

Phase Three Activity
Washburn and Bayfield Solar Photovoltaic
Financial Analysis:
Assumptions, Results and Scenario Analysis

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Disclaimer

The information presented here provides a feasibility study level overview of solar PV projects siting, sizing, generation, site electricity use offset, pricing and project economics. It should not be used as the only source of information.

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Executive Summary

Washburn Financial Analysis Summary - PV systems of over 50 kW

	Washburn High School	Washburn Elementary School	Housing Authority Lake View	Washburn WWTP	Bayfield County Jail
Size kW dc	120.1	120.1	55.9	120.1	108.7
Cost	\$204,170	\$204,170	\$95,030	\$204,170	\$184,790
Generation kWh year one	136,037	152,443	68,776	149,921	129,244
CO ₂ reduction tons year one	59.9	67.2	30.4	66	56.9
Direct Ownership no loan					
Year 1 Cost	\$163,643	\$162,541	\$75,788	\$162,710	\$147,699
25 year NPV	\$55,545	\$80,790	\$34,524	\$76,909	\$59,690
25 year IRR	5.90%	7.00%	6.70%	6.80%	6.30%
Cash flow positive year	15	14	14	14	15
Direct Ownership with loan					
Year 1 Cost	\$2,868	\$1,766	\$956	\$1,935	\$2,185
25 year NPV	\$38,737	\$63,982	\$26,701	\$60,101	\$44,477
25 year IRR	10.70%	19.30%	16.50%	17.60%	13.60%
Cash flow positive year	20	14	16	14	17
TPP					

Year 1 Cost	\$982	\$829	\$1,174	\$1,154	\$1,547
25 year NPV	\$54,861	\$81,869	\$27,656	\$76,300	\$58,365
25 year IRR	10.70%	17.60%	10.40%	15.50%	12.50%
Cash flow positive year	18	17	18	17	18

Bayfield Financial Analysis Summary – PV systems of over 50 kW

	Bayfield School	Bayfield WWTP	Bayfield Old Court House
Size kW dc	120.1	120.1	86.9
Cost	\$204,170	\$204,170	\$147,730
Generation kWh year one	133,167	152,935	105,366
CO ₂ reduction tons year one	58.7	67.4	46.4
Direct Ownership no loan			
Year 1 Cost	\$163,836	\$162,508	\$117,940
25 year NPV	\$51,128	\$81,548	\$50,861
25 year IRR	5.70%	7.00%	6.50%
Cash flow positive year	15	14	14
Direct Ownership with loan			
Year 1 Cost	\$3,061	\$1,733	\$1,609

25 year NPV	\$34,320	\$65,740	\$38,699
25 year IRR	9.60%	19.70%	15%
Cash flow positive year	22	15	16
TPP			
Year 1 Cost	\$2,312	\$931	\$1,345
25 year NPV	\$50,189	\$81,168	\$47,014
25 year IRR	9.80%	17.00%	12.20%
Cash flow positive year	18	17	17

Washburn and Bayfield Financial Analysis Summary –PV systems of under 50 kW

	Bayfield County Garage	Bayfield Rec Center	Bayfield City Hall	Bayfield Pavilion and City Docks
Size kW dc	40.3	41.5	26.9	38.6
Cost	\$74,555	\$76,868	\$49,765	\$79,130
Generation kWh year one	49,343	47,301	30,163	42,645
CO ₂ reduction tons year one	21.7	16.6	13.3	18.8
Direct Ownership no loan				
Year 1 Cost	\$59,843	\$61,940	\$40,131	\$62,740
25 year NPV	\$18,197	\$13,263	\$7,879	\$35,980

25 year IRR	5.60%	5.00%	4.80%	7.50%
Cash flow positive year	15	16	17	13
Direct Ownership with loan				
Year 1 Cost	\$1,135	\$1,410	\$944	\$428
25 year NPV	\$12,059	\$6,934	\$3,782	\$29,474
25 year IRR	9.30%	6.30%	5.70%	29.40%
Cash flow positive year	20	21	22	12

Please refer to Annex 1, for a summary of site ownership.

Opportunities to Improve Project Economics

- System generation per kW
 - If bifacial module cost is similar they could increase generation by >10% for the ground-sited arrays. Make the most sense at sites:
 - With high surface albedo (i.e., over snow or white roof)
 - Limited back-side racking shading (i.e., ground mounted arrays)
 - Sited a several feet off the ground (i.e., ground mounted arrays)
 - A white roof should increase rooftop PV system generation (cooler module temperatures in the summer and more reflected light – both of which result in increase solar generation)
- If the TPP investor was a corporation, the depreciation schedule would change from 5.5-year MARCs to 1-year depreciation
 - However, corporate investors are typically uninterested in projects this small that are so (legal) contract heavy
- TPP loan interest rate: 5.6% for 12 years
 - This has been increasing over the last year
 - Could be reduced using alternative financing strategies.
 - For example the Willy Street Food Coop in Madison WI recently funded \$600,00 using bonds at interest rates of 2.5% for 3 years, 3% for 5 years and 3.5% for seven years. [link](#)
- Buyout price: 30% of system cost in year 12
 - This could be adjusted, by decreasing the Energy Service Agreement (ESA) rate and increasing the buyout price.
 - This is Eagle Point Solar's strategy for the Sauk County projects
- Including energy efficiency and demand side management investments in the projects: currently not included in this project
 - Simply don't have the information, on the EE and DSM opportunities, to do this at this time
 - Adds complexity to the project, but should make the project more economically viable
 - Should always do energy efficiency first
- Other sources of funding to offset first costs
 - Currently analysis only includes Focus on Energy funding
 - Other sources of funding could improve the project's economics
 - Other grants/donations
 - SREC sales (but can not claim to be using solar or renewable or carbon free power)
 - Site host could offer some funding
 - A Wisconsin city is planning on doing this

Ownership Option Definitions

Direct Ownership

The local unit of government pays the full cost of the PV system and owns, operates, maintains and insures the PV system. The project's State and Federal tax benefits are not monetized.

Co-owned with Third Party Participant (TPP)

The TPPs are outside investors that own, operate, maintain and insure the solar PV system. They receive the project's tax benefits and energy service payments from the local government through the term of the Energy Services Agreement (ESA). The TPP sells the system to the local government any time between then end of year 7 and 25.

- The government body is the "Applicant" for purposes of the Wisconsin Public Service Commission's Distributed Generation Application Form and the local electric utility
- The project is largely owned by an LLC entity created solely for this project and in order to monetize some of the tax benefits
- The government body's co-ownership is often paid by the Focus on Energy grant and/or other grant
- The government body's co-ownership is between 10% and 25% of the PV system
- The government body is a member of the board that manages the operation of the project
- The LLC Entity enters in to a ESA with the government body that may provide: a. building energy management services to increase the energy efficiency of government buildings; b. installed energy efficiency technologies; c. solar energy system services for design, installation, operation, and for delivery of solar energy; and, d. informational services, including back ground information and data kiosk support.
- The services agreement incorporates a fixed monthly/quarterly service fee (annual fee adjustments, in some cases, may apply)
- At the end of the contract term, the government body may either purchase the solar PV system or ask it to be removed by the TPP (at the TPP's cost)
- The government body is not required to purchase the PV array
- The government body's purchase cost must be greater or equal to the fair market value of the PV system (requirement of the IRS).
- It is recommend that the government body entering a contract with a TPP has legal representation

Risk

Risk Matrix – who carries the risk

	PV System Owned by Local Government	PV System Co-owned with TPP
Installation Risk	Local Government	TPP
Technology Risk	Local Government	TPP Local Government after taking ownership

Solar Resource/Power Production Risk	Local Government	TPP ¹ Local Government for large acts of nature ²
O&M Risk	Local Government	TPP Local Government after taking ownership
Natural Disaster Risk	Covered by insurance	Covered by insurance

TPP takes on many risks including: the system not operating due to technical issues, the system having higher costs than expected (those costs include legal, O&M, replacements, accounting, billing, monitoring, insurance, etc.), the installation's startup being delayed by interconnection issues or weather or unforeseen circumstances, the solar resource being poorer, or snow cover more than expected, the investor not having the expected amount of passive income, tax code changes, etc.

