

4/19/2018

System Size, kW:

Cash Investment

1,250

Item

0

Discovery Bay Waste Water Treatment Plant, Byron, CA Proposed Solar System, Case 1 - Fixed Ground Mount Cash Flow, Simple Payback and Return on Investment

System Generation, kWh/yr:

1,931,250

Approx. Avg. Energy Cost during solar generation, \$/Kwh: 0.1 System Cost, \$/W: 1.45 Year 1 2 3 4 5 6 7 8 10 -\$1,812,500 1,931,250 1,921,594 1,911,986 1,902,426 1,892,914 1,883,449 1,874,032 1,864,662 1,855,338 \$193,125 \$197,924 \$202,843 \$207,883 \$213,049 \$220,463 \$228,135 \$236,074 \$244,290 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0

PV Generation, kWh/year 1,846,062 Value of generated energy \$252,791 Other Revenue \$0 \$0 Incentive \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 Federal Investment Tax Credit \$0 \$0 \$0 \$0 \$0 \$0 Fed Accelerated Depreciation \$0 \$0 \$0 \$0 \$0 State Accelerated Depreciation \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 O&M costs -\$18,750 -\$19,892 -\$19,313 -\$20,489 -\$21,103 -\$21,736 -\$22,388 -\$23,060 -\$23,752 -\$24,464 Cash Flow -\$1,812,500 \$211,875 \$217,237 \$222,734 \$228,372 \$234,152 \$242,200 \$250,524 \$259,135 \$268,042 \$277,256 **Cumulative Cash Flow** -\$1,812,500 -\$1,600,625 -\$1,383,388 -\$1,160,654 -\$932,282 -\$698,130 -\$455,930 -\$205,406 \$53,728 \$321,770 \$599,026

		Year											
Item	11	12	13	14	15	16	17	18	19	20			
Cash Investment													
PV Generation, kWh/year	1,836,831	1,827,647	1,818,509	1,809,417	1,800,369	1,791,368	1,782,411	1,773,499	1,764,631	1,755,808			
Value of generated energy	\$261,588	\$270,692	\$280,112	\$289,859	\$299,947	\$310,385	\$321,186	\$332,363	\$343,930	\$355,898			
Carport Rental @ \$10/month	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
SMUD Incentive	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			

Item						Year				19 20 \$0 \$0 \$0 \$0 \$0 \$0									
		11	12	13	14	15	16	17	18	19	20								
Federal Investment Tax Credit		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0								
Fed Accelerated Depreciation		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0								
State Accelerated Depreciation		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0								
O&M costs		-\$25,198	-\$25,954	-\$26,733	-\$27,535	-\$28,361	-\$29,212	-\$30,088	-\$30,991	-\$31,921	-\$32,878								
Cash Flow		\$286,787	\$296,646	\$306,845	\$317,394	\$328,308	\$339,597	\$351,274	\$363,354	\$375,850	\$388,777								
Cumulative Cash Flow		\$885,812	\$1,182,458	\$1,489,303	\$1,806,697	\$2,135,005	\$2,474,602	\$2,825,876	\$3,189,230	\$3,565,081	\$3,953,857								
Simple Payback = 7+ years																			
Return on Investment =	0.10907192																		

Assumptions:

- 1. As a public entity, assumes no extra revenue sources, no incentives, and no Federal and State tax deductions and credits.
- 2. Assumes an annual system degradation of 0.5%, which is standard in the industry.
- 3. Assumes the average annual cost of energy from PG&E is \$0.10/kWh, with a 3% annual growth based on history.
- 4. Assumes a system installation cost of \$1.45/W with competitive bidding.
- 5. Assumes \$0.015/W for annual operation and maintenance, which is typical for a well run system

Conclusion: The simple payback is between the 7th and 8th year and the ROI is 0.109 or 10.9%



Discovery Bay Waste Water Treatment Plant, Byron, CA Proposed Solar System, Case 2 - Single Axis Tracker

Cash Flow, Simple Payback and Return on Investment

4/19/2018

System Size, kW:

1,000

System Generation, kWh/yr:

1,904,235

		Approx. Avg. E	nergy Cost dur	ing solar gener	ation, \$/Kwh:		0.1		System Cost, \$/W:										
ltem						Year													
	0	1	2	3	4	5	6	7	8	9	10								
Cash Investment	-\$1,700,000																		
PV Generation, kWh/year		1,904,235	1,894,714	1,885,240	1,875,814	1,866,435	1,857,103	1,847,817	1,838,578	1,829,385	1,820,238								
Value of generated energy		\$190,424	\$195,156	\$200,005	\$204,975	\$210,069	\$217,379	\$224,944	\$232,772	\$240,873	\$249,255								
Other Revenue		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0								
Incentive		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0								
Federal Investment Tax Credit		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0								
Fed Accelerated Depreciation		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0								
State Accelerated Depreciation		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0								
O&M costs		-\$15,000	-\$15,450	-\$15,914	-\$16,391	-\$16,883	-\$17,389	-\$17,911	-\$18,448	-\$19,002	-\$19,572								
Cash Flow	-\$1,700,000	\$205,424	\$210,606	\$215,919	\$221,366	\$226,952	\$234,768	\$242,855	\$251,220	\$259,874	\$268,827								
Cumulative Cash Flow	-\$1,700,000	-\$1,494,577	-\$1,283,971	-\$1,068,052	-\$846,686	-\$619,735	-\$384,966	-\$142,111	\$109,109	\$368,983	\$637,810								

Item	Year											
	11	12	13	14	15	16	17	18	19	20		
Cash Investment												
PV Generation, kWh/year	 1,811,137	1,802,082	1,793,071	1,784,106	1,775,185	1,766,309	1,757,478	1,748,690	1,739,947	1,731,247		
Value of generated energy	\$257,929	\$266,905	\$276,193	\$285,805	\$295,751	\$306,043	\$316,693	\$327,714	\$339,119	\$350,920		
Carport Rental @ \$10/month	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		

					Na Principal Pri	Year					\$364,655 \$377,223							
Item		11	12	13	14	15	16	17	18	19	20							
SMUD Incentive		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0							
Federal Investment Tax Credit		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0							
Fed Accelerated Depreciation		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0							
State Accelerated Depreciation		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0							
O&M costs		-\$20,159	-\$20,764	-\$21,386	-\$22,028	-\$22,689	-\$23,370	-\$24,071	-\$24,793	-\$25,536	-\$26,303							
Cash Flow		\$278,088	\$287,669	\$297,580	\$307,833	\$318,440	\$329,412	\$340,764	\$352,507	\$364,655	\$377,223							
Cumulative Cash Flow		\$915,898	\$1,203,566	\$1,501,146	\$1,808,979	\$2,127,418	\$2,456,831	\$2,797,595	\$3,150,101	\$3,514,757	\$3,891,979							
Simple Payback = 7+ years																		
Return on Investment =	0.11446997		^															

Assumptions:

- 1. As a public entity, assumes no extra revenue sources, no incentives, and no Federal and State tax deductions and credits.
- 2. Assumes an annual system degradation of 0.5%, which is standard in the industry.
- 3. Assumes the average annual cost of energy from PG&E is \$0.10/kWh, with a 3% annual growth based on history.
- 4. Assumes a system installation cost of \$1.70/W with competitive bidding.
- 5. Assumes \$0.015/W for annual operation and maintenance, which is typical for a well run system

Conclusion: The simple payback is between the 7th and 8th year and the ROI is 0.114 or 11.4%