

Prepared For  
Manufacturing Facility  
(920) 838-4108  
dan@archelec.com



## Industry Leader

*Arch Electric is one of the most respected Energy Management companies in Wisconsin. Our company leaders are active instructors, inspectors, and consultants to many of the leading energy groups, including: Focus on Energy, Midwest Renewable Energy Association, North American Board of Certified Energy Practitioners, Lakeshore Technical College, Sheboygan Sustainable Living Group, and many others.*

## Manufacturing Facility - Budgetary Solar Proposal

Prepared By  
Dan Steinhardt  
(920) 838-4108  
dan@archelec.com

1/8/2021



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**WI Statute 19.36 Limitation upon access and withholding**

**(5)** Trade secrets. An authority may withhold access to any record or portion of a record containing information qualifying as a trade secret as defined in s. [134.90 \(1\) \(c\)](#).

134.90 Uniform Trade Secrets act

- (1)(c) "Trade secret" means information, including a formula, pattern, compilation, program, device, method, technique or process to which all of the following apply:
- 1. The information derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use.
  - 2. The information is the subject of efforts to maintain its secrecy that are reasonable under the circumstances.

**Any violation will be pursued to the fullest extent of the law.**



# 1 Project Summary

Payment Options	Cash Purchase
Upfront Payment	\$136,604
Total Payments	\$136,604
Rebates and Incentives	\$73,665
Net Payments	\$62,939
30-Year Electric Bill Savings	\$345,456
30-Year IRR	13.94%
30-Year LCOE PV	\$0.028
30-Year NPV	\$101,682
Payback Period	6.5 Years