Financial Definitions

Internal Rate of Return (IRR)

- Definition 1: The actual return provided by the project's cash flows
- Definition 2: The interest rate at which the net present value of all the cash flows (both positive and negative) from a project or investment equal zero
- Can be used to compare other investment returns

Discounted Net Present Value (NPV)

- The difference between the discounted value of cash inflows and the discounted value of cash outflows
- Discounting uses the discount rate, the discount rate is
 - The percentage that each future year's cash inflows and outflow are reduced to reflect the time value of money

¹ For normal variations of the solar resource

² For example major volcanic events or geo-engineering/cloud seeding

Analysis Data and Assumptions

Xcel Electric Rates

CG-7 General TOD Service-Sec, secondary voltage rate

- See Annex 2

Usage (kWh) charges

Rate	Off peak electricity use (\$ per kWh)	Business day electricity use 9 am to 9 pm (\$ per kWh)	
		Summer	Winter
CG 7	\$0.05602	\$0.07521	\$0.07021

Demand (kW) Charges

	\$ /month kW	
Annual	\$0.5	
	Summer \$/kW	Winter \$/kW
Monthly	13.00	11.00

CG-2 Small General Service rate

- See Annex 3

Rate	All electricity (\$ per kWh)	
	Summer	Winter
CG 1	\$0.12518	\$0.11365

Parallel Generation (net metering) rate PG-1

- See Annex 4
- Net metering for PV systems of 100 kW ac and under
- No customer charge or other fees

PV System Components

Used in Helioscope modeling

- Modules: Canadian Solar CS6U 345M (345 watts)
- Inverters
 - 120.1 kW array, four SMA STP 25000 30 (25 kW ac)
 - 108.7 kW array at the Washburn Jail, nine SMA Sunny Boy SB 10000TLUS - 10

- 77.3 kW at the Old National Park Head quarters, three SMA Sunny TriPower 24000TL-US
- 55.9 kW array at the Housing Authority, Lake View Apartments, two SMA TriPower 24000TL-US
- 40.3 kW array at the Washburn Garage, two SMA Sunny Tripower 24000TL-US
- 38.6 kW at the Pavilion, three SMA STP 15000TL-US
- 27.9 kW array at the Bayfield City Hall garage, one SMA TriPower 24000TL-US

Solar Resource Data

Used in Helioscope modeling

- Ironwood, Michigan NREL TMY3 data
- Located 38 miles from Bayfield and 37 miles from Washburn

Array Soiling and Snow Cover Losses

Month	10° Tilt Ballasted flat roof	12.5° Tilt Curved metal roof 17° tilt shingle roof	30° Tilt Ground mounted	45° Tilt Ground mounted	Helioscope Standard Assumption
January	65%	60%	50%	15%	2%
February	65%	60%	30%	15%	2%
March	25%	10%	5%	5%	2%
April to October	1%	1%	1%	1%	2%
November	10%	10%	5%	5%	2%
December	50%	40%	30%	10%	2%

1% summer, fall and spring losses due to regular washing by rain

System Cost

- Systems of over 50 kW – bid out as group
 - Assumes roughly 400 kW installed across four sites
 - Based on recent bids (Fall/Winter 2017 and 2018)
 - Ground mounted: \$1.70/watt
 - Roof ballasted racking mounted: \$1.70/watt
 - Some bidders have same pricing for flat roofed and ground mounted arrays
- Systems of under 50 kW- bid out as a group
 - Assumes roughly 200 kW installed at 4 – 6 sites
 - Ground mounted: \$1.85/watt
 - Roof ballasted racking mounted: \$1.85/watt
- Pricing does not include
 - Extended warranty for inverters
 - Unusual Xcel interconnection costs
 - Local government costs including staff, consultants, legal review, etc.
 - Large unforeseen site expenses (e.g., electrical panel/system upgrade, roof structural issues, etc.)

Value of Solar Generation: CG-7 and PG-1 rates

Estimated using hourly PV Watts data for Iron Wood MI and the CG-7 tariff schedule

Electricity usage (kWh) value:

- Array facing due south 10° tilt: 6.723 cents/kWh
- Array facing due south 30° tilt: 6.720 cents/kWh

Electricity demand (kW) Value

Weighted average monthly (based on expected generation): \$ 11.95/kW

Annual demand savings: \$0.50/kW

Value of Demand Savings

- Monthly: 12.5% of the kW dc rating of the PV system
- Annual: 7.5% of the kW dc rating of the PV system

Value of Solar Generation: CG-2 and PG-1 rates

All kWhs:

- Summer: 12.518 cents/kWh
- Winter: 11.365 cents/kWh

No demand charges

kWh Value, bases on expected annual generation

- 11.9 cents/kWh

General Modeling Assumptions

- System output degradation: 0.5%/year
- General inflation: 3%/year
- Energy cost inflation: 3%/year
- Discount rate for the local unit of government: 3%
 - Used only in NPV calculation
- Pounds CO₂ emitted per kWh of conventional power generated: 881 pounds/kWh
(Source: Xcel 2016 Corporate Responsibility report)

Modeling Assumptions: Municipality Ownership

Annual Costs

- Insurance: 0.35% of system cost
- Operation and Maintenance: 0.25% of system cost
- Replacements: 0.1% of system cost

Inverter replacement costs

- Year 20, 0.5% of system cost
- Year 25, 0.25% of system cost

Loan/financing/bonds

- Interest rate: 4%

- Term: 20 years
- Share of project cost: 85%

Modeling Assumptions: Co-owned with Third Party Participant (TPP)

TPP Costs included in the initial project cost:

- Permits, fees, contingency: \$300/site
- Property insurance: 0.2% of system's installed cost
- Legal total: \$2,500/site
- Accounting: \$500 each site
- Upfront general liability: 0.15% of system's cost
- Loan fees: \$300 each site
- Wisconsin Department of Financial Institutions (DFI) fee: \$200 each site
- Construction loan interest: 0.6% of loan amount
- Development fee: 7% of initial investment (all costs less the Focus on Energy grant)

Tax prep. Years 1 and 2: \$1,500/year each

Tax prep. Years 3 to ownership change: \$633/year each

Operation and Maintenance and Replacements: 0.35% of system cost

Insurance (property and general liability): 0.35% of system cost

Tax Benefits

- Investment tax credit (ITC): 30%
- Standard MACRS depreciation over 5.5 years
 - Individual passive investors are unable to fully depreciate the project in year 1 (the new federal tax law allows corporations to do this)
- Investor's state tax rate: 5%
- Investor's federal tax rate: 27%

TPP Contract and Economics

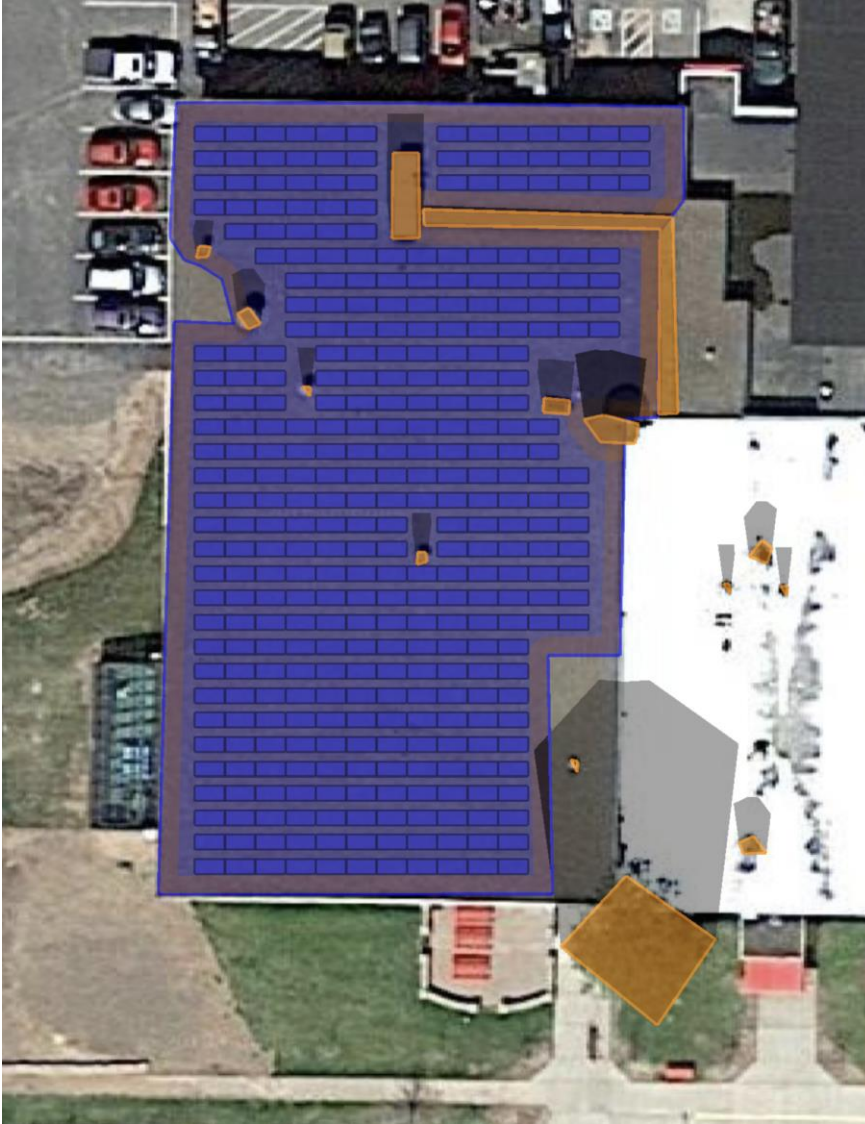
- Energy Service Agreement increase: 3%/year
- Site owner buy out: year 12
 - At 30% of system cost (or fair market value (FMV)) whichever is greater
 - Analysis assumes 30% of system cost
- Investor return 13%
- Loan interest rate: 5.6%
- Loan term: 12 years

Discussion of Key Assumptions

- Pricing: \$1.70/kW dc
 - Late February 2018 bid for three PV systems totaling 240 kW system was \$1.78/watt
- Electricity price escalation rate: 3%
 - 3% for kWh and kW is reasonable, mostly with increasing inflation
 - Used it in the Sauk County analysis and contracts
- Monthly demand savings: 12.5% of the kW dc rating of the PV system
 - At a Madison-area school with PV and air conditioning, this is between 15% and 20%
- TPP investor's state tax rate, used in valuing depreciation benefits: 5%
 - Depends on the TPP investors' home state. For example the IL state tax rate is 4.9%
 - Wisconsin tax rate for higher income individuals is 6.3% to 7.6%
- TPP investor's federal tax rate, used in valuing depreciation benefits: 27%
 - 30% before the recent federal tax changes

