Gas Base CO2
	Coal Operation	Coal Operation	Coal Operation	Gas Conv.	Gas Conv.	Gas Conv.	n/a	n/a	n/a
SO Model Simulation	\$ 12,841	\$ 11,546	\$ 10,286	\$ 13,572	\$ 11,906	\$ 10,277	\$ (732)	\$ (360)	\$ 9
Fuel 1/	\$ 1,503	\$ 1,290	\$ 1,550	\$ 1,593	\$ 1,377	\$ 1,588	\$ (90)	\$ (87)	\$ (37)
Variable O&M	\$ 3,385	\$ 3,338	\$ 2,430	\$ 3,118	\$ 3,074	\$ 2,278	\$ 267	\$ 264	\$ 152
Emissions	\$ 6,566	\$ 6,566	\$ 5,503	\$ 5,952	\$ 5,952	\$ 4,889	\$ 614	\$ 614	\$ 615
Fixed Costs 2/	\$ 130	\$ 130	\$ 322	\$ 130	\$ 130	\$ 322	\$ -	\$ -	\$ 0
Decommissioning	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Remaining CAI Recovery	\$ 2,350	\$ 2,351	\$ 3,111	\$ 2,393	\$ 2,389	\$ 3,149	\$ (42)	\$ (38)	\$ (38)
New Resource Capital Costs	\$ 1,190	\$ 1,190	\$ 1,190	\$ 1,190	\$ 1,190	\$ 1,190	\$ -	\$ -	\$ -
Transmission	\$ 2,434	\$ 2,229	\$ 1,456	\$ 2,378	\$ 2,214	\$ 1,459	\$ 56	\$ 16	\$ (3)
DSM	\$ 1,691	\$ 1,678	\$ 1,678	\$ 1,696	\$ 1,678	\$ 1,678	\$ (5)	\$ (0)	\$ -
Contracts	\$ (4,829)	\$ (3,606)	\$ (2,140)	\$ (4,007)	\$ (3,014)	\$ (1,727)	\$ (821)	\$ (592)	\$ (412)
Net System Purchases	\$ 27,260	\$ 26,711	\$ 25,386	\$ 28,014	\$ 26,894	\$ 25,101	\$ (755)	\$ (183)	\$ 285
Total									

1/ Includes adjustments for changes in Jim Bridger coal costs in the event Jim Bridger 3 and/or 4 no longer operate as a coal-fueled facility.

2/ Fixed costs include leveled costs for incremental environmental upgrade investments, total O&M for coal resources, and fixed O&M and run-rate capital for all resources.

