Performance & Financial Analysis

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Executive Summary

Electric Utility Savings: Anticipate a savings of approximately $65,625 in electric bills (93%) at current utility rates in the first year. Savings will grow as electric utility rates are expected to rise 4.10% a year. The purchase of electric energy (kWh) from your utility is expected to be reduced by 93%.

Over 25 years, annual utility savings are anticipated to average $114,818, for a total utility savings of $2,870,459.

Adding Lease payments to utility savings, total first-year costs reduce $2,400.

Performance Summary

Solar Electric (PV) System: 472.5 kW DC producing 854,463 kWh/Year.

Purchase Price & Net Cost

Contract Price: **$750,750**

Incentives in Later Years: ($521,233) (Total)

Financial Ratios (Unlevered)

Customer`s Profitability Index: 2.1

Internal Rate of Return (IRR): 12.3%

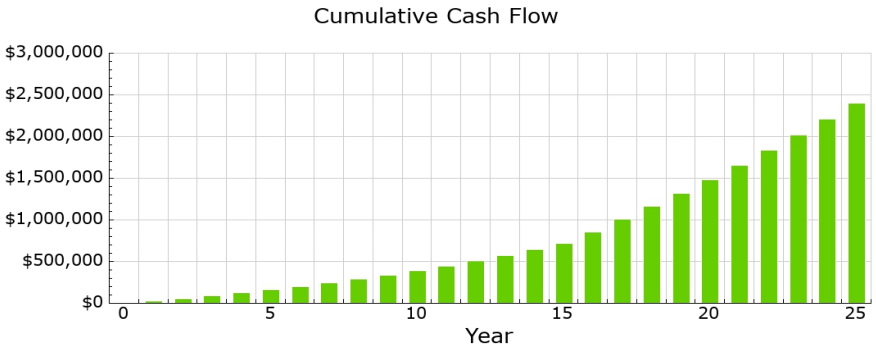
Modified IRR (MIRR): 9.8%

Net Present Value (NPV): $832,346

Cash Gained over Life: $2,402,952

- CO2 Saved over System Life: 17,516 tons. Equivalent to driving 35,032,000 auto miles

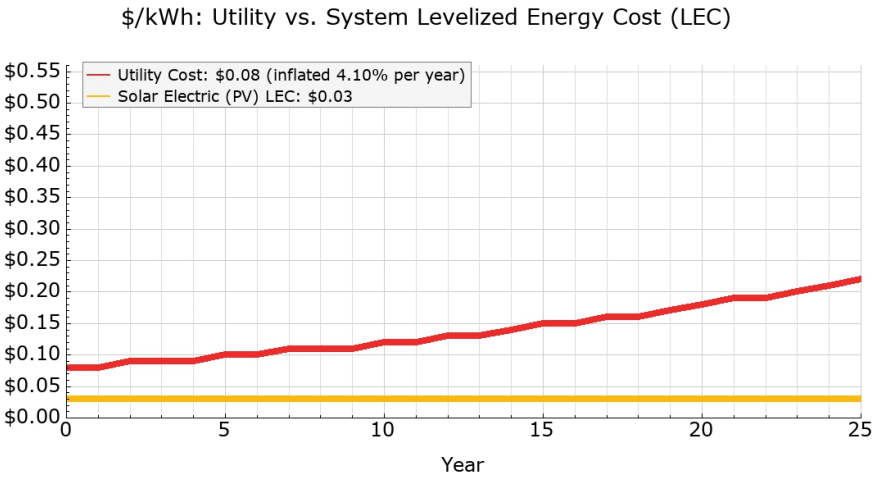
Finance: Capital Lease: $750,750 capitalized. 180 months. $5,493 per month. Bargain Purchase Value at end of Term: Not specified.



Levelized Energy Cost (LEC)

Your Hedge Against Utility Inflation: Your investment in this project will protect you from utility rate inflation. Levelized Energy Cost (LEC) analysis provides us with a "hurdle rate" (the levelized energy cost) which can be compared to the expected change in utility rates (by way of utility rate inflation). LEC is the average lifetime cost of energy produced by a particular system. We can compare the LEC to the current utility rate and its expected change in price as time goes on. In this manner one can judge the investment as a "better bet" than utility rates to contain energy costs. Represented below is the average cost of utility energy versus the cost of energy produced (LEC) by your system over time.