Direct Ownership and TPP Analysis of Sites of over 50 kW dc

Washburn High School



kW dc: 120.1

kWh/kW: 1,132.7

Municipal Ownership Results

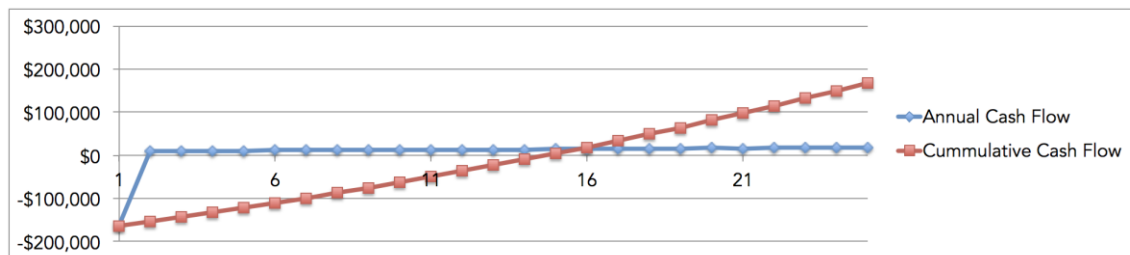
System cost	\$204,170	
Focus on Energy grant	\$30,626	
System cost after Focus grant	\$173,545	
Year-one generation	136,037	kWh

Year-one CO ₂ reduction	59.9	Tons
Simple payback period	15.3	Years
Years to cost recovery	15	Years

Financial Metrics

Year	IRR	NPV
20	4.1%	\$11,768
25	5.9%	\$55,545
30	6.9%	\$98,095

Annual and Cumulative Cash Flow Diagram



20-Year Project Cash Flow

Year	1	2	3	4	5	6	7
System Cost	\$(204,170)						
Focus Incentives	\$30,626						
kWh Savings	\$9,142	\$9,369	\$9,602	\$9,840	\$10,085	\$10,335	\$10,592
Demand Savings	\$2,189	\$2,254	\$2,322	\$2,392	\$2,464	\$2,537	\$2,614
Maintenance and Insurance Cost	\$(1,429)	\$(1,451)	\$(1,494)	\$(1,539)	\$(1,585)	\$(1,633)	\$(1,682)
Annual Cash Flow	\$(163,643)	\$10,173	\$10,430	\$10,693	\$10,963	\$11,240	\$11,524
Cumulative Cash Flow	\$(163,643)	\$(153,470)	\$(143,041)	\$(132,348)	\$(121,384)	\$(110,144)	\$(98,620)

Year	8	9	10	11	12	13	14
kWh Savings	\$10,855	\$11,125	\$11,402	\$11,685	\$11,975	\$12,273	\$12,578
Demand Savings	\$2,692	\$2,773	\$2,856	\$2,942	\$3,030	\$3,121	\$3,214
Maintenance and Insurance Cost	\$(1,732)	\$(1,784)	\$(1,838)	\$(1,893)	\$(1,950)	\$(2,008)	\$(2,068)
Annual Cash Flow	\$11,815	\$12,114	\$12,420	\$12,734	\$13,056	\$13,386	\$13,724
Cumulative Cash Flow	\$(86,805)	\$(74,691)	\$(62,271)	\$(49,537)	\$(36,481)	\$(23,095)	\$(9,371)

Year	15	16	17	18	19	20
kWh Savings	\$12,891	\$13,211	\$13,539	\$13,876	\$14,220	\$14,574
Demand Savings	\$3,311	\$3,410	\$3,512	\$3,618	\$3,726	\$3,838
Maintenance and Insurance Cost	\$(2,130)	\$(2,194)	\$(2,260)	\$(2,328)	\$(2,398)	\$(2,470)
Annual Cash Flow	\$14,071	\$14,427	\$14,792	\$15,166	\$15,549	\$15,963

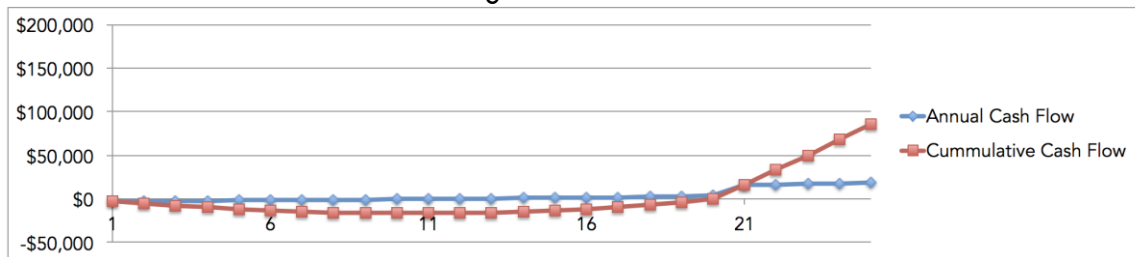
Cumulative Cash Flow	\$4,700	\$19,126	\$33,918	\$49,084	\$64,633	\$81,596
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With 20-year loan covering 85% of system cost and a 4% interest rate

Financial Metrics

Year	IRR	NPV
20	-0.1%	\$(5,040)
25	10.7%	\$38,737
30	13.0%	\$81,286

Annual and Cumulative Cash Flow Diagram



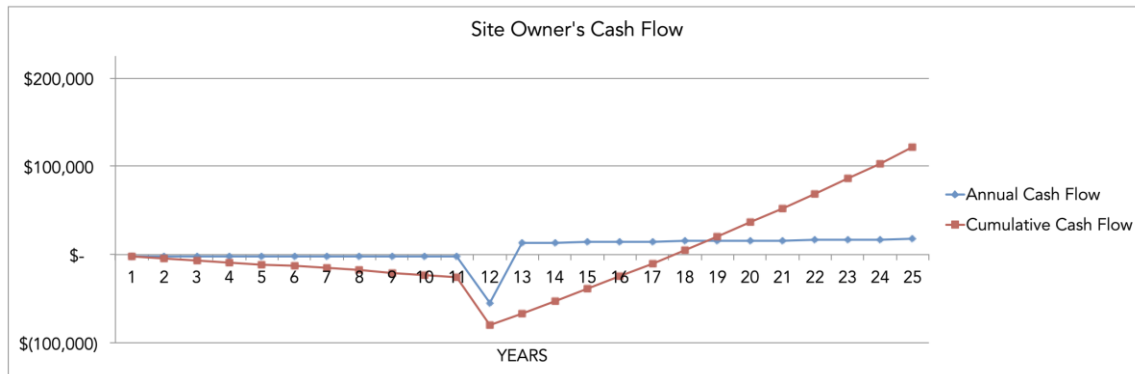
Third Party Participant (TPP) Results

Year-one service agreement rate: 9.87 cents/kWh

Financial Metrics

	IRR	NPV
20 year	5.8%	\$11,898
25 year	10.7%	\$54,861
30 year	12.5%	\$97,128

Annual and Cumulative Cash Flow Diagram



20-Year Project Cash Flow

Year	00	1	2	3	4	5	6
Focus on Energy Award	\$30,626	\$-	\$-	\$-	\$-	\$-	\$-
Equip purch by non-profit directly	\$(30,626)	\$-	\$-	\$-	\$-	\$-	\$-
Service Agreement Payments	\$-	\$(13,427)	\$(13,761)	\$(14,102)	\$(14,453)	\$(14,812)	\$(15,180)
Energy Cost Savings (kWh)	\$-	\$9,142	\$9,369	\$9,602	\$9,840	\$10,085	\$10,335
kW Savings + Inverter Replacements	\$-	\$2,189	\$2,254	\$2,322	\$2,392	\$2,464	\$2,537
Total	\$-	\$(2,096)	\$(2,137)	\$(2,179)	\$(2,221)	\$(2,264)	\$(2,307)
Cumulative	\$-	\$(2,096)	\$(4,233)	\$(6,412)	\$(8,633)	\$(10,897)	\$(13,204)

Year	7	8	9	10	11	12	13
System Buy-out	\$-	\$-	\$-	\$-	\$-	\$(52,063)	\$-
Service Agreement Payments	\$(15,557)	\$(15,944)	\$(16,340)	\$(16,746)	\$(17,162)	\$(17,589)	\$-
O&M, Replacements, Insurance	\$-	\$-	\$-	\$-	\$-	\$-	\$(2,038)
Energy Cost Savings (kWh)	\$10,592	\$10,855	\$11,125	\$11,402	\$11,685	\$11,975	\$12,273
kW Savings + Inverter Replacements	\$2,614	\$2,692	\$2,773	\$2,856	\$2,942	\$3,030	\$3,121
Total	\$(2,352)	\$(2,397)	\$(2,442)	\$(2,489)	\$(2,536)	\$(54,647)	\$13,356
Cumulative	\$(15,556)	\$(17,952)	\$(20,394)	\$(22,883)	\$(25,419)	\$(80,066)	\$(66,710)