## Combined Solar PV Rating

Power Rating: 73,840 W-DC

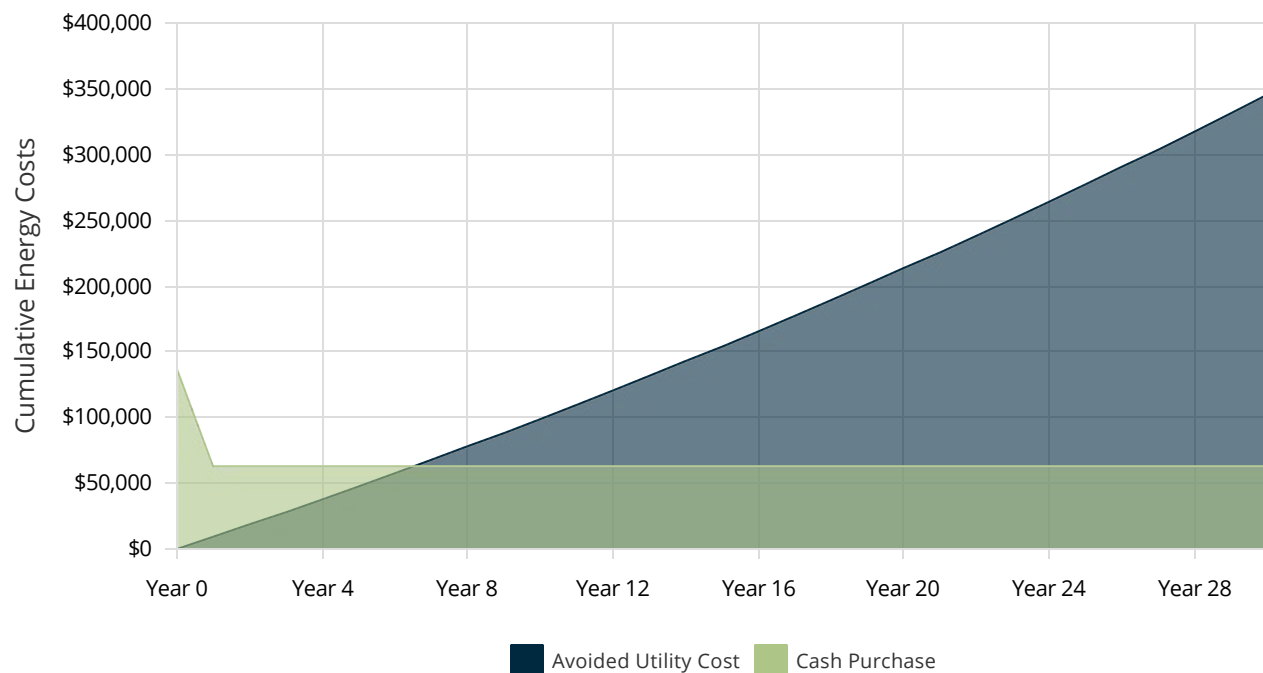
Power Rating: 64,319 W-AC-CEC

## Combined ESS Ratings

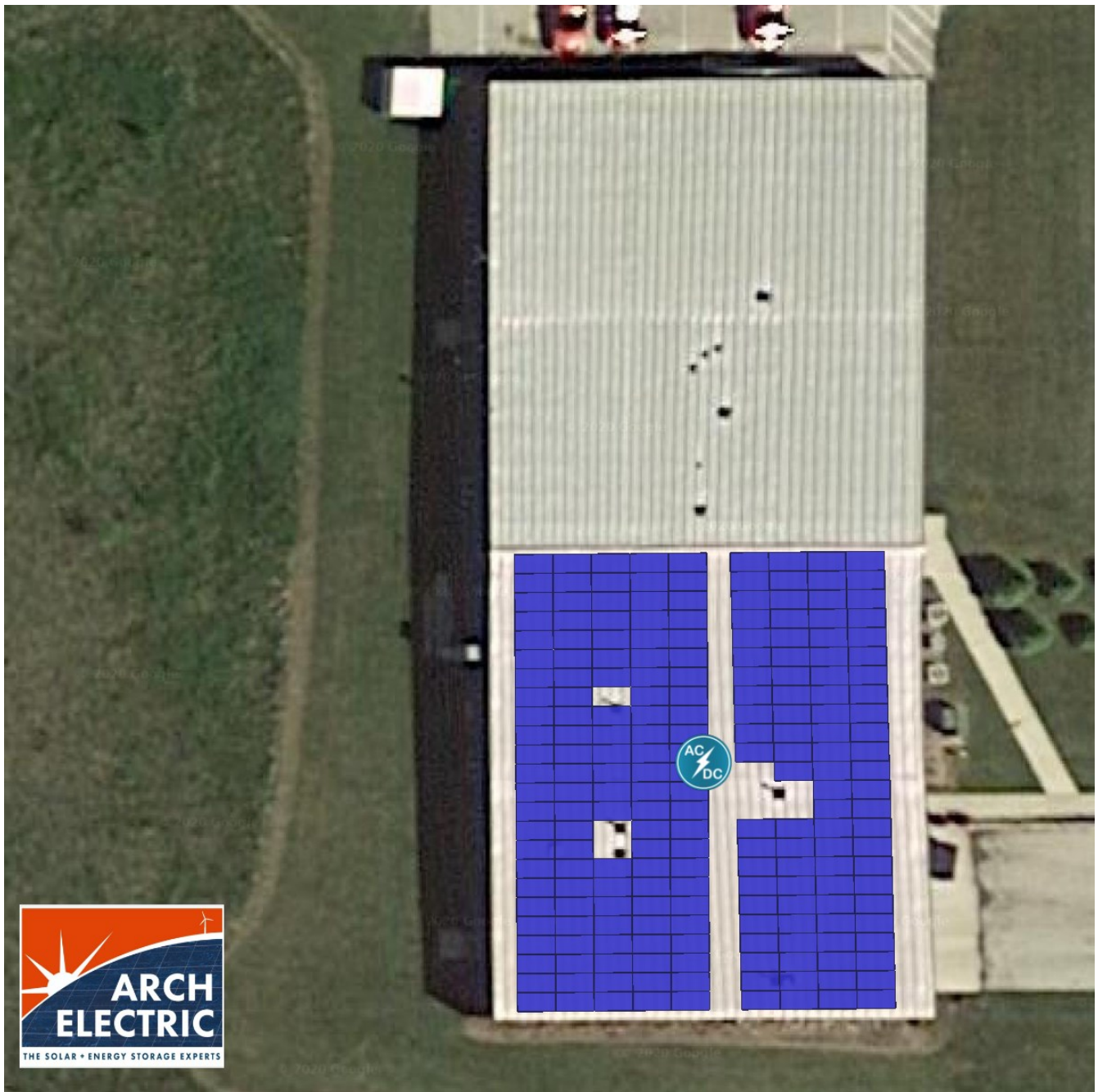
Energy Capacity: 0.0 kWh

Power Rating: 0.0 kW

**Cumulative Energy Costs By Payment Option**







**Prepared By:** Dan Steinhardt  
**P:** (920) 838-4108, **E:** dan@archelec.com

## 2.1.1 PV System Details

### General Information

Facility: Clintonville Mfg. Facility  
Address: 220 Industrial Ave Clintonville WI 54929

### Solar PV Equipment Description

Solar Panels: (208) REC Solar REC355TP72S72XV  