Electric: Levelized Energy Cost (LEC)



Carbon Footprint

Your carbon footprint will be reduced. Over the life of your system 17,516 tons of carbon dioxide (CO2) will be eliminated from your footprint. Equivalent to:

Planting 408,123 trees.

Driving reduced by 35,032,000 auto miles, or 1,786,632 gallons of gasoline.

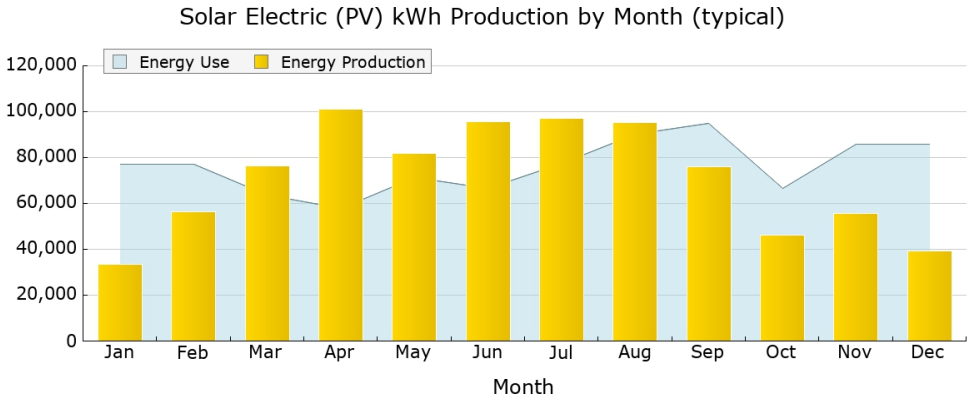
Recycling 55,351 tons of waste instead of sending it to landfill.

Displacing CO2 emissions from the annual electric use of 1,986 homes.

17,067,966 pounds (8,534.0 tons) of coal burned.

and you will help avoid the use of up to **427,231,500 gallons of water by Thermoelectric Powerplants.**

Solar Electric (PV) System Summary



Tilt: Tracking Azimuth: Tracking 3" Air Gap
Shade reduces production: 0%

PV Panels: 1260 x JA Solar Holding, Model: JAM72S03-375/PR

Inverters: 3 x SMA America, Model: SC125U (480V)

Total Panel Area: 26,311 sq-ft

System Peak Power: 472.5 kW DC

Annual Production: 854,463 kWh. Supplying 93% of annual electric use

Contract Price Summary: Solar Electric (PV) System

Capital Lease: $750,750 capitalized.
$0 upon commencement.
Payments: $5,493 per month. 0.00% annual escalator. Term: 180 months.

Total Incentives available to Customer in Later Years: $521,233

* - Capacity Credit .035 Year 7-30
* - Capacity Credit .035

Utility Energy Summary: Electric

Electric Utility Rates	
Current Rate	Post Project Rate
Fixed Price per unit $0.0768/kWh	Fixed Price per unit
Average Cost: $0.077 per kWh	Average Cost: $0.077 per kWh
Tiered Rate: No	Tiered Rate: No
Time-of-Use Rate: No	Time-of-Use Rate: No
Demand Charges: No	Demand Charges: No