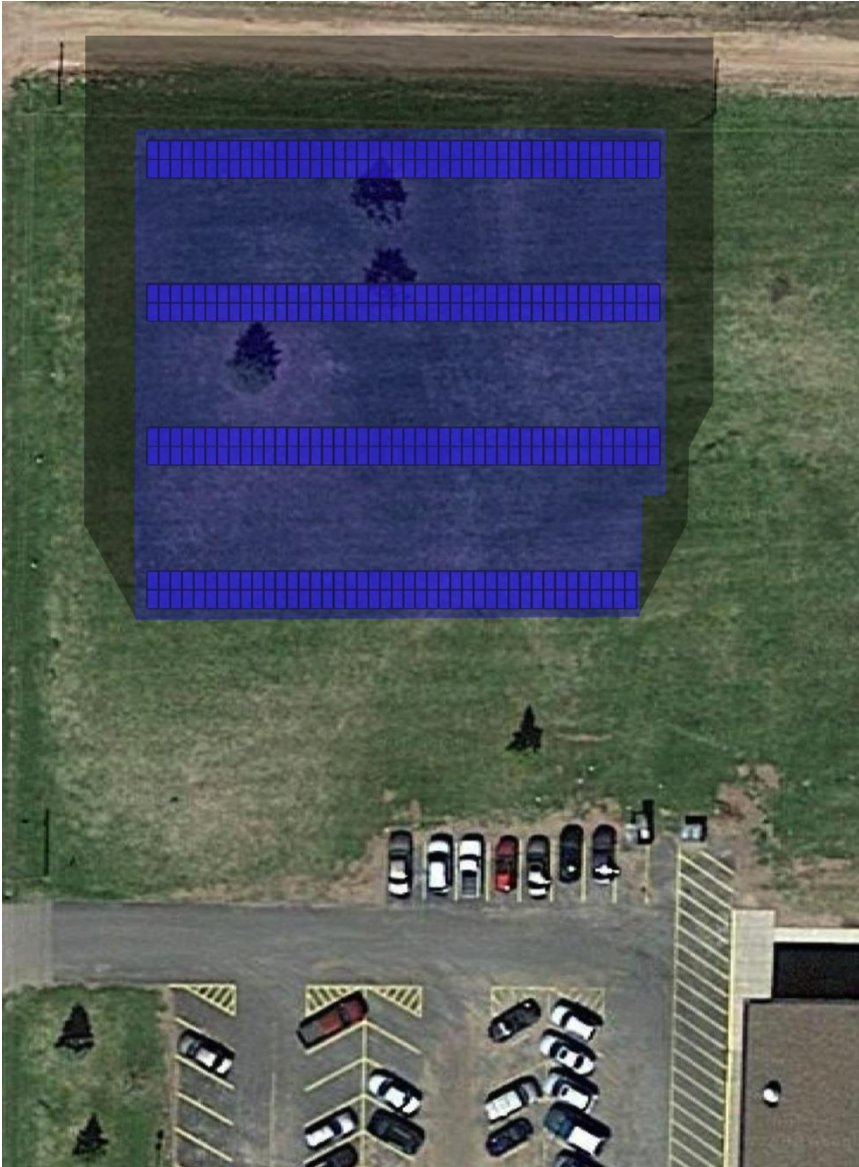
Year	14	15	16	17	18	19	20
Service Agreement Payments	\$-	\$-	\$-	\$-	\$-	\$-	\$-

O&M, Replacements, Insurance	\$(2,099)	\$(2,162)	\$(2,227)	\$(2,293)	\$(2,362)	\$(2,433)	\$(2,506)
Energy Cost Savings (kWh)	\$12,578	\$12,891	\$13,211	\$13,539	\$13,876	\$14,220	\$14,574
kW Savings + Inverter Replacements	\$3,214	\$3,311	\$3,410	\$3,512	\$3,618	\$3,726	\$3,634
0	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Total	\$13,694	\$14,040	\$14,394	\$14,758	\$15,131	\$15,514	\$15,702
Cumulative	\$(53,016)	\$(38,976)	\$(24,582)	\$(9,824)	\$5,307	\$20,821	\$36,522

Comparison of Direct Ownership and TPP Results for Washburn High School

Site Owner's	Direct Ownership	Direct Ownership	TPP
	No loan	With loan	
Out of Pocket Year-One Cost	\$163,643	\$2,868	\$2,096
			Energy services agreement > bill savings
Cash Flow Positive	Year 15	Year 21	Year 18
20 year IRR	4.10%	-0.1%	5.80%
25 year IRR	5.90%	10.7%	10.70%
20 year NPV	\$11,768	-\$5,040	\$11,898
25 year NPV	\$55,545	\$38,737	\$54,861

Washburn Elementary School



kW dc: 120.1

kWh/kW: 1,269.3

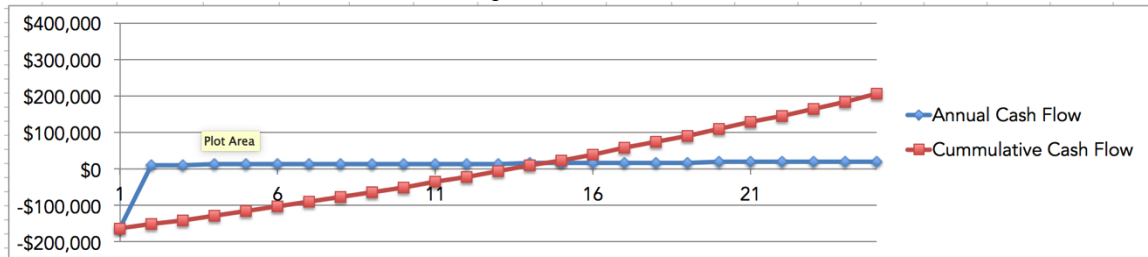
Municipal Ownership Results

System cost	\$204,170	
Focus on Energy grant	\$30,626	
System cost after Focus grant and planning costs	\$173,545	
Year-one generation	152,443	kWh
Year-one CO ₂ reduction	67.2	Tons
Simple payback period	14.0	Years
Years to cost recovery	14	Years

Financial Metrics

Year	IRR	NPV
20	5.3%	\$32,220
25	7.0%	\$80,790
30	7.9%	\$128,014

Annual and Cumulative Cash Flow Diagram



20-Year Project Cash Flow

Year	1	2	3	4	5	6	7
System Cost	\$(204,170)						
Focus Incentives	\$30,626						
kWh Savings	\$10,244	\$10,499	\$10,760	\$11,027	\$11,301	\$11,582	\$11,870
Demand Savings	\$2,189	\$2,254	\$2,322	\$2,392	\$2,464	\$2,537	\$2,614
Parallel Generation Charge	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Maintenance and Insurance Cost	\$(1,429)	\$(1,451)	\$(1,494)	\$(1,539)	\$(1,585)	\$(1,633)	\$(1,682)
Loan amount	\$-						
Loan payments	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Annual Cash Flow	\$(162,541)	\$11,303	\$11,588	\$11,880	\$12,179	\$12,487	\$12,802
Cumulative Cash Flow	\$(162,541)	\$(151,238)	\$(139,651)	\$(127,771)	\$(115,591)	\$(103,105)	\$(90,303)

Year	8	9	10	11	12	13	14
kWh Savings	\$12,165	\$12,467	\$12,777	\$13,094	\$13,420	\$13,753	\$14,095
Demand Savings	\$2,692	\$2,773	\$2,856	\$2,942	\$3,030	\$3,121	\$3,214
Parallel Generation Charge	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Maintenance and Insurance Cost	\$(1,732)	\$(1,784)	\$(1,838)	\$(1,893)	\$(1,950)	\$(2,008)	\$(2,068)
Loan amount							
Loan payments	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Annual Cash Flow	\$13,124	\$13,456	\$13,795	\$14,143	\$14,500	\$14,866	\$15,241
Cumulative Cash Flow	\$(77,179)	\$(63,723)	\$(49,928)	\$(35,785)	\$(21,285)	\$(6,419)	\$8,822

Year	15	16	17	18	19	20
kWh Savings	\$14,445	\$14,804	\$15,172	\$15,549	\$15,935	\$16,331
Demand Savings	\$3,311	\$3,410	\$3,512	\$3,618	\$3,726	\$3,838
Parallel Generation Charge	\$-	\$-	\$-	\$-	\$-	\$-

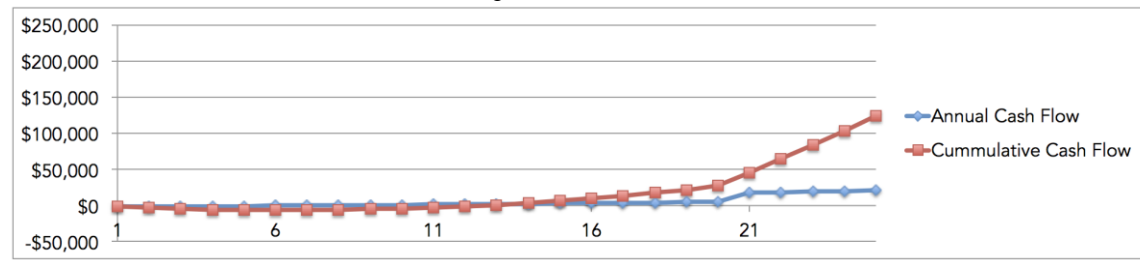
Maintenance and Insurance Cost	\$(2,130)	\$(2,194)	\$(2,260)	\$(2,328)	\$(2,398)	\$(2,470)
Loan amount						
Loan payments	\$-	\$-	\$-	\$-	\$-	\$-
Annual Cash Flow	\$15,626	\$16,020	\$16,424	\$16,839	\$17,264	\$18,721
Cumulative Cash Flow	\$24,447	\$40,467	\$56,892	\$73,731	\$90,995	\$109,715