Inverters: (1) SolarEdge SE66.6KUS

### Solar PV Equipment Typical Lifespan

Solar Panels: Greater than 30 Years  
Inverters: 15 Years

### Solar PV System Cost And Incentives

Solar PV System Cost	\$136,604
Focus on Energy Incentive	-\$9,625
Federal Tax Credit	-\$35,517
Federal - 100% Bonus Depreciation	-\$28,523

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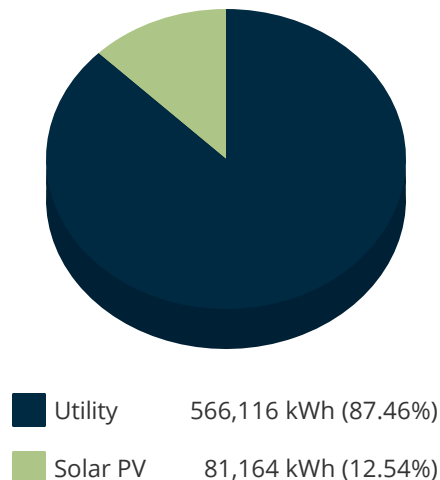
**Net Solar PV System Cost: \$62,939**

### Solar PV System Rating

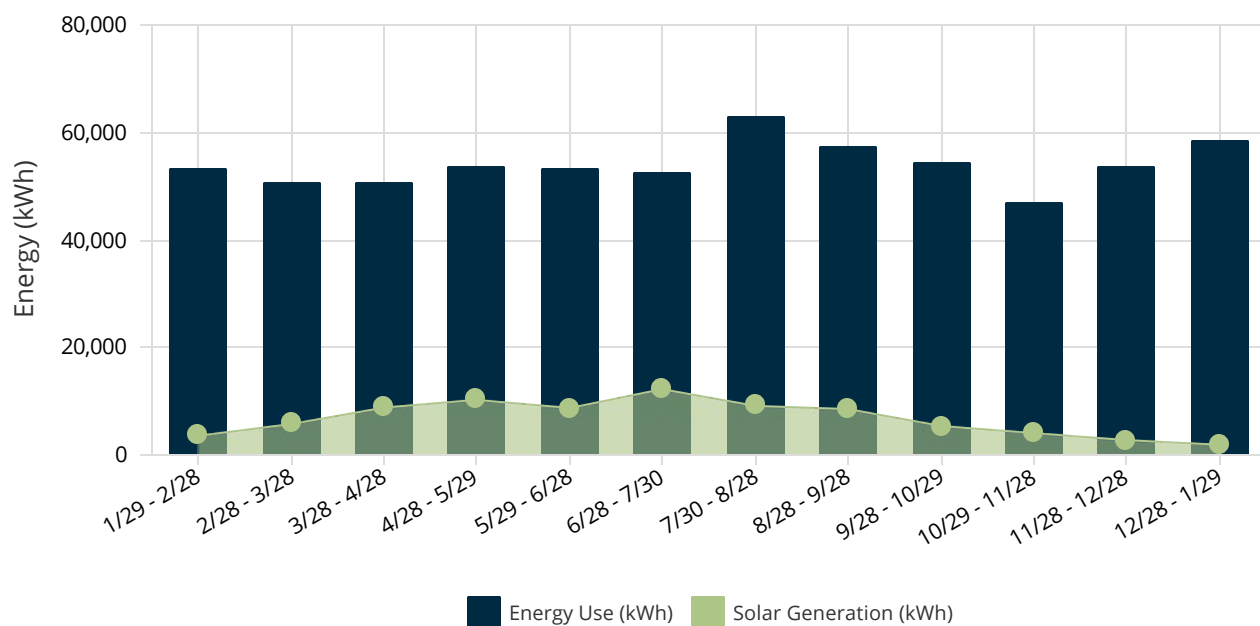
Power Rating: 73,840 W-DC  
Power Rating: 64,319 W-AC-CEC