Summary of Utility & New Source Electricity

Electric by Month (kWh)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Entered into Software (historical)													
Monthly Use	77,080	77,080	63,744	57,645	71,120	66,710	77,520	90,120	94,827	66,400	85,960	85,960	914,166
Historical Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Estimated by Software at Current Rates													
Estimated Use	77,080	77,080	63,744	57,645	71,120	66,710	77,520	90,120	94,827	66,400	85,960	85,960	914,166
Current Cost	**$5,920**	**$5,920**	**$4,896**	**$4,427**	**$5,462**	**$5,123**	**$5,954**	**$6,921**	**$7,283**	**$5,100**	**$6,602**	**$6,602**	**$70,210**
PV Production	(33,632)	(56,283)	(76,504)	(100,932)	(81,816)	(95,584)	(97,164)	(95,259)	(76,098)	(46,349)	(55,480)	(39,362)	
Post Project Use	43,448	20,797	(12,760)	(43,287)	(10,696)	(28,874)	(19,644)	(5,139)	18,729	20,051	30,480	46,598	59,703
Post Project Cost	**$3,337**	**$1,597**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$1,438**	**$1,540**	**$2,341**	**$(5,668)**	**$4,585**
Production Self-Consumption Percent:													
	39%	28%	23%	22%	29%	27%	33%	30%	31%	29%	28%	36%	
Net-Meter Credit Values: Amounts Accrued and Applied to Post-Project Cost													
Value Accrued in Month at Utility Retail Rate:													
	$0	$0	$(980)	$(3,324)	$(821)	$(2,218)	$(1,509)	$(395)	$0	$0	$0	$0	$(9,247)
Value Applied	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$(9,247)	$(9,247)

Minimum monthly meter fees may apply and are not included in this analysis.

Cash Flow Details for the System

Cash Flows in Year	0	1	2	3	4
Gross Cost: PV	(750,750)				
Utility Bill Savings with Inflation Applied	0	68,316	71,093	73,984	76,992
Capacity Credit .035	0	24,609	24,485	24,362	24,239
Total Incentives	0	24,609	24,485	24,362	24,239
Lease Payments	750,750	(65,916)	(65,916)	(65,916)	(65,916)
Net Annual Cash Flow	**0**	**27,009**	**29,662**	**32,430**	**35,315**
Cumulative Cash Flow	0	27,009	56,671	89,101	124,416

Net Annual Cash Flow is the sum of values in gray lines.

Cash Flows in Year	5	6	7	8	9
Utility Bill Savings with Inflation Applied	80,123	83,381	86,770	90,299	93,970
Solar Electric (PV) Incentives					
Capacity Credit .035 Year 7-30	0	0	20,721	20,614	20,507
Capacity Credit .035	24,116	23,993	0	0	0
Total Incentives	24,116	23,993	20,721	20,614	20,507
Lease Payments	(65,916)	(65,916)	(65,916)	(65,916)	(65,916)
Net Annual Cash Flow	**38,323**	**41,458**	**41,575**	**44,997**	**48,561**
Cumulative Cash Flow	162,739	204,197	245,772	290,769	339,330

Cash Flows in Year	10	11	12	13	14
Utility Bill Savings with Inflation Applied	97,791	101,767	105,904	110,211	114,692
Solar Electric (PV) Incentives					
Capacity Credit .035 Year 7-30	20,400	20,293	20,187	20,080	19,973
Total Incentives	20,400	20,293	20,187	20,080	19,973
Lease Payments	(65,916)	(65,916)	(65,916)	(65,916)	(65,916)
Net Annual Cash Flow	**52,275**	**56,144**	**60,175**	**64,375**	**68,749**
Cumulative Cash Flow	391,605	447,749	507,924	572,299	641,048

Cash Flow Details for the System

Cash Flows in Year	15	16	17	18	19
Utility Bill Savings with Inflation Applied	119,355	124,208	129,258	134,514	139,982
Solar Electric (PV) Incentives					
Capacity Credit .035 Year 7-30	19,866	19,759	19,653	19,546	19,439
Total Incentives	19,866	19,759	19,653	19,546	19,439
Lease Payments	(65,916)	0	0	0	0
Net Annual Cash Flow	**73,305**	**143,967**	**148,911**	**154,060**	**159,421**
Cumulative Cash Flow	714,353	858,320	1,007,231	1,161,291	1,320,712

Cash Flows in Year	20	21	22	23	24
Utility Bill Savings with Inflation Applied	145,673	151,596	157,761	164,174	170,849
Solar Electric (PV) Incentives					
Capacity Credit .035 Year 7-30	19,332	19,225	19,119	19,012	18,905
Total Incentives	19,332	19,225	19,119	19,012	18,905
Net Annual Cash Flow	**165,005**	**170,821**	**176,880**	**183,186**	**189,754**
Cumulative Cash Flow	1,485,717	1,656,538	1,833,418	2,016,604	2,206,358

Cash Flows in Year	25	26	27	28	29
Utility Bill Savings with Inflation Applied	177,796	0	0	0	0
Solar Electric (PV) Incentives					
Capacity Credit .035 Year 7-30	18,798	18,691	18,585	18,478	18,371
Total Incentives	18,798	0	0	0	0
Net Annual Cash Flow	**196,594**	**0**	**0**	**0**	**0**
Cumulative Cash Flow	2,402,952	0	0	0	0

Other Assumptions Used in this Analysis

Customer Type: Government/Municipal.