Exhibit PAC/506									
SO Model Results for CO2 Price Scenarios with Base Gas by Cost Category									
Scenario	Jim Bridger 3&4 Coal-fueled Operation (PVRR \$ million)			Jim Bridger 3&4 Gas-fueled Operation (PVRR \$ million)			PVRR(d) (Benefit)/Cost of SCR Investment		
	Base Gas High CO2	Base Case (Sept' 2012 OFPC)	Base Gas \$0 CO2	Base Gas High CO2	Base Case (Sept' 2012 OFPC)	Base Gas \$0 CO2	Base Gas High CO2	Base Case (Sept' 2012 OFPC)	Base Gas \$0 CO2
	Coal Operation	Coal Operation	Coal Operation	Gas Conv.	Gas Conv.	Gas Conv.	n/a	n/a	n/a
SO Model Simulation	\$ 12,099	\$ 11,546	\$ 11,506	\$ 12,465	\$ 11,906	\$ 11,781	\$ (366)	\$ (360)	\$ (275)
Fuel 1/	\$ 1,591	\$ 1,290	\$ 1,218	\$ 1,650	\$ 1,377	\$ 1,302	\$ (60)	\$ (87)	\$ (84)
Variable O&M	\$ 7,877	\$ 3,338	\$ -	\$ 7,238	\$ 3,074	\$ -	\$ 639	\$ 264	\$ -
Emissions	\$ 6,215	\$ 6,566	\$ 6,572	\$ 5,601	\$ 5,952	\$ 5,958	\$ 614	\$ 614	\$ 614
Fixed Costs 2/	\$ 207	\$ 130	\$ 130	\$ 207	\$ 130	\$ 130	\$ -	\$ -	\$ -
Decommissioning	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Remaining CAI Recovery	\$ 2,465	\$ 2,351	\$ 2,373	\$ 2,553	\$ 2,389	\$ 2,411	\$ (88)	\$ (38)	\$ (38)
New Resource Capital Costs	\$ 1,190	\$ 1,190	\$ 1,190	\$ 1,190	\$ 1,190	\$ 1,190	\$ -	\$ -	\$ -
Transmission	\$ 2,489	\$ 2,229	\$ 1,841	\$ 2,474	\$ 2,214	\$ 1,816	\$ 15	\$ 16	\$ 24
DSM	\$ 1,679	\$ 1,678	\$ 1,678	\$ 1,681	\$ 1,678	\$ 1,678	\$ (2)	\$ (0)	\$ (0)
Contracts	\$ (3,800)	\$ (3,606)	\$ (3,191)	\$ (2,995)	\$ (3,014)	\$ (2,687)	\$ (805)	\$ (592)	\$ (504)
Net System Purchases	\$ 32,012	\$ 26,711	\$ 23,316	\$ 32,063	\$ 26,894	\$ 23,578	\$ (51)	\$ (183)	\$ (262)
Total									

1/ Includes adjustments for changes in Jim Bridger coal costs in the event Jim Bridger 3 and/or 4 no longer operate as a coal-fueled facility.

2/ Fixed costs include leveled costs for incremental environmental upgrade investments, total O&M for coal resources, and fixed O&M and run-rate capital for all resources.

Exhibit PAC/506									
SO Model Results for Gas Price Scenarios with \$0 CO2 by Cost Category									
Scenario	Jim Bridger 3&4 Coal-fueled Operation (PVRR \$ million)			Jim Bridger 3&4 Gas-fueled Operation (PVRR \$ million)			PVRR(d) (Benefit)/Cost of SCR Investment		
	High Gas \$0 CO2	Base Gas \$0 CO2	Low Gas \$0 CO2	High Gas \$0 CO2	Base Gas \$0 CO2	Low Gas \$0 CO2	High Gas \$0 CO2	Base Gas \$0 CO2	Low Gas \$0 CO2
	Coal Operation	Coal Operation	Coal Operation	Gas Conv.	Gas Conv.	Gas Conv.	n/a	n/a	n/a
SO Model Simulation	\$ 12,832	\$ 11,506	\$ 10,238	\$ 13,518	\$ 11,781	\$ 10,232	\$ (685)	\$ (275)	\$ 6
Fuel 1/	\$ 1,444	\$ 1,218	\$ 1,243	\$ 1,600	\$ 1,302	\$ 1,313	\$ (156)	\$ (84)	\$ (69)
Variable O&M	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Emissions	\$ 6,566	\$ 6,572	\$ 6,365	\$ 5,952	\$ 5,958	\$ 5,757	\$ 614	\$ 614	\$ 608
Fixed Costs 2/	\$ 130	\$ 130	\$ 147	\$ 130	\$ 130	\$ 147	\$ -	\$ -	\$ 0
Decommissioning	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Remaining CAI Recovery	\$ 2,350	\$ 2,373	\$ 2,761	\$ 2,388	\$ 2,411	\$ 2,791	\$ (38)	\$ (38)	\$ (31)
New Resource Capital Costs	\$ 1,190	\$ 1,190	\$ 1,190	\$ 1,190	\$ 1,190	\$ 1,190	\$ -	\$ -	\$ -
Transmission	\$ 2,318	\$ 1,841	\$ 762	\$ 2,337	\$ 1,816	\$ 688	\$ (19)	\$ 24	\$ 74
DSM	\$ 1,687	\$ 1,678	\$ 1,678	\$ 1,693	\$ 1,678	\$ 1,678	\$ (6)	\$ (0)	\$ -
Contracts	\$ (4,483)	\$ (3,191)	\$ (1,956)	\$ (3,776)	\$ (2,687)	\$ (1,593)	\$ (707)	\$ (504)	\$ (364)
Net System Purchases	\$ 24,033	\$ 23,316	\$ 22,427	\$ 25,030	\$ 23,578	\$ 22,204	\$ (997)	\$ (262)	\$ 224
Total									