### Energy Consumption Mix

Annual Energy Use: 647,280 kWh



### Monthly Energy Use vs Solar Generation



## 2.1.2 Rebates and Incentives

This section summarizes all incentives available for this project. The actual rebate and incentive amounts for this project are shown in each example.

### **Focus on Energy - 2021 Business Incentives for Solar PV**

For businesses, Solar PV will be 100% prescriptive rebates, first come first serve. 1. Up to 5 kW = \$200 per kW (Max Incentive of \$1,000) 2. 5 - 10 kW \$1,000 + \$150 per kW above 5 kW (Max Incentive of \$1,750) 3. 10 - 100 kW \$1,750 + \$125 per kW above 10 kW (Max Incentive of \$13,000) 4. 100 - 300 kW \$13,000 + \$100 per kW above 100 kW (Max Incentive of \$33,000) 5. 300-500 kW\* \$33,000 + \$85 per kW above 300 kW (Max Incentive of \$50,000) \*Solar PV systems 500 kW and above would be capped at the maximum incentive of \$50,000. Agricultural Producers (Business customers) will qualify for an incentive match up to \$10,000. Business customer projects will have six (6) months to complete. If funding in one tier is exhausted, the customer will have the option to reserve funding for the maximum amount in a smaller tier, provided funding is still available.

Total Incentive Value: \$9,625

### **Business Energy Investment Tax Credit (ITC) - 26% (2021)**

Businesses that install solar photovoltaic (PV) systems are eligible to receive an (ITC) investment tax credit, which can be used to directly offset federal tax liability on a dollar-for-dollar basis. If the tax credit exceeds your tax liability you can roll the credit into future tax periods for 20 years. Commercial projects that commence construction in 2021 are eligible to receive a 26% tax credit of the total PV system cost. The ITC steps down thereafter, projects commencing construction in 2023 and later qualify for a 10% ITC.

Total Incentive Value: \$35,517

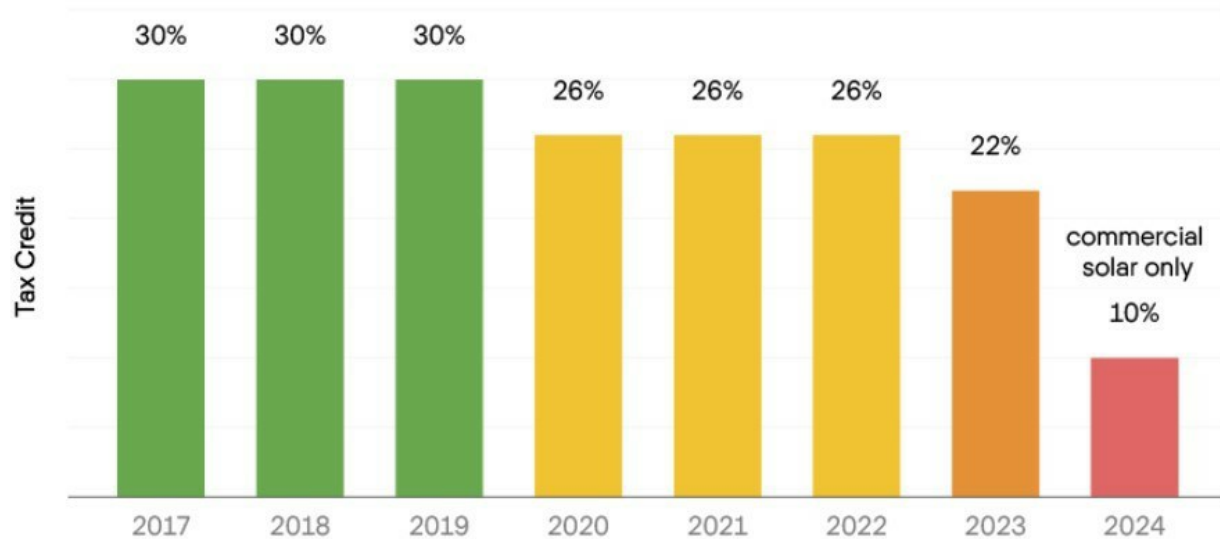
### **Federal - 100% bonus depreciation (Tax Reform Bill)**