Tax Effects Applied to Utility Savings: We have assumed utility bill savings will not increase your income tax liabilities. As a business customer, utility savings may result in lower business expenses (a tax deduction or "write off") for utility services.

System Life: PV System: 25 years. Inverters: 25 years.

PV System Modeling Variables (PVWatts references): System Losses: 9.5%, DC-to-AC Ratio: 1.26, Module Type: Standard, Inverter Efficiency: 94.00%. Software`s suggested production adjusted by 102% for this estimate.

Performance Degradation and O&M Costs: We have assumed performance will degrade by 0.50% per year due to soiling and general wear. Annual operating and maintenance (O&M) costs are inflated 2.80% per year, and are estimated as a percent of gross system price, as follows: Solar Electric (PV): 0.00%.

Income Tax Rates: Federal: 0.00%, State: 0.00%

Annual Inflation Rates: Consumer price index: 2.80%, Electric Rates: 4.10%

Energy Metering Type: Net Metering

Net Excess Generation (NEG): Monthly NEG credited at Utility Rate. Monthly NEG may be carried forward to the next month for application to future utility bills. Annual NEG sold at $0.02000 per kWh.

Discount Rate: 5.00%. Used to estimate net present value of future cash flows. This is also assumed to be the finance rate, as used to calculate MIRR.

Reinvestment Rate: 8.00%. Used to calculate MIRR.

Levelized Energy Cost (LEC) calculations do not include the cash effects of loans or leases to purchase the system.

Capital Lease model assumes a capitalized amount of $750,750 and an implied interest rate of 3.7% apr.

Carbon Dioxide (CO2) Calculations: The following assumptions are used to calculate carbon dioxide (CO2) reductions: Electricity: 1.64 lbs. CO2 per kWh. Natural Gas: 0.12 lbs. CO2 per cubic foot (12 lbs. per Therm). Fuel Oil: 22.29 lbs. CO2 per gallon. Propane: 12.17 lbs. CO2 per gallon. Trees Planted: 0.0429 tons CO2 per Tree planted (23.3 Trees/Ton CO2). Automiles Saved: 1 lb CO2 per mile for medium passenger car (2,000 Miles/Ton CO2). Gallons Gasoline: 0.009812 tons CO2/gallon (102 Gal/Ton CO2). Landfill Tons: 3.16 tons CO2 per ton of waste recycled instead of landfilled. Single-family Homes (electric use): 8.82 tons CO2/home (0.11 Homes/Ton CO2). Tons of Coal Burned: 2.0525 lbs. of CO2 per lb. of Coal (2,000 lbs. per ton). Source: www.epa.gov/cleanenergy/energy-resources/refs.html

Water used by Thermoelectric Powerplants: Depending upon the technology used, natural gas and coal power plants withdraw up to 20 gallons of water for every kWh of energy produced and consume (via evaporation) about 0.47 gallons per kWh produced. Sources: http://nrel.gov/docs/fy04osti/33905.pdf and http://www.wri.org/resources/charts-graphs/typical-range-water-withdrawals-and-consumption-thermoelectric-power-plants which summarizes the Electric Power Research Institue`s report *Water & Sustainability (Volume 3): U.S. Water Consumption for Power Production - The Next Half Century*

Renewable Resources

The following renewable resource assumptions were used to develop estimates for the project location. These are typical values based upon observed data over several decades. Actual values (and system performance) will vary from month to month, and from year to year, in accordance to weather and climate pattern changes.

Weather station referenced: "MARSHALL/RYAN(AWOS)" (Minnesota)

Solar Resources: Flat-Plate, South-facing Tilted at Latitude												
Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
kWh/m2/day	2.069	3.89	4.636	6.128	4.737	5.49	5.437	5.914	5.108	3.104	3.608	2.386