With 20-year loan covering 85% of system cost and a 4% interest rate

Financial Metrics

Year	IRR	NPV
20	14.1%	\$15,412
25	19.3%	\$63,982
30	20.6%	\$111,206

Annual and Cumulative Cash Flow Diagram



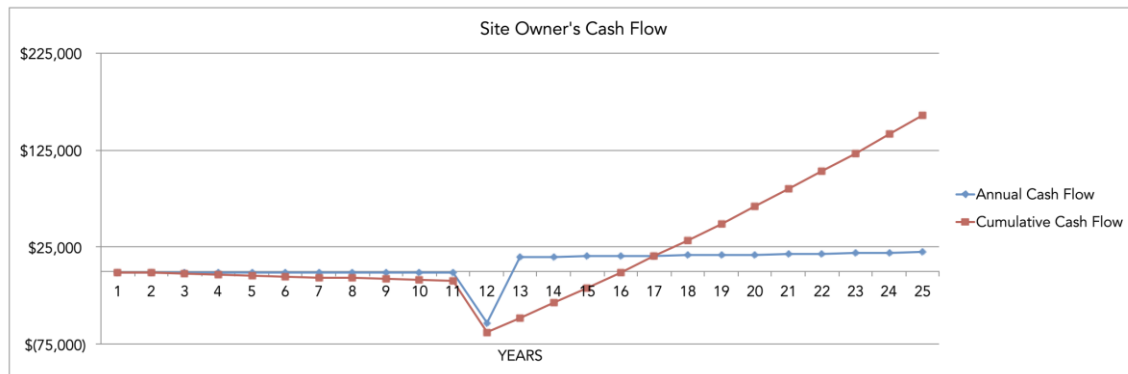
Third Party Participant (TPP) Results

Year-one energy service agreement rate: 8.7 cents/kWh

Financial Metrics

	IRR	NPV
20 year	13.6%	\$34,152
25 year	17.6%	\$81,869
30 year	18.9%	\$128,771

Annual and Cumulative Cash Flow Diagram



20-Year Project Cash Flow

Year	00	1	2	3	4	5	6
Focus on Energy Award	\$30,600	\$-	\$-	\$-	\$-	\$-	\$-
Equip purch by non-profit directly	\$(30,600)	\$-	\$-	\$-	\$-	\$-	\$-
Service Agreement Payments	\$-	\$(13,251)	\$(13,581)	\$(13,918)	\$(14,264)	\$(14,619)	\$(14,982)
Energy Cost Savings (kWh)	\$-	\$10,236	\$10,490	\$10,751	\$11,018	\$11,292	\$11,572
kW Savings + Inverter Replacements	\$-	\$2,187	\$2,253	\$2,320	\$2,390	\$2,461	\$2,535
Total	\$-	\$(829)	\$(838)	\$(847)	\$(857)	\$(865)	\$(874)
Cumulative	\$-	\$(829)	\$(1,667)	\$(2,514)	\$(3,371)	\$(4,236)	\$(5,111)

Year	7	8	9	10	11	12	13
System Buy-out	\$-	\$-	\$-	\$-	\$-	\$(52,020)	\$-
Service Agreement Payments	\$(15,354)	\$(15,736)	\$(16,127)	\$(16,528)	\$(16,938)	\$(17,359)	\$-
O&M, Replacements, Insurance	\$-	\$-	\$-	\$-	\$-	\$-	\$(2,036)
Energy Cost Savings (kWh)	\$11,860	\$12,154	\$12,457	\$12,766	\$13,083	\$13,408	\$13,742
kW Savings + Inverter Replacements	\$2,611	\$2,690	\$2,770	\$2,854	\$2,939	\$3,027	\$3,118
Total	\$(883)	\$(891)	\$(900)	\$(908)	\$(916)	\$(52,943)	\$14,824
Cumulative	\$(5,994)	\$(6,885)	\$(7,785)	\$(8,693)	\$(9,609)	\$(62,552)	\$(47,728)

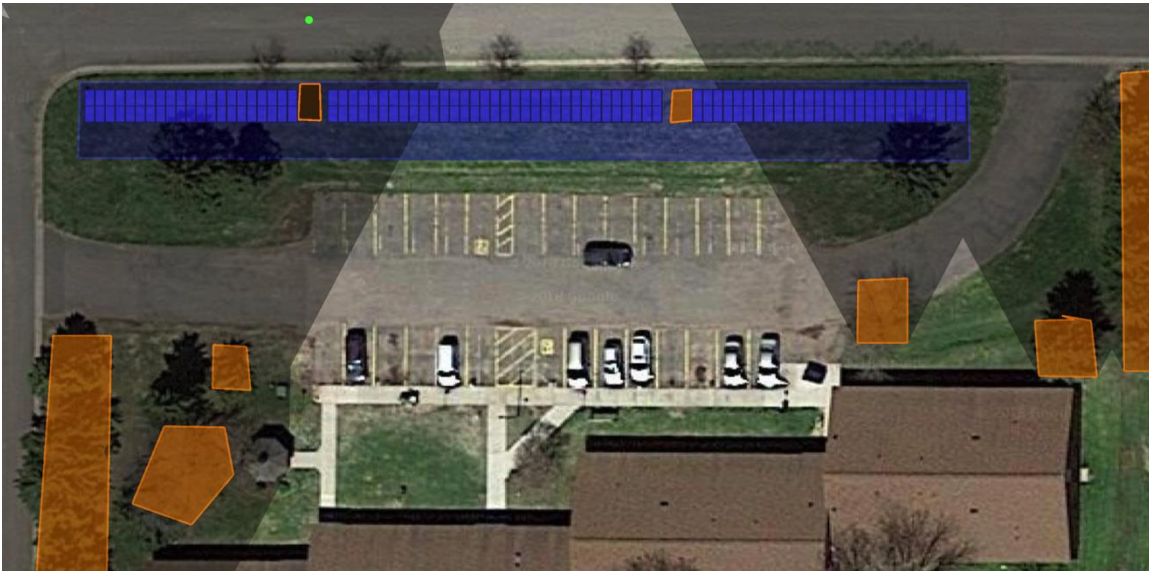
Year	14	15	16	17	18	19	20
O&M, Replacements, Insurance	\$(2,097)	\$(2,160)	\$(2,225)	\$(2,292)	\$(2,360)	\$(2,431)	\$(2,504)

Energy Cost Savings (kWh)	\$14,083	\$14,433	\$14,792	\$15,159	\$15,536	\$15,922	\$16,318
kW Savings + Inverter Replacements	\$3,212	\$3,308	\$3,407	\$3,509	\$3,615	\$3,723	\$3,631
0	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Total	\$15,198	\$15,581	\$15,974	\$16,377	\$16,791	\$17,214	\$17,445
Cumulative	\$(32,531)	\$(16,949)	\$(975)	\$15,402	\$32,193	\$49,407	\$66,852

Comparison of Direct Ownership and TPP Results for Washburn Elementary School

Site Owner's	Direct Ownership No loan	Direct Ownership With loan	TPP
Out of Pocket Year-One Cost	\$162,541	\$1,766	\$982 Energy services agreement > bill savings
Cash Flow Positive	Year 14	Year 14	Year 17
20 year IRR	5.3%	14.1%	12.5%
25 year IRR	7.0%	19.3%	16.6%
20 year NPV	\$32,220	\$15,412	\$34,152
25 year NPV	\$80,790	\$63,982	\$81,869

Housing Authority, Lake View Terrace



kW dc: 55.9
kWh/kW: 1233.5

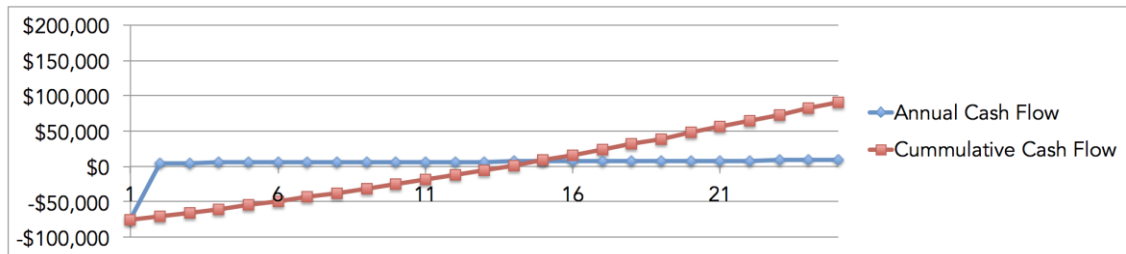
System cost	\$95,030	
Focus on Energy grant	\$14,255	
System cost after Focus grant	\$80,776	
Year-one generation	68,953	kWh
Year-one CO2 reduction	30.4	Tons
Simple payback period	14.3	Years
Years to cost recovery	14	Years

