

Table 6.10 Glen Canyon National Recreational Area, Dangling Rope Marina Solar Energy Generation, October 1996 - May 2006

Commission Date:	September 1996
Capacity:	Sept. 1996 thru Dec. 1998 - 115 kW Dec. 1998 thru present - 160 kW
Initial cost of entire hybrid system:	\$1,450,000
Cost of expansion:	\$306,000
Total cost:	\$1,756,000
Amount of fuel consumed before solar:	~109,000 gallons per year of propane fuel
Amount of fuel consumed, 1996-1998:	~53,600 gallons per year
Amount of fuel consumed, 1999-present:	~39,600 gallons per year
Generator run-time before solar:	~8,760 hours per year
Generator run-time, 1996-1998:	~2,500 hours per year
Generator run-time, 1999-present:	~1,850 hours per year
Average % electricity from solar (1999-present):	57.9%
Average % electricity from propane generator (1999-present):	42.1%
Average kWh from solar per day (1999-present):	718.25
Average kWh from propane generator per day (1999-present):	589.96

Year	Month	Electricity from Solar	Electricity from Propane Generator	Load Energy	Loses	Days Operational	% Electricity from Solar	
		kWh	kWh	kWh	kWh			
1996	Sep	15,833	35,228	44,467	6,595	29	31.0%	
	Oct	13,913	29,792	36,707	6,999	28	31.8%	
	Nov	11,877	22,841	27,585	7,134	29	34.2%	
	Dec	9,047	28,913	29,304	8,656	30	23.8%	
1997	Jan	7,613	29,099	29,993	6,720	29	20.7%	
	Feb	11,687	20,289	25,945	6,031	27	36.5%	
	Mar	18,153	10,850	21,908	7,095	30	62.6%	
	Apr	17,172	15,757	25,925	7,004	29	52.1%	
	May	19,122	24,305	36,764	6,663	30	44.0%	
	Jun	17,926	31,587	42,326	7,187	30	36.2%	
	Jul	15,450	40,815	50,102	6,164	30	27.5%	
	Aug	14,551	38,899	46,183	7,267	28	27.2%	
	Sep	6,709	19,458	22,887	3,280	15	25.6%	
	Oct	na	na	na	na	na	na	na
	Nov	na	na	na	na	na	na	na
	Dec	na	na	na	na	na	na	na
1998	Jan	na	na	na	na	na	na	
	Feb	na	na	na	na	na	na	
	Mar	na	na	na	na	na	na	
	Apr	na	na	na	na	na	na	
	May	na	na	na	na	na	na	
	Jun	na	na	na	na	na	na	
	Jul	na	na	na	na	na	na	
	Aug	na	na	na	na	na	na	
	Sep	14,404	30,707	37,572	7,540	29	31.9%	
	Oct	13,796	27,556	33,463	7,889	31	33.4%	
	Nov	10,345	25,376	29,067	6,654	29	29.0%	
	Dec	10,362	33,732	34,356	9,738	30	23.5%	
1999	Jan	8,463	27,124	26,983	8,604	29	23.8%	
	Feb	18,706	8,291	22,446	4,552	28	69.3%	
	Mar	22,968	3,614	21,415	5,167	30	86.4%	
	Apr	18,718	10,176	23,671	5,223	29	64.8%	
	May	25,140	11,270	28,184	8,225	31	69.0%	
	Jun	23,513	20,360	37,474	6,399	30	53.6%	
	Jul	22,364	35,391	46,352	11,403	31	38.7%	
	Aug	15,561	44,456	45,165	14,852	31	25.9%	
	Sep	21,341	23,112	36,819	7,633	30	48.0%	
	Oct	23,028	12,910	26,198	9,740	31	64.1%	
	Nov	20,151	7,710	21,860	6,001	30	72.3%	
	Dec	18,845	17,213	27,064	8,994	31	52.3%	
2000	Jan	11,088	13,313	17,341	7,060	23	45.4%	
	Feb	15,524	14,260	23,324	6,460	29	52.1%	
	Mar	22,113	8,892	23,969	7,036	31	71.3%	
	Apr	25,255	6,365	22,501	9,119	29	79.9%	
	May	26,886	11,896	31,635	7,147	31	69.3%	
	Jun	24,570	24,746	40,875	8,441	30	49.8%	
	Jul	25,169	29,121	46,181	8,109	31	46.4%	
	Aug	23,850	35,122	46,766	12,206	31	40.4%	
	Sep	23,012	24,827	39,124	8,714	30	48.1%	
	Oct	19,581	18,305	30,019	7,867	31	51.7%	
	Nov	na	na	na	na	na	na	
	Dec	na	na	na	na	na	na	