1/ Includes adjustments for changes in Jim Bridger coal costs in the event Jim Bridger 3 and/or 4 no longer operate as a coal-fueled facility.

2/ Fixed costs include leveled costs for incremental environmental upgrade investments, total O&M for coal resources, and fixed O&M and run-rate capital for all resources.

Exhibit PAC/506									
SO Model Results for Gas Price Scenarios with High CO2 by Cost Category									
Scenario	Jim Bridger 3&4 Coal-fueled Operation (PVRR \$ million)			Jim Bridger 3&4 Gas-fueled Operation (PVRR \$ million)			PVRR(d) (Benefit)/Cost of SCR Investment		
	High Gas High CO2	Base Gas High CO2	Low Gas High CO2	High Gas High CO2	Base Gas High CO2	Low Gas High CO2	High Gas High CO2	Base Gas High CO2	Low Gas High CO2
	Coal Operation	Coal Operation	Coal Operation	Gas Conv.	Gas Conv.	Gas Conv.	n/a	n/a	n/a
SO Model Simulation	\$ 12,948	\$ 12,099	\$ 9,628	\$ 13,743	\$ 12,465	\$ 9,666	\$ (794)	\$ (366)	\$ (38)
Fuel 1/	\$ 1,647	\$ 1,591	\$ 1,758	\$ 1,719	\$ 1,650	\$ 1,783	\$ (71)	\$ (60)	\$ (25)
Variable O&M	\$ 8,885	\$ 7,877	\$ 4,345	\$ 8,184	\$ 7,238	\$ 4,233	\$ 701	\$ 639	\$ 111
Emissions	\$ 6,566	\$ 6,215	\$ 4,901	\$ 5,952	\$ 5,601	\$ 4,287	\$ 614	\$ 614	\$ 614
Fixed Costs 2/	\$ 130	\$ 207	\$ 387	\$ 130	\$ 207	\$ 387	\$ -	\$ -	\$ -
Decommissioning	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Remaining CAI Recovery	\$ 2,462	\$ 2,465	\$ 3,367	\$ 2,521	\$ 2,553	\$ 3,404	\$ (59)	\$ (88)	\$ (38)
New Resource Capital Costs	\$ 1,190	\$ 1,190	\$ 1,190	\$ 1,190	\$ 1,190	\$ 1,190	\$ -	\$ -	\$ -
Transmission	\$ 2,468	\$ 2,489	\$ 2,159	\$ 2,470	\$ 2,474	\$ 2,130	\$ (2)	\$ 15	\$ 28
DSM	\$ 1,696	\$ 1,679	\$ 1,678	\$ 1,704	\$ 1,681	\$ 1,678	\$ (8)	\$ (2)	\$ -
Contracts	\$ (5,319)	\$ (3,800)	\$ (609)	\$ (4,411)	\$ (2,995)	\$ (333)	\$ (908)	\$ (805)	\$ (276)
Net System Purchases	\$ 32,674	\$ 32,012	\$ 28,802	\$ 33,201	\$ 32,063	\$ 28,424	\$ (528)	\$ (51)	\$ 378
Total									

1/ Includes adjustments for changes in Jim Bridger coal costs in the event Jim Bridger 3 and/or 4 no longer operate as a coal-fueled facility.

2/ Fixed costs include leveled costs for incremental environmental upgrade investments, total O&M for coal resources, and fixed O&M and run-rate capital for all resources.