



Roeland Park Solar Project

August 24, 2020



Solar Services financial models: reflecting a 20 year payment term with 25 years of projected energy savings

Option 1: 216.02 kW

- Solar Array Installations:
 - City Hall Carport and Roof Array
 - Community Center Roof Array*
- City Hall Roof Replacement

Annual Payment:	\$31,675
Total payments:	\$633,500
Total Net Savings:	\$320,254
IRR	15%
Negative Cash Flow	8 years
Payback Period	15.5 years
Roof Replacement (Year 0)	\$65,000 Fixed

Option 2: 151.82 kW

- Solar Array Installations :
 - City Hall Roof Array
 - Community Center Roof Array*
- City Hall Roof Replacement

Annual Payment:	\$17,460
Total payments:	\$349,200
Total Net Savings:	\$298,586
IRR	77%
Negative Cash Flow	2 years
Payback Period	4 years
Roof Replacement (Year 0)	\$65,000 Fixed

*Structural Analysis will be required to verify the Community Center roof can hold the arrays. Pricing subject to change based on analysis

Solar Services financial models: reflecting a 20 year payment term with 25 years of projected energy savings

Option 3: 216.02 kW

- Solar Array Installations:
 - City Hall Roof Array and Carport
 - Community Center Roof Array*
- City Hall Roof Replacement year 0
- City Hall Carport purchased year 0

Annual Payment:	\$24920
Total payments:	\$633,500
Total Net Savings:	\$320,254
IRR	236%
Negative Cash Flow	1 years
Payback Period	2.5 years
Roof Replacement (Year 0)	\$65,000 Fixed
City Hall Carport (Year 0)	\$117,033 Fixed

Option 3b: 216.02 kW

- Solar Array Installations:
 - City Hall Roof Array and Carport
 - Community Center Roof Array*
 - City Hall Carport purchased year 6
- City Hall Roof purchased year 0

Annual Payment:	\$31,675
Annual Payment year 6 - 20	\$24,390
Total payments:	\$594,293
Total Net Savings:	\$359,460
IRR	15 %
Negative Cash Flow	6 years
Payback Period	15 years
Roof Replacement (Year 0)	\$65,000 Fixed
City Hall Carport (Year 6)	\$70,068 Fixed

FINANCIALS- Option 1

Period	Capacity Factor	Projected kWh Production	Avg Rate Per kWh	Projected Energy Savings	Solar Service Payments	Net Savings	IRR
1	14.40%	272,496	0.0901	24,552	(31,675)	(7,123)	
2	14.33%	271,134	0.0937	25,406	(31,675)	(6,269)	
3	14.26%	269,778	0.0975	26,290	(31,675)	(5,385)	
4	14.19%	268,429	0.1014	27,205	(31,675)	(4,470)	
5	14.11%	267,087	0.1054	28,152	(31,675)	(3,523)	
6	14.04%	265,752	0.1096	29,132	(31,675)	(2,543)	
7	13.97%	264,423	0.1140	30,146	(31,675)	(1,529)	
8	13.90%	263,101	0.1186	31,195	(31,675)	(480)	
9	13.83%	261,785	0.1233	32,280	(31,675)	605	
10	13.76%	260,476	0.1282	33,404	(31,675)	1,729	
11	13.70%	259,174	0.1334	34,566	(31,675)	2,891	
12	13.63%	257,878	0.1387	35,769	(31,675)	4,094	
13	13.56%	256,589	0.1443	37,014	(31,675)	5,339	
14	13.49%	255,306	0.1500	38,302	(31,675)	6,627	
15	13.42%	254,029	0.1560	39,635	(31,675)	7,960	
16	13.36%	252,759	0.1623	41,014	(31,675)	9,339	
17	13.29%	251,495	0.1688	42,441	(31,675)	10,766	
18	13.22%	250,238	0.1755	43,918	(31,675)	12,243	
19	13.16%	248,987	0.1825	45,447	(31,675)	13,772	
20	13.09%	247,742	0.1898	47,028	(31,675)	15,353	
21	13.03%	246,503	0.1974	48,665	-	48,665	
22	12.96%	245,270	0.2053	50,358	-	50,358	
23	12.90%	244,044	0.2135	52,111	-	52,111	
24	12.83%	242,824	0.2221	53,924	-	53,924	
25	12.77%	241,610	0.2310	55,801	-	55,801	
Total		6,418,909		953,754	\$(633,500)	320,254	15%