Municipal Ownership Results

Year	IRR	NPV
20	5.0%	\$12,502
25	6.7%	\$34,524
30	7.7%	\$55,934

Financial Metrics

Annual and Cumulative Cash Flow Diagram



20-Year Cash Flow

Year	1	2	3	4	5	6	7
System Cost	\$(95,030)						
Focus Incentives	\$14,255						
kWh Savings	\$4,634	\$4,749	\$4,867	\$4,988	\$5,112	\$5,239	\$5,369
Demand Savings	\$1,019	\$1,049	\$1,081	\$1,113	\$1,147	\$1,181	\$1,216
Maintenance and Insurance Cost	\$(665)	\$(675)	\$(695)	\$(716)	\$(738)	\$(760)	\$(783)
Annual Cash Flow	\$(75,788)	\$5,123	\$5,252	\$5,385	\$5,521	\$5,660	\$5,803
Cumulative Cash Flow	\$(75,788)	\$(70,665)	\$(65,413)	\$(60,029)	\$(54,508)	\$(48,848)	\$(43,046)

Year	8	9	10	11	12	13	14
kWh Savings	\$5,502	\$5,639	\$5,779	\$5,923	\$6,070	\$6,221	\$6,375
Demand Savings	\$1,253	\$1,291	\$1,329	\$1,369	\$1,410	\$1,453	\$1,496
Maintenance and Insurance Cost	\$(806)	\$(830)	\$(855)	\$(881)	\$(907)	\$(935)	\$(963)
Annual Cash Flow	\$5,949	\$6,099	\$6,253	\$6,411	\$6,573	\$6,739	\$6,909
Cumulative Cash Flow	\$(37,097)	\$(30,998)	\$(24,744)	\$(18,333)	\$(11,761)	\$(5,022)	\$1,887

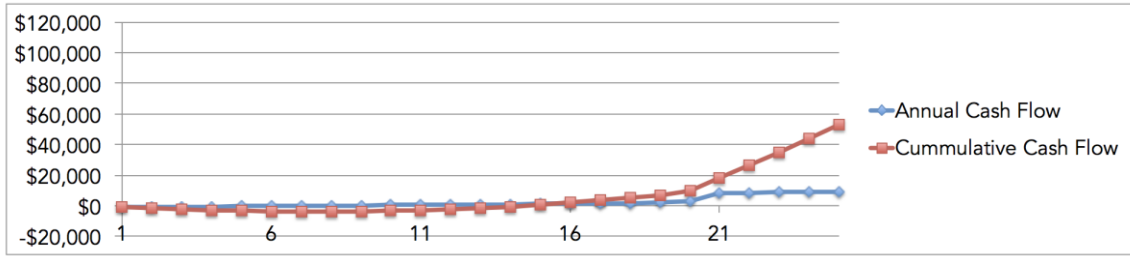
Year	15	16	17	18	19	20
kWh Savings	\$6,534	\$6,696	\$6,863	\$7,033	\$7,208	\$7,387
Demand Savings	\$1,541	\$1,587	\$1,635	\$1,684	\$1,734	\$1,786
Maintenance and Insurance Cost	\$(992)	\$(1,021)	\$(1,052)	\$(1,083)	\$(1,116)	\$(1,149)
Annual Cash Flow	\$7,083	\$7,262	\$7,445	\$7,633	\$7,826	\$8,499
Cumulative Cash Flow	\$8,970	\$16,232	\$23,678	\$31,311	\$39,137	\$47,636

With 20-year loan covering 85% of system cost and a 4% interest rate

Financial Metrics

Year	IRR	NPV
20	9.8%	\$4,678
25	16.5%	\$26,701
30	18.0%	\$48,110

Annual and Cumulative Cash Flow Diagram



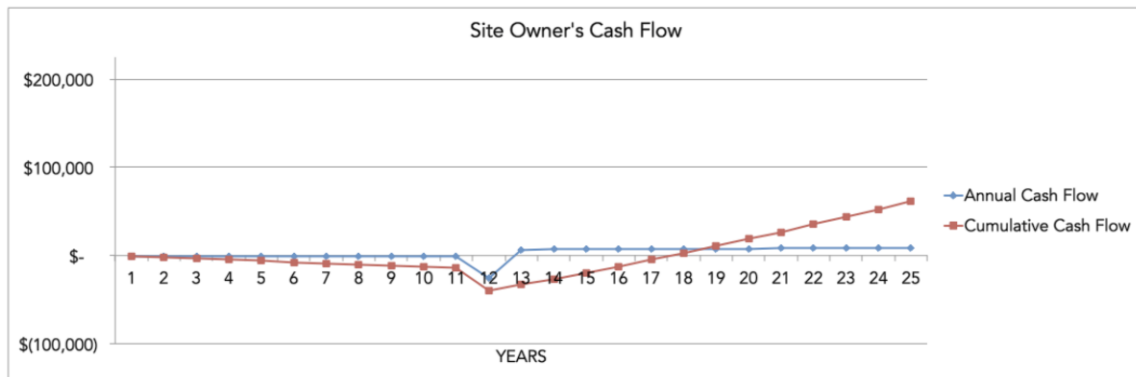
Third Party Participant (TPP) Results

Year-one energy service agreement rate: 9.9 cents/kWh

Financial Metrics

	IRR	NPV
20 year	5.7%	\$6,013
25 year	10.4%	\$27,656
30 year	12.2%	\$48,935

Annual and Cumulative Cash Flow Diagram



20-Year Cash Flow

Year	00	1	2	3	4	5	6
Focus on Energy Award	\$14,255	\$-	\$-	\$-	\$-	\$-	\$-
Equip purch by non-profit directly	\$(14,255)	\$-	\$-	\$-	\$-	\$-	\$-
Service Agreement Payments	\$-	\$(6,826)	\$(6,996)	\$(7,170)	\$(7,348)	\$(7,531)	\$(7,718)
Energy Cost Savings (kWh)	\$-	\$4,634	\$4,749	\$4,867	\$4,988	\$5,112	\$5,239
kW Savings + Inverter Replacements	\$-	\$1,019	\$1,049	\$1,081	\$1,113	\$1,147	\$1,181
Total	\$-	\$(1,174)	\$(1,198)	\$(1,222)	\$(1,247)	\$(1,272)	\$(1,298)
Cumulative	\$-	\$(1,174)	\$(2,372)	\$(3,594)	\$(4,841)	\$(6,113)	\$(7,411)

Year	7	8	9	10	11	12	13
Buyout Price	\$-	\$-	\$-	\$-	\$-	\$(24,233)	\$-
Service Agreement Payments	\$(7,910)	\$(8,106)	\$(8,308)	\$(8,514)	\$(8,726)	\$(8,942)	\$-
Operation and Maintenance	\$-	\$-	\$-	\$-	\$-	\$-	\$(948)
Energy Cost Savings (kWh)	\$5,369	\$5,502	\$5,639	\$5,779	\$5,923	\$6,070	\$6,221
kW Savings + Inverter Replacements	\$1,216	\$1,253	\$1,291	\$1,329	\$1,369	\$1,410	\$1,453
Total	\$(1,324)	\$(1,351)	\$(1,378)	\$(1,406)	\$(1,434)	\$(25,695)	\$6,725
Cumulative	\$(8,735)	\$(10,086)	\$(11,464)	\$(12,870)	\$(14,303)	\$(39,998)	\$(33,273)

Year	14	15	16	17	18	19	20
Operation and Maintenance	\$(977)	\$(1,006)	\$(1,036)	\$(1,067)	\$(1,099)	\$(1,132)	\$(1,166)
Energy Cost Savings (kWh)	\$6,375	\$6,534	\$6,696	\$6,863	\$7,033	\$7,208	\$7,387

kW Savings + Inverter Replacements	\$1,496	\$1,541	\$1,587	\$1,635	\$1,684	\$1,734	\$1,691
Total	\$6,895	\$7,069	\$7,247	\$7,430	\$7,618	\$7,810	\$7,912
Cumulative	\$(26,379)	\$(19,310)	\$(12,063)	\$(4,633)	\$2,985	\$10,794	\$18,706

Comparison of Direct Ownership and TPP Results for Washburn Housing Authority
Lakeview Commons

Site Owner's	Direct Ownership No loan	Direct Ownership With loan	TPP
Out of Pocket Year-One Cost	\$75,788	\$956	\$1,174 Energy services agreement > bill savings
Cash Flow Positive	Year 14	Year 15	Year 18
20 year IRR	5.0%	9.8%	5.70%
25 year IRR	6.7%	16.5%	10.40%
20 year NPV	\$12,502	\$4,678	\$6,013
25 year NPV	\$34,524	\$26,701	\$27,656
Years to payback after buy out			~6