2001	Jan	na	na	na	na	na	na
	Feb	na	na	na	na	na	na
	Mar	na	na	na	na	na	na
	Apr	na	na	na	na	na	na
	May	na	na	na	na	na	na
	Jun	na	na	na	na	na	na
	Jul	na	na	na	na	na	na
	Aug	na	na	na	na	na	na
	Sep	na	na	na	na	na	na
	Oct	na	na	na	na	na	na
	Nov	na	na	na	na	na	na
	Dec	na	na	na	na	na	na
2002	Jan	na	na	na	na	na	na
	Feb	na	na	na	na	na	na
	Mar	na	na	na	na	na	na
	Apr	na	na	na	na	na	na
	May	na	na	na	na	na	na
	Jun	na	na	na	na	na	na
	Jul	na	na	na	na	na	na
	Aug	na	na	na	na	na	na
	Sep	na	na	na	na	na	na
	Oct	na	na	na	na	na	na
	Nov	na	na	na	na	na	na
	Dec	na	na	na	na	na	na
2003	Jan	na	na	na	na	na	na
	Feb	na	na	na	na	na	na
	Mar	na	na	na	na	na	na
	Apr	na	na	na	na	na	na
	May	11,816	6,942	16,196	2,562	13	63.0%
	Jun	27,602	28,225	43,766	12,061	30	49.4%
	Jul	25,702	37,843	50,608	12,936	31	40.4%
	Aug	25,033	33,543	48,565	10,011	31	42.7%
	Sep	26,270	20,107	35,946	10,431	30	56.6%
	Oct	19,748	16,248	27,052	8,944	30	54.9%
	Nov	17,400	20,003	25,909	11,494	30	46.5%
	Dec	18,006	18,192	27,049	9,149	31	49.7%
2004	Jan	12,975	23,734	28,315	8,394	31	35.3%
	Feb	6,035	15,889	15,418	6,506	18	27.5%
	Mar	23,112	5,017	20,804	7,325	31	82.2%
	Apr	20,671	8,943	21,043	8,570	30	69.8%
	May	23,512	14,705	30,146	8,071	31	61.5%
	Jun	21,494	29,644	38,224	12,914	30	42.0%
	Jul	19,394	32,132	42,614	8,911	31	37.6%
	Aug	20,767	32,893	40,434	13,226	31	38.7%
	Sep	24,188	15,482	30,613	9,058	30	61.0%
	Oct	20,585	12,070	23,919	8,736	31	63.0%
	Nov	18,236	14,737	21,170	11,803	30	55.3%
	Dec	17,971	13,170	24,131	24,131	31	57.7%
2005	Jan	17,262	14,955	20,894	11,323	31	53.6%
	Feb	19,017	8,340	18,503	8,855	28	69.5%
	Mar	26,958	3,425	20,188	10,195	31	88.7%
	Apr	27,464	0	22,306	5,158	30	100.0%
	May	27,463	12,954	29,003	11,414	31	67.9%
	Jun	26,302	18,873	37,176	7,999	30	58.2%
	Jul	27,001	30,808	49,348	8,461	31	46.7%
	Aug	24,630	33,271	45,228	12,673	31	42.5%
	Sep	24,957	20,441	36,874	8,524	30	55.0%
	Oct	23,952	9,315	26,118	7,149	31	72.0%
	Nov	4,524	1,466	4,816	1,175	8	75.5%
	Dec	na	na	na	na	na	na
2006	Jan	14,990	8,487	17,240	6,237	22	63.8%
	Feb	23,509	5,145	20,859	7,795	28	82.0%
	Mar	16,099	10,095	21,434	4,760	31	61.5%
	Apr	25,402	5,127	19,392	11,136	30	83.2%
	May	29,387	7,512	29,594	7,305	31	79.6%
	Jun						
	Jul						
	Aug						
	Sep						
	Oct						
	Nov						
	Dec						

Sources:

[Southwest Technology Development Institute](#)
[UGS State Energy Program - Glen Canyon Dangling Rope Solar Array](#)