The Tax Reform Bill modifies bonus depreciation under Code Section 168(k) to allow 100% expensing for property placed in service after September 27, 2017 and before January 1, 2023. By increasing bonus depreciation to 100 percent, the new tax bill essentially allows eligible entities to deduct the entire allowable tax basis of the system in the first year of operation. Under the federal Modified Cost Recovery System (MACRS), businesses may recover investments in certain property through depreciation deductions. MACRS establishes a lifespan for various types of property over which the property may be depreciated. For PV systems, the taxable basis of the equipment must be reduced by 50% of any federal tax credits associated with the system.

Total Incentive Value: \$28,523



# Solar Tax Credit Step Down Schedule



## 2018 Tax Reform

"The corporate tax reduction from 35% down to 21% has enabled companies to invest these savings into expense-reducing assets, such as solar energy. For example, with a proposed net investment of \$200,000, a company with approximately \$1.1 million of taxable income could pay for the entire solar investment in 2 years."

Example: \$200,000(net project investment)

Yr 1: \$1.1 million taxable income \$100,000 (savings from 9% tax reduction)

Yr 2: \$1.1 million taxable income \$100,000 (savings from 9% tax reduction)

## Sales Tax Exemption

Solar PV (photovoltaic) installations are exempt from paying Wisconsin state sales tax.

## Property Tax Exemption

Solar PV (photovoltaic) installations are exempt from increasing property taxes.



## 2.1.3 Utility Rates

The table below shows the rates associate with your current utility rate schedule (CG-2). Your estimated electric bills after solar are shown on the following page.

Fixed Charges		Energy Charges		Demand Charges	
Type	CG-2	Type	CG-2	Type	CG-2
S1 Daily	\$1.32	S1 On Peak	\$0.11685	S1 On Peak	\$6.86
		S1 Off Peak	\$0.08618		

## 2.1.4 Current Electric Bill

The table below shows your annual electricity costs based on the most current utility rates and your previous 12 months of electrical usage.

### Rate Schedule: WE - CG-2

Time Periods	Energy Use (kWh)		Max Demand (kW)	Charges			
	On Peak	Off Peak		Other	Energy	Demand	Total
1/29/2018 - 2/28/2018 S1	24,960	28,080	142	\$40	\$5,363	\$979	\$6,382
2/28/2018 - 3/28/2018 S1	25,200	25,440	123	\$37	\$5,163	\$848	\$6,048
3/28/2018 - 4/28/2018 S1	25,200	25,440	132	\$41	\$5,163	\$910	\$6,114
4/28/2018 - 5/29/2018 S1	26,400	27,360	145	\$41	\$5,470	\$1,000	\$6,511
5/29/2018 - 6/28/2018 S1	24,720	28,560	241	\$40	\$5,377	\$1,662	\$7,078
6/28/2018 - 7/30/2018 S1	25,200	27,120	134	\$42	\$5,308	\$924	\$6,275
7/30/2018 - 8/28/2018 S1	28,800	34,080	156	\$38	\$6,334	\$1,076	\$7,448
8/28/2018 - 9/28/2018 S1	28,080	29,040	123	\$41	\$5,813	\$848	\$6,702
9/28/2018 - 10/29/2018 S1	29,040	25,440	134	\$41	\$5,614	\$924	\$6,579
10/29/2018 - 11/28/2018 S1	22,800	24,240	145	\$40	\$4,777	\$1,000	\$5,816
11/28/2017 - 12/28/2017 S1	24,960	28,560	129	\$40	\$5,405	\$889	\$6,334
12/28/2017 - 1/29/2018 S1	26,640	31,920	146	\$42	\$5,893	\$1,007	\$6,942
Totals:	312,000	335,280	-	\$484	\$65,678	\$12,065	\$78,228