Washburn City Waste Water Treatment Plant (WWTP)



kW dc: 120.1
kWh/kW: 1248.3

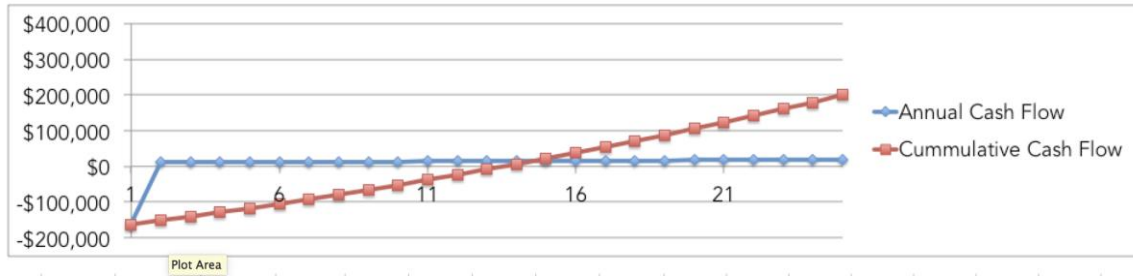
Municipal Ownership Results

System cost	\$204,170	
Focus on Energy grant	\$30,626	
System cost after Focus grant	\$173,545	
Year-one generation	149,921	kWh
Year-one CO2 reduction	66.0	Tons
Simple payback period	14.2	Years
Years to cost recovery	14	Years

Financial Metrics

Year	IRR	NPV
20	5.1%	\$29,076
25	6.8%	\$76,909
30	7.8%	\$123,415

Annual and Cumulative Cash Flow Diagram



20-Year Cash Flow

Year	1	2	3	4	5	6	7
System Cost	\$(204,170)						
Focus Incentives	\$30,626						
kWh Savings	\$10,075	\$10,325	\$10,582	\$10,845	\$11,114	\$11,390	\$11,673
Demand Savings	\$2,189	\$2,254	\$2,322	\$2,392	\$2,464	\$2,537	\$2,614
Maintenance and Insurance Cost	\$(1,429)	\$(1,451)	\$(1,494)	\$(1,539)	\$(1,585)	\$(1,633)	\$(1,682)
Annual Cash Flow	\$(162,710)	\$11,129	\$11,410	\$11,697	\$11,992	\$12,295	\$12,605
Cumulative Cash Flow	\$(162,710)	\$(151,581)	\$(140,172)	\$(128,474)	\$(116,482)	\$(104,187)	\$(91,582)

Year	8	9	10	11	12	13	14
kWh Savings	\$11,963	\$12,261	\$12,565	\$12,878	\$13,198	\$13,526	\$13,862
Demand Savings	\$2,692	\$2,773	\$2,856	\$2,942	\$3,030	\$3,121	\$3,214
Maintenance and Insurance Cost	\$(1,732)	\$(1,784)	\$(1,838)	\$(1,893)	\$(1,950)	\$(2,008)	\$(2,068)
Annual Cash Flow	\$12,923	\$13,249	\$13,584	\$13,926	\$14,278	\$14,638	\$15,008
Cumulative Cash Flow	\$(78,658)	\$(65,409)	\$(51,826)	\$(37,899)	\$(23,621)	\$(8,983)	\$6,025

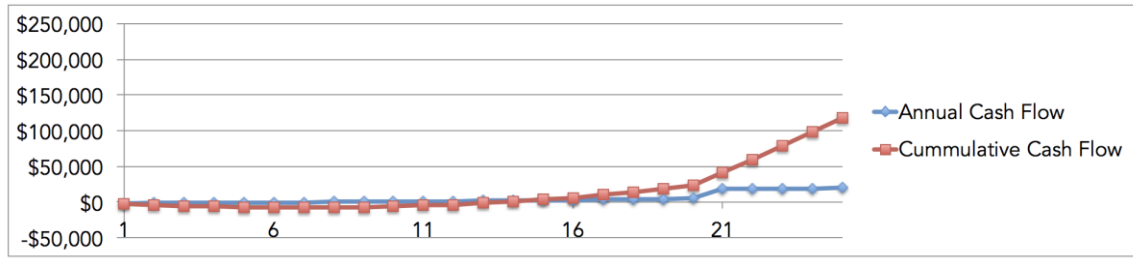
Year	15	16	17	18	19	20
kWh Savings	\$14,206	\$14,559	\$14,921	\$15,292	\$15,672	\$16,061
Demand Savings	\$3,311	\$3,410	\$3,512	\$3,618	\$3,726	\$3,838
Maintenance and Insurance Cost	\$(2,130)	\$(2,194)	\$(2,260)	\$(2,328)	\$(2,398)	\$(2,470)
Annual Cash Flow	\$15,387	\$15,775	\$16,173	\$16,582	\$17,000	\$18,451
Cumulative Cash Flow	\$21,411	\$37,187	\$53,360	\$69,942	\$86,942	\$105,392

With 20-year loan covering 85% of system cost and a 4% interest rate

Financial Metrics

Year	IRR	NPV
20	11.5%	\$12,268
25	17.6%	\$60,101
30	19.0%	\$106,606

Annual and Cumulative Cash Flow Diagram



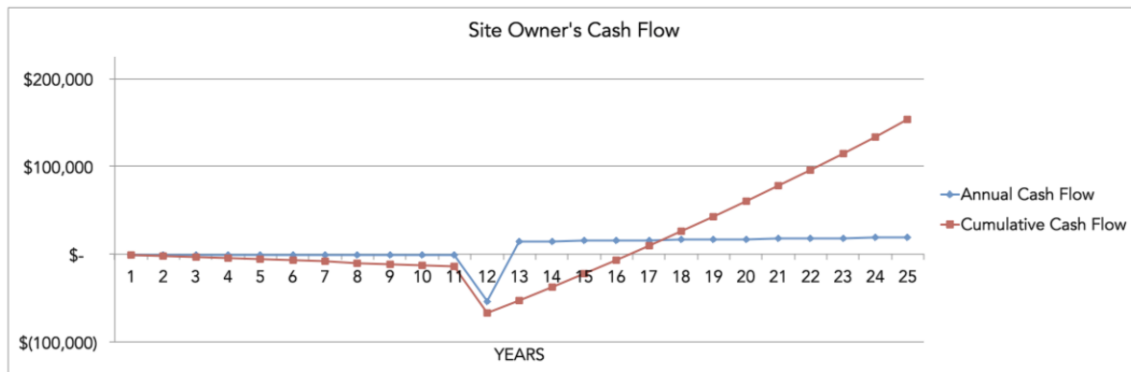
Third Party Participant (TPP) Results

Year-one energy service agreement rate: 8.95 cents/kWh

Financial Metrics

-	IRR	NPV
20 year	11.2%	\$29,280
25 year	15.5%	\$76,300
30 year	16.9%	\$122,523

Annual and Cumulative Cash Flow Diagram



20-Year Cash Flow

Year	00	1	2	3	4	5	6
Focus on Energy Award	\$30,626	\$-	\$-	\$-	\$-	\$-	\$-
Equip purch by non-profit directly	\$(30,626)	\$-	\$-	\$-	\$-	\$-	\$-
Service Agreement Payments	\$-	\$(13,418)	\$(13,751)	\$(14,093)	\$(14,443)	\$(14,802)	\$(15,170)
Energy Cost Savings (kWh)	\$-	\$10,075	\$10,325	\$10,582	\$10,845	\$11,114	\$11,390
kW Savings + Inverter Replacements	\$-	\$2,189	\$2,254	\$2,322	\$2,392	\$2,464	\$2,537
Total	\$-	\$(1,154)	\$(1,172)	\$(1,189)	\$(1,207)	\$(1,225)	\$(1,242)
Cumulative	\$-	\$(1,154)	\$(2,326)	\$(3,516)	\$(4,723)	\$(5,947)	\$(7,189)

Year	7	8	9	10	11	12	13
Buyout Price	\$-	\$-	\$-	\$-	\$-	\$(52,063)	\$-
Service Agreement Payments	\$(15,547)	\$(15,933)	\$(16,329)	\$(16,735)	\$(17,151)	\$(17,577)	\$-
Operation and Maintenance	\$-	\$-	\$-	\$-	\$-	\$-	\$(2,038)
Energy Cost Savings (kWh)	\$11,673	\$11,963	\$12,261	\$12,565	\$12,878	\$13,198	\$13,526
kW Savings + Inverter Replacements	\$2,614	\$2,692	\$2,773	\$2,856	\$2,942	\$3,030	\$3,121
Total	\$(1,260)	\$(1,278)	\$(1,296)	\$(1,314)	\$(1,332)	\$(53,413)	\$14,609
Cumulative	\$(8,450)	\$(9,728)	\$(11,024)	\$(12,337)	\$(13,669)	\$(67,082)	\$(52,474)

