

Dry cooling versus applicant-proposed technology

Parameter	Beacon dry cooling (250 Mw plant)				Genesis dry cooling (125 Mw unit)				Genesis as % of Beacon on a per-Mw basis			NPV discount rate calculator and escalation rate calculator	
	Solar Field Unchanged	Page # in WP study	Solar Field Expanded	Page # in WP study	Solar Field Unchanged	Page # in WP study	Solar Field Expanded 12.00%	Solar Field Expanded 6.87%	Solar Field Unchanged	Solar Field Expanded 12.00%	Solar Field Expanded 6.87%	1	1
Annual output with wet cooling	602527	p. 16	602527		280000 (Note B)		280,000	280,000	92.9%			1	1
Net generation impact (Mwh)	-45,162	p. 17	0		-18,000 (Note B)		13,440	0	79.7%			1	1.00799
% reduction in net gen	-7.50%	p. 16	0.00%	Note A	-6.43%		4.80%	0.00%	85.8%			1	1.01605
Revenue impact of net gen	-\$6,774,300	p. 17	\$0		-\$5,039,450		\$2,184,000	\$0	148.8%			1	1.02417
Capital cost	-\$20,497,000	p. 17	-\$73,497,000	p. 17	-\$258,000	p. 8	-\$26,758,000	-\$15,429,756	2.5%	72.8%	42.0%	1	1.03235
Annual O&M cost impact	\$1,288,000	p. 15	\$1,288,000		\$746,000	p. 20	\$746,000	\$746,000	115.8%	115.8%	115.8%	1	1.04060
NPV of O&M cost impact	\$12,980,000	p. 17	\$12,980,000	p. 17	\$7,517,919		\$7,517,919	\$7,517,919	115.8%	115.8%	115.8%	1	1.04892
NPV of generation impact	-\$63,860,000	p. 17	\$0		-\$47,505,909		\$20,588,140	\$0	148.8%			1	1.05730
Annual extra revenue with dry cooling due to higher price per kwh					\$2,181,255		\$3,403,904	\$3,248,000				1	1.06575
NPV of extra revenue with dry cooling due to higher price per kwh					\$20,562,262		\$32,087,937	\$30,618,260				1	1.07427
Total impact on NPV	-\$71,377,000		-\$60,517,000		-\$19,683,727		\$33,435,996	\$22,706,424	55.2%	-110.5%	-75.0%	1	1.08286
Reported total impact on NPV	-\$71,100,000	p. 17	-\$60,100,000	p. 17								1	1.09151
Price at which wet-cooled output is sold (\$/Mwh) \$150		p. 17	\$150		\$199.55		\$162.50	\$162.50				1	1.10023
NPV of 30-year output, wet cooling	\$1,133,424,875		\$1,133,424,875		\$526,713,268		\$526,713,268	\$526,713,268				1	1.10903
Total impact on NPV	-6.30%		-5.34%		-3.74%		6.35%	4.31%				1	1.11789
												1	1.12682
												1	1.13583
												1	1.14491
												1	1.15406
												1	1.16328
												1	1.17258
												1	1.18195
												1	1.19140
												1	1.20092
												1	1.21051
												1	1.22019
												1	1.22994
Genesis revenue/Mwh - wet cooling:	\$162.50											1	1.23977
Genesis revenue/Mwh - dry cooling:	\$174.10											1	1.24968
Price increase for dry cooling:	7.14%		4.17%									1	1.25967
												1	1.26880
												1	10.0776
												1	10.0776

Note A: Should have been 4.1%, not zero, per Beacon FSA, pp. 6-9, 6-40, 6-44
 Note B: Output based on actual contract quantities, per AL3546-E-A, confidential appendices, pdf p. 13 of 67
 Note C: Price based on the actual Genesis contract assuming no Federal loan guarantee per AL3546-E-A, confidential appendices, pdf p. 13 of 67

Dry cooling versus applicant-proposed technology - Genesis contract with DOE loan guarantee