FINANCIALS- Option 2

Period	Capacity Factor	Projected kWh Production	Avg Rate Per kWh	Projected Energy Savings	Solar Service Payments	Net Savings	IRR
1	14.40%	185,078	0.0901	16,676	(17,460)	(784)	
2	14.33%	184,153	0.0937	17,256	(17,460)	(204)	
3	14.26%	183,232	0.0975	17,856	(17,460)	396	
4	14.19%	182,316	0.1014	18,478	(17,460)	1,018	
5	14.11%	181,405	0.1054	19,121	(17,460)	1,661	
6	14.04%	180,498	0.1096	19,786	(17,460)	2,326	
7	13.97%	179,595	0.1140	20,475	(17,460)	3,015	
8	13.90%	178,697	0.1186	21,187	(17,460)	3,727	
9	13.83%	177,804	0.1233	21,925	(17,460)	4,465	
10	13.76%	176,915	0.1282	22,688	(17,460)	5,228	
11	13.70%	176,030	0.1334	23,477	(17,460)	6,017	
12	13.63%	175,150	0.1387	24,294	(17,460)	6,834	
13	13.56%	174,274	0.1443	25,140	(17,460)	7,680	
14	13.49%	173,403	0.1500	26,014	(17,460)	8,554	
15	13.42%	172,536	0.1560	26,920	(17,460)	9,460	
16	13.36%	171,673	0.1623	27,857	(17,460)	10,397	
17	13.29%	170,815	0.1688	28,826	(17,460)	11,366	
18	13.22%	169,961	0.1755	29,829	(17,460)	12,369	
19	13.16%	169,111	0.1825	30,867	(17,460)	13,407	
20	13.09%	168,265	0.1898	31,941	(17,460)	14,481	
21	13.03%	167,424	0.1974	33,053	-	33,053	
22	12.96%	166,587	0.2053	34,203	-	34,203	
23	12.90%	165,754	0.2135	35,393	-	35,393	
24	12.83%	164,925	0.2221	36,625	-	36,625	
25	12.77%	164,100	0.2310	37,900	-	37,900	
Total		4,359,700		647,786	\$ (349,200)	298,586	77%

FINANCIALS- Option 3

Period	Capacity Factor	Projected kWh Production	Avg Rate Per kWh	Projected Energy Savings	Solar Service Payments	Net Savings	IRR
1	14.40%	272,496	0.0901	24,552	(24,920)	(368)	
2	14.33%	271,134	0.0937	25,406	(24,920)	486	
3	14.26%	269,778	0.0975	26,290	(24,920)	1,370	
4	14.19%	268,429	0.1014	27,205	(24,920)	2,285	
5	14.11%	267,087	0.1054	28,152	(24,920)	3,232	
6	14.04%	265,752	0.1096	29,132	(24,920)	4,212	
7	13.97%	264,423	0.1140	30,146	(24,920)	5,226	
8	13.90%	263,101	0.1186	31,195	(24,920)	6,275	
9	13.83%	261,785	0.1233	32,280	(24,920)	7,360	
10	13.76%	260,476	0.1282	33,404	(24,920)	8,484	
11	13.70%	259,174	0.1334	34,566	(24,920)	9,646	
12	13.63%	257,878	0.1387	35,769	(24,920)	10,849	
13	13.56%	256,589	0.1443	37,014	(24,920)	12,094	
14	13.49%	255,306	0.1500	38,302	(24,920)	13,382	
15	13.42%	254,029	0.1560	39,635	(24,920)	14,715	
16	13.36%	252,759	0.1623	41,014	(24,920)	16,094	
17	13.29%	251,495	0.1688	42,441	(24,920)	17,521	
18	13.22%	250,238	0.1755	43,918	(24,920)	18,998	
19	13.16%	248,987	0.1825	45,447	(24,920)	20,527	
20	13.09%	247,742	0.1898	47,028	(24,920)	22,108	
21	13.03%	246,503	0.1974	48,665	-	48,665	
22	12.96%	245,270	0.2053	50,358	-	50,358	
23	12.90%	244,044	0.2135	52,111	-	52,111	
24	12.83%	242,824	0.2221	53,924	-	53,924	
25	12.77%	241,610	0.2310	55,801	-	55,801	
Total		6,418,909		953,754	\$ (498,400)	455,354	236%