## 2.1.5 New Electric Bill

### Rate Schedule: WE - CG-2

Time Periods	Energy Use (kWh)		Max Demand (kW)	Charges			
Bill Ranges & Seasons	On Peak	Off Peak	On Peak	Other	Energy	Demand	Total
1/29/2018 - 2/28/2018 S1	22,479	26,997	135	\$40	\$4,978	\$931	\$5,949
2/28/2018 - 3/28/2018 S1	21,340	23,522	123	\$37	\$4,543	\$848	\$5,428
3/28/2018 - 4/28/2018 S1	19,309	22,513	132	\$41	\$4,217	\$910	\$5,169
4/28/2018 - 5/29/2018 S1	20,494	23,015	136	\$41	\$4,400	\$938	\$5,379
5/29/2018 - 6/28/2018 S1	18,713	25,827	207	\$40	\$4,434	\$1,427	\$5,901
6/28/2018 - 7/30/2018 S1	17,308	22,769	124	\$42	\$4,005	\$855	\$4,902
7/30/2018 - 8/28/2018 S1	22,705	31,055	147	\$38	\$5,356	\$1,013	\$6,408
8/28/2018 - 9/28/2018 S1	22,473	26,105	118	\$41	\$4,900	\$814	\$5,755
9/28/2018 - 10/29/2018 S1	25,292	23,815	133	\$41	\$5,033	\$917	\$5,991
10/29/2018 - 11/28/2018 S1	20,071	22,900	136	\$40	\$4,340	\$938	\$5,318
11/28/2017 - 12/28/2017 S1	23,245	27,506	127	\$40	\$5,112	\$876	\$6,027
12/28/2017 - 1/29/2018 S1	25,627	31,034	146	\$42	\$5,697	\$1,007	\$6,746
Totals:	259,056	307,058	-	\$484	\$57,017	\$11,472	\$68,973

**Annual Electricity Savings: \$9,255**



**Prepared By:** Dan Steinhardt  
**P:** (920) 838-4108, **E:** dan@archelec.com

## 3.1 Cash Purchase

### Inputs and Key Financial Metrics

Total Project Costs	\$136,604	30-Year ROI	206.8%	Electricity Escalation Rate	2%
30-Year IRR	13.94%	PV Degradation Rate	0.5%	Federal Income Tax Rate	24%
30-Year NPV	\$101,682	Discount Rate	5%	State Income Tax Rate	7.9%
Payback Period	6.5 Years				