Parameter	Beacon dry cooling (250 Mw plant)				Genesis dry cooling (125 Mw unit)				Genesis as % of Beacon on a per-Mw basis			NPV discount rate calculator and escalation rate calculator		NPV of revenues with wet cooling
	Solar Field Unchanged	Page # in WP study	Solar Field Expanded	Page # in WP study	Solar Field Unchanged	Page # in WP study	Solar Field Expanded	Solar Field Expanded	Solar Field Unchanged	Solar Field Expanded	Solar Field Expanded	1	1	1
Annual output with wet cooling	602527	p. 16	602527		280000 (Note B)		280,000	280,000	92.9%			1	1.00799	\$55,874,000
Net generation impact (Mwh)	-45,162	p. 17	0		-18,000 (Note B)		13,440	0	79.7%			1	1.01605	\$55,874,000
% reduction in net gen	-7.50%	p. 16	0.00%	Note A	-6.43%		4.80%	0.00%	85.8%			1	1.02417	\$55,874,000
Revenue impact of net gen	-\$6,774,300	p. 17	\$0		-\$5,039,450		\$2,184,000	\$0	148.8%			1	1.03235	\$55,874,000
Capital cost	-\$20,497,000	p. 17	-\$73,497,000	p. 17	-\$258,000	p. 8	-\$26,758,000	-\$15,429,756	2.5%	72.8%	42.0%	1	1.04060	\$55,874,000
Annual O&M cost impact	\$1,288,000	p. 15	\$1,288,000		\$746,000	p. 20	\$746,000	\$746,000	115.8%	115.8%	115.8%	1	1.04892	\$55,874,000
NPV of O&M cost impact	\$12,980,000	p. 17	\$12,980,000	p. 17	\$7,517,919		\$7,517,919	\$7,517,919	115.8%	115.8%	115.8%	1	1.05730	\$55,874,000
NPV of generation impact	-\$63,860,000	p. 17	\$0		-\$47,505,909		\$20,588,140	\$0	148.8%			1	1.06575	\$55,874,000
Annual extra revenue with dry cooling due to higher price per kwh					\$3,870,526		\$4,988,480	\$4,760,000				1	1.07427	\$55,874,000
NPV of extra revenue with dry cooling due to higher price per kwh					\$36,486,691		\$47,025,424	\$44,871,588				1	1.08286	\$55,874,000
Total impact on NPV	-\$71,377,000		-\$60,517,000		-\$3,759,298		\$48,373,484	\$36,959,752	10.5%	-159.9%	-122.1%	1	1.09151	\$55,874,000
Reported total impact on NPV	-\$71,100,000	p. 17	-\$60,100,000	p. 17								1	1.10023	\$55,874,000
Price at which output is sold (\$/Mwh)	\$150	p. 17	\$150		\$199.55		\$162.50	\$162.50				1	1.10903	\$55,874,000
NPV of 30-year output, wet cooling	\$1,133,424,875		\$1,133,424,875		\$526,713,268		\$526,713,268	\$526,713,268				1	1.11789	\$55,874,000
Total impact on NPV	-6.30%		-5.34%		-0.71%		9.18%	7.02%				1	1.12682	\$55,874,000
												1	1.13583	\$55,874,000
												1	1.14491	\$55,874,000
												1	1.15406	\$55,874,000
												1	1.16328	\$55,874,000
												1	1.17258	\$55,874,000
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												1	1.19140	\$55,874,000
												1	1.20092	\$55,874,000
												1	1.21051	\$55,874,000
												1	1.22019	\$55,874,000
												1	1.22994	\$55,874,000
												1	1.23977	\$55,874,000
												1	1.24968	\$55,874,000
												1	1.25967	\$55,874,000
												1	1.26967	\$55,874,000
												1	1.27967	\$55,874,000
												1	1.28967	\$55,874,000
												1	1.29967	\$55,874,000
												1	1.30967	\$55,874,000
												1	1.31967	\$55,874,000
												1	1.32967	\$55,874,000
												1	1.33967	\$55,874,000
												1	1.34967	\$55,874,000
												1	1.35967	\$55,874,000
												1	1.36967	\$55,874,000
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												1	1.38967	\$55,874,000
												1	1.39967	\$55,874,000
												1	1.40967	\$55,874,000
												1	1.41967	\$55,874,000
												1	1.42967	\$55,874,000
												1	1.43967	\$55,874,000
												1	1.44967	\$55,874,000
												1	1.45967	\$55,874,000
												1	1.46967	\$55,874,000
												1	1.47967	\$55,874,000
												1	1.48967	\$55,874,000
												1	1.49967	\$55,874,000
												1	1.50967	\$55,874,000
												1	1.51967	\$55,874,000
												1	1.52967	\$55,874,000
												1	1.53967	\$55,874,000
												1	1.54967	\$55,874,000
												1	1.55967	\$55,874,000
												1	1.56967	\$55,874,000
												1	1.57967	\$55,874,000
												1	1.58967	\$55,874,000
												1	1.59967	\$55,874,000
												1	1.60967	\$55,874,000
												1	1.61967	\$55,874,000
												1	1.62967	\$55,874,000
												1	1.63967	\$55,874,000
												1	1.64967	\$55,874,000
												1	1.65967	\$55,874,000
												1	1.66967	\$55,874,000
												1	1.67967	\$55,874,000
												1	1.68967	\$55,874,000
												1	1.69967	\$55,874,000
												1	1.70967	\$55,874,000
												1	1.71967	\$55,874,000
												1	1.72967	\$55,874,000
												1	1.73967	\$55,874,000
												1	1.74967	\$55,874,000
												1	1.75967	\$55,874,000
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												1	2.01967	\$55,874,000
												1	2.02967	\$55,874,000
												1	2.03967	\$55,874,000
												1	2.04967	\$55,874,000