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Organization:	CH2M HILL
Submitter Role:	Applicant Consultant
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AltaGas | Sonoran Energy Inc.

January 20, 2016

Ms. Mary Dyas, Compliance Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Sonoran Energy Project (02-AFC-1C) Petition to Amend
Revised response to Data Request #43

Dear Ms. Dyas:

For consistency in the record for the above-referenced proceeding, AltaGas Sonoran Energy Inc. ("AltaGas Sonoran") would like to clarify and amend the response provided to Data Request #43 on November 12, 2015 (TN# 206606). Data Request #43 states "Please provide details about the construction and operating cost of the proposed wet cooling tower. Please also explain the differences in cost associated with the construction and operation of a dry-cooling tower." AltaGas Sonoran's docketed response provided a comparison cost for wet cooling and dry cooling, which were labeled in Table DR 43-1 as capital equipment cost estimates. AltaGas Sonoran recently noted that the dry cooling tower installed costs were not included in the response to Data Request #43 and is therefore amending the response to DR43 to include such information. Below is a revised Table DR43-1R which shows the total installed costs for the dry and wet cooling towers. In addition, a revised Table DR43-2R is provided which shows the total evaluated operating costs. The total evaluated operating cost was estimated based solely on the difference in electrical demand for the two evaluated technologies over a 30 year period.

TABLE DR43-1R
Total Installed Cost[1] Estimate for a Wet Cooling Tower and Dry Cooling Tower

Equipment	Dry Cooling Tower Installed Cost	Wet Cooling Tower Installed Cost
Air Cooled Condenser		
ACC (36 x 200 HP Fans)	$34,000,000	
Fin Fan Cooler (28, 30 kW Fans)	$2,750,000	
Wet Cooling Tower		
Cooling Tower (8 x 250 HP Fans)		$6,000,000
Surface Condenser		$2,500,000
Circ Water Piping and Valves		$1,800,000
Circ Water Pumps		$400,000
CCW Heat Exchanger		$500,000
Brine Concentrator System		$1,500,000
Total Installed Costs	$36,750,000	$12,700,000

[1] Total Installed costs includes capital equipment and installation costs.

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TABLE DR43-2R

Summary of Parasitic Electrical Load Requirements for a Wet Cooling Tower and ACC

Ambient Conditions	ACC			Wet Cooling Tower		
	Back Pressure Losses	ACC Fan Power	Fin Fan Cooler	Cooling Water Pumps	Cooling Tower Fans	Brine Concentrator
	kW	kW	kW	kW	kW	kW
30 °F, 60% RH	10,711	2,146	233	2,494	1,053	502
72 °F, 60% RH	4,022	5,151	560	2,494	2,105	502
95 °F, 25% RH	11,755	5,652	739	2,494	2,105	502
109 °F, 15% RH	22,099	5,652	848	2,494	2,105	502
122 °F, 15% RH	34,399	5,652	949	2,494	2,105	502
Total Evaluated Costs[1]		$20,488,500			$7,630,625	

[1] The total evaluated cost is based on a 30 year plant life, $60/MWh energy cost, 6.7% discount rate, 3% escalation and a 50% tax rate. The total evaluated costs does not include a reduction in electrical generation due to the ACC causing steam turbine backpressure losses (ranging between 4 and 34 megawatts). The reduction in electrical generation results in an additional total evaluated cost (over a 30 year period) of $23,645,875.

Please let me know if you have any questions.

Sincerely,

Christopher J. Doyle
Vice President
AltaGas Sonoran Energy Inc.

cc: Mr. Kyle Banbury, AltaGas Power Holdings (U.S.) Inc.
Ms. Melissa A. Foster, Stoel Rives LLP
Mr. Jerry Salamy, CH2M Hill, Inc.