Years	Project Costs	Focus on Energy Incentive	Electric Bill Savings	Change in Federal Tax Liability	Total Cash Flow	Cumulative Cash Flow
Upfront	-\$136,604	-	-	-	-\$136,604	-\$136,604
1	-	\$9,625	\$9,255	\$64,040	\$82,920	-\$53,684
2	-	-	\$9,393	-	\$9,393	-\$44,292
3	-	-	\$9,532	-	\$9,532	-\$34,760
4	-	-	\$9,674	-	\$9,674	-\$25,086
5	-	-	\$9,817	-	\$9,817	-\$15,268
6	-	-	\$9,962	-	\$9,962	-\$5,306
7	-	-	\$10,110	-	\$10,110	\$4,804
8	-	-	\$10,259	-	\$10,259	\$15,062
9	-	-	\$10,410	-	\$10,410	\$25,472
10	-	-	\$10,562	-	\$10,562	\$36,034
11	-	-	\$10,717	-	\$10,717	\$46,752
12	-	-	\$10,874	-	\$10,874	\$57,626
13	-	-	\$11,033	-	\$11,033	\$68,659
14	-	-	\$11,194	-	\$11,194	\$79,853
15	-	-	\$11,357	-	\$11,357	\$91,209
16	-	-	\$11,521	-	\$11,521	\$102,730
17	-	-	\$11,688	-	\$11,688	\$114,419
18	-	-	\$11,857	-	\$11,857	\$126,276
19	-	-	\$12,028	-	\$12,028	\$138,304
20	-	-	\$12,202	-	\$12,202	\$150,506
21	-	-	\$12,377	-	\$12,377	\$162,883
22	-	-	\$12,554	-	\$12,554	\$175,437
23	-	-	\$12,734	-	\$12,734	\$188,171
24	-	-	\$12,915	-	\$12,915	\$201,086
25	-	-	\$13,099	-	\$13,099	\$214,185
26	-	-	\$13,285	-	\$13,285	\$227,471
27	-	-	\$13,474	-	\$13,474	\$240,944
28	-	-	\$13,664	-	\$13,664	\$254,609
29	-	-	\$13,857	-	\$13,857	\$268,465
30	-	-	\$14,052	-	\$14,052	\$282,517
Totals:	-\$136,604	\$9,625	\$345,456	\$64,040	\$282,517	-



## 4.1 Cash Purchase

### Inputs and Key Financial Metrics

Total Project Costs	\$136,604	Payback Period	6.5 Years	Discount Rate	5%	State Income Tax Rate	7.9%
30-Year IRR	13.94%	30-Year ROI	206.8%	Electricity Escalation Rate	2%		
30-Year NPV	\$101,682	PV Degradation Rate	0.5%	Federal Income Tax Rate	24%		

Years	Upfront	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<b>Cash</b>											
Project Costs	-\$136,604	-	-	-	-	-	-	-	-	-	-
Focus on Energy Incentive	-	\$9,625	-	-	-	-	-	-	-	-	-
Electric Bill Savings	-	\$9,255	\$9,393	\$9,532	\$9,674	\$9,817	\$9,962	\$10,110	\$10,259	\$10,410	\$10,562
<b>Cash</b>	-\$136,604	\$18,880	\$9,393	\$9,532	\$9,674	\$9,817	\$9,962	\$10,110	\$10,259	\$10,410	\$10,562
<b>Federal Taxes</b>											
Income Decrease (Federal - 100% Bonus Depreciation)	-	\$118,845	-	-	-	-	-	-	-	-	-
Change in Taxable Income	-	\$118,845	-	-	-	-	-	-	-	-	-
Federal Tax Liability	-	\$28,523	-	-	-	-	-	-	-	-	-
Federal Tax Credit	-	\$35,517	-	-	-	-	-	-	-	-	-
<b>Change in Federal Tax Liability</b>	-	\$64,040	-	-	-	-	-	-	-	-	-
<b>Total Cash Flow</b>	-\$136,604	\$82,920	\$9,393	\$9,532	\$9,674	\$9,817	\$9,962	\$10,110	\$10,259	\$10,410	\$10,562
<b>Cumulative Cash Flow</b>	-\$136,604	-\$53,684	-\$44,292	-\$34,760	-\$25,086	-\$15,268	-\$5,306	\$4,804	\$15,062	\$25,472	\$36,034



## 4.1 Cash Purchase

### Inputs and Key Financial Metrics

Total Project Costs	\$136,604	Payback Period	6.5 Years	Discount Rate	5%	State Income Tax Rate	7.9%
30-Year IRR	13.94%	30-Year ROI	206.8%	Electricity Escalation Rate	2%		
30-Year NPV	\$101,682	PV Degradation Rate	0.5%	Federal Income Tax Rate	24%		