FINANCIALS- Option 3b

Period	Capacity Factor	Projected kWh Production	Avg Rate Per kWh	Projected Energy Savings	Solar Service Payments	Net Savings	IRR
1	14.40%	272,496	0.0901	24,552	(31,675)	(7,123)	
2	14.33%	271,134	0.0937	25,406	(31,675)	(6,269)	
3	14.26%	269,778	0.0975	26,290	(31,675)	(5,385)	
4	14.19%	268,429	0.1014	27,205	(31,675)	(4,470)	
5	14.11%	267,087	0.1054	28,152	(31,675)	(3,523)	
6	14.04%	265,752	0.1096	29,132	(94,458)	(65,326)	
7	13.97%	264,423	0.1140	30,146	(24,390)	5,756	
8	13.90%	263,101	0.1186	31,195	(24,390)	6,805	
9	13.83%	261,785	0.1233	32,280	(24,390)	7,890	
10	13.76%	260,476	0.1282	33,404	(24,390)	9,014	
11	13.70%	259,174	0.1334	34,566	(24,390)	10,176	
12	13.63%	257,878	0.1387	35,769	(24,390)	11,379	
13	13.56%	256,589	0.1443	37,014	(24,390)	12,624	
14	13.49%	255,306	0.1500	38,302	(24,390)	13,912	
15	13.42%	254,029	0.1560	39,635	(24,390)	15,245	
16	13.36%	252,759	0.1623	41,014	(24,390)	16,624	
17	13.29%	251,495	0.1688	42,441	(24,390)	18,051	
18	13.22%	250,238	0.1755	43,918	(24,390)	19,528	
19	13.16%	248,987	0.1825	45,447	(24,390)	21,057	
20	13.09%	247,742	0.1898	47,028	(24,390)	22,638	
21	13.03%	246,503	0.1974	48,665	-	48,665	
22	12.96%	245,270	0.2053	50,358	-	50,358	
23	12.90%	244,044	0.2135	52,111	-	52,111	
24	12.83%	242,824	0.2221	53,924	-	53,924	
25	12.77%	241,610	0.2310	55,801	-	55,801	
Total		6,418,909		953,754	\$ (594,293)	359,461	15%



Carport / Rooftop Array

Size: 97.02 kW DC

COMMUNITY CENTER Option 2



Rooftop Array

Size: 119 kW DC

* Structural Analysis will be required to verify the roof can support the arrays.

EXAMPLE CARPORTS



FINANCIAL VS COMPETITORS

Utility Savings Calculation

Evergy

- Financial model utilizes the actual average \$/kWh based on the customer's electric utility bill over the past twelve months.
 - City of Roeland Park average \$/kWh is approximately \$0.0901 kWh

Competitors

- Many competitors use a flat commercial energy market rate of \$.12 kWh instead of the actual customer utility rates.
- Results in over-inflated energy savings projections and an understatement of the investment payback period.

CONNECT WITH US



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