Years	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21
<b>Cash</b>											
Project Costs	-	-	-	-	-	-	-	-	-	-	-
Focus on Energy Incentive	-	-	-	-	-	-	-	-	-	-	-
Electric Bill Savings	\$10,717	\$10,874	\$11,033	\$11,194	\$11,357	\$11,521	\$11,688	\$11,857	\$12,028	\$12,202	\$12,377
<b>Cash</b>	\$10,717	\$10,874	\$11,033	\$11,194	\$11,357	\$11,521	\$11,688	\$11,857	\$12,028	\$12,202	\$12,377
<b>Federal Taxes</b>											
Income Decrease (Federal - 100% Bonus Depreciation)	-	-	-	-	-	-	-	-	-	-	-
Change in Taxable Income	-	-	-	-	-	-	-	-	-	-	-
Federal Tax Liability	-	-	-	-	-	-	-	-	-	-	-
Federal Tax Credit	-	-	-	-	-	-	-	-	-	-	-
<b>Change in Federal Tax Liability</b>	-	-	-	-	-	-	-	-	-	-	-
<b>Total Cash Flow</b>	\$10,717	\$10,874	\$11,033	\$11,194	\$11,357	\$11,521	\$11,688	\$11,857	\$12,028	\$12,202	\$12,377
<b>Cumulative Cash Flow</b>	\$46,752	\$57,626	\$68,659	\$79,853	\$91,209	\$102,730	\$114,419	\$126,276	\$138,304	\$150,506	\$162,883



## 4.1 Cash Purchase

### Inputs and Key Financial Metrics

Total Project Costs	\$136,604	Payback Period	6.5 Years	Discount Rate	5%	State Income Tax Rate	7.9%
30-Year IRR	13.94%	30-Year ROI	206.8%	Electricity Escalation Rate	2%		
30-Year NPV	\$101,682	PV Degradation Rate	0.5%	Federal Income Tax Rate	24%		

Years	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30	Totals
<b>Cash</b>										
Project Costs	-	-	-	-	-	-	-	-	-	-\$136,604
Focus on Energy Incentive	-	-	-	-	-	-	-	-	-	\$9,625
Electric Bill Savings	\$12,554	\$12,734	\$12,915	\$13,099	\$13,285	\$13,474	\$13,664	\$13,857	\$14,052	\$345,456
<b>Cash</b>	\$12,554	\$12,734	\$12,915	\$13,099	\$13,285	\$13,474	\$13,664	\$13,857	\$14,052	\$218,477
<b>Federal Taxes</b>										
Income Decrease (Federal - 100% Bonus Depreciation)	-	-	-	-	-	-	-	-	-	\$118,845
Change in Taxable Income	-	-	-	-	-	-	-	-	-	\$118,845
Federal Tax Liability	-	-	-	-	-	-	-	-	-	\$28,523
Federal Tax Credit	-	-	-	-	-	-	-	-	-	\$35,517
<b>Change in Federal Tax Liability</b>	-	-	-	-	-	-	-	-	-	\$64,040
<b>Total Cash Flow</b>	\$12,554	\$12,734	\$12,915	\$13,099	\$13,285	\$13,474	\$13,664	\$13,857	\$14,052	\$282,517
<b>Cumulative Cash Flow</b>	\$175,437	\$188,171	\$201,086	\$214,185	\$227,471	\$240,944	\$254,609	\$268,465	\$282,517	-





## 5 Arch Electric: Commercial References



## References

*Mike Nicholson, President of Ampco Pumps*

*Phone: (414) 643-1852 ext. 125*

*Ty Weinhold, Chief Operating Officer at Viking Masek*

*Phone: (920) 564-5331*

*Bob Travis, President of InkWorks Printing*

*Phone: (414) 430-2635*

*John Edlebeck P.E. Director of Public Works, Village of Whitefish Bay*

*Phone: (414) 962-6690 ext. 114*

*Ken Manninen, President of Alliance Manufacturing, Inc.*

*Phone: (920) 922-8100*

*Larry Bierke, Iowa County Administrator*

*Phone: (608) 935-0318*

*Don Marx, President of Milwaukee Plate Glass Company*

*Phone: (414) 771-5660*

*Out of courtesy, please let us know if you'd like to call one of our references to discuss their solar system. We will call ahead and make sure that they are aware of an incoming call.*



**Prepared By:** Dan Steinhardt

**P:** (920) 838-4108, **E:** dan@archelec.com