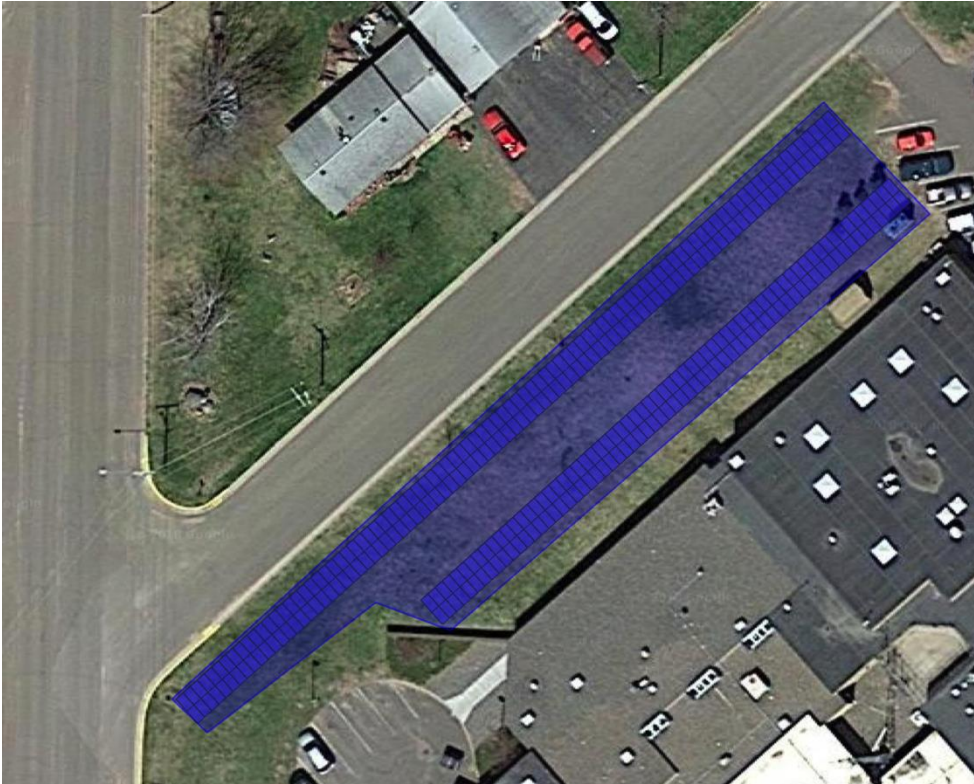
Year	14	15	16	17	18	19	20
Operation and Maintenance	\$(2,099)	\$(2,162)	\$(2,227)	\$(2,293)	\$(2,362)	\$(2,433)	\$(2,506)
Energy Cost Savings (kWh)	\$13,862	\$14,206	\$14,559	\$14,921	\$15,292	\$15,672	\$16,061

kW Savings + Inverter Replacements	\$3,214	\$3,311	\$3,410	\$3,512	\$3,618	\$3,726	\$3,634
Total	\$14,977	\$15,355	\$15,743	\$16,140	\$16,547	\$16,965	\$17,189
Cumulative	\$(37,496)	\$(22,141)	\$(6,399)	\$9,741	\$26,289	\$43,254	\$60,443

Comparison of Direct Ownership and TPP Results for Washburn WWTP

Site Owner's	Direct Ownership	Direct Ownership	TPP
	No loan	With loan	
Out of Pocket Year-One Cost	\$162,710	\$1,935	\$2,099
			Energy services agreement > bill savings
Cash Flow Positive	Year 14	Year 14	Year 17
20 year IRR	5.1%	11.5%	11.20%
25 year IRR	6.8%	17.6%	15.50%
20 year NPV	\$29,076	\$12,268	\$29,280
25 year NPV	\$76,909	\$60,101	\$76,300

Bayfield County Jail



kW dc: 108.7
kWh/kW: 1189

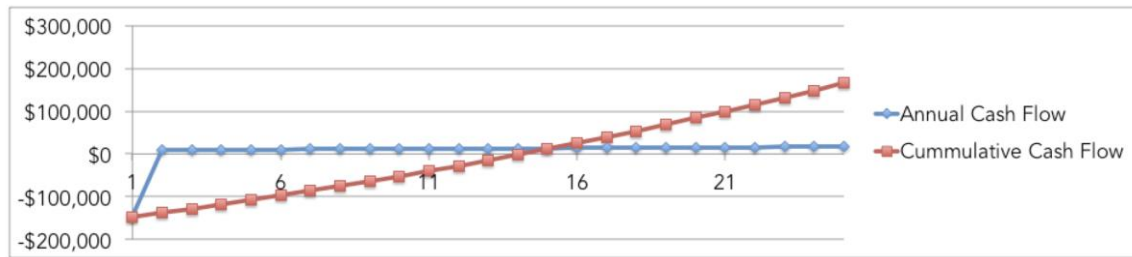
Municipal Ownership Results

System cost	\$184,790	
Focus on Energy grant	\$27,719	
System cost after Focus grant	\$157,072	
Year-one generation	129,244	kWh
Year-one CO2 reduction	56.9	Tons
Simple payback period	14.7	Years
Years to cost recovery	15	Years

Financial Metrics

Year	IRR	NPV
20	4.6%	\$18,280
25	6.3%	\$59,690
30	7.3%	\$99,944

Annual and Cumulative Cash Flow Diagram



20-Year Cash Flow

Year	1	2	3	4	5	6	7
System Cost	\$(184,790)						
Focus Incentives	\$27,719						
kWh Savings	\$8,685	\$8,901	\$9,122	\$9,349	\$9,581	\$9,819	\$10,063
Demand Savings	\$1,981	\$2,040	\$2,102	\$2,165	\$2,230	\$2,297	\$2,365
Maintenance and Insurance Cost	\$(1,294)	\$(1,313)	\$(1,352)	\$(1,393)	\$(1,435)	\$(1,478)	\$(1,522)
Annual Cash Flow	\$(147,699)	\$9,629	\$9,872	\$10,121	\$10,376	\$10,638	\$10,907
Cumulative Cash Flow	\$(147,699)	\$(138,070)	\$(128,199)	\$(118,078)	\$(107,701)	\$(97,063)	\$(86,156)

Year	8	9	10	11	12	13	14
kWh Savings	\$10,313	\$10,570	\$10,832	\$11,102	\$11,377	\$11,660	\$11,950
Demand Savings	\$2,436	\$2,510	\$2,585	\$2,662	\$2,742	\$2,825	\$2,909
Maintenance and Insurance Cost	\$(1,568)	\$(1,615)	\$(1,663)	\$(1,713)	\$(1,764)	\$(1,817)	\$(1,872)
Annual Cash Flow	\$11,182	\$11,465	\$11,754	\$12,051	\$12,355	\$12,667	\$12,987
Cumulative Cash Flow	\$(74,974)	\$(63,510)	\$(51,756)	\$(39,705)	\$(27,350)	\$(14,682)	\$(1,695)

Year	15	16	17	18	19	20
kWh Savings	\$12,247	\$12,551	\$12,863	\$13,183	\$13,510	\$13,846
Demand Savings	\$2,997	\$3,086	\$3,179	\$3,274	\$3,373	\$3,474
Maintenance and Insurance Cost	\$(1,928)	\$(1,986)	\$(2,046)	\$(2,107)	\$(2,170)	\$(2,235)
Annual Cash Flow	\$13,315	\$13,652	\$13,997	\$14,350	\$14,713	\$15,089
Cumulative Cash Flow	\$11,620	\$25,272	\$39,268	\$53,619	\$68,331	\$83,420

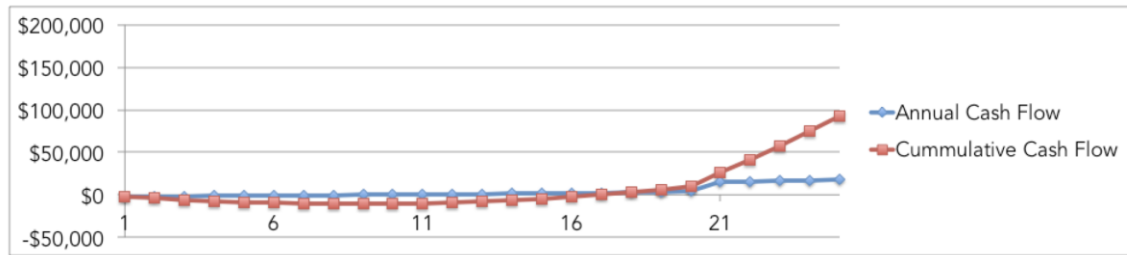
With 20-year loan covering 85% of system cost and a 4% interest rate

Financial Metrics

Year	IRR	NPV
20	5.2%	\$3,067
25	13.6%	\$44,477

30	15.5%	\$84,731
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Annual and Cumulative Cash Flow Diagram



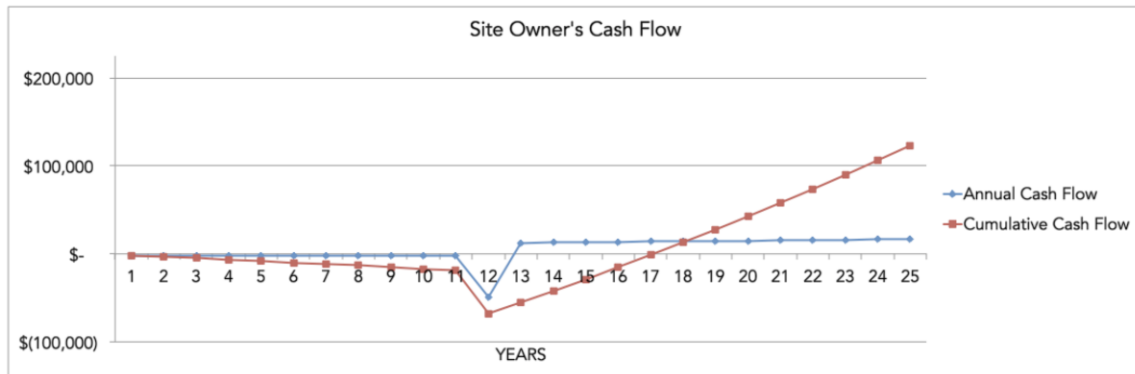
Third Party Participant (TPP) Results

Year-one energy service agreement rate: 9.45 cents/kWh

Financial Metrics

	IRR	NPV
-		
20 year	7.9%	\$17,692
25 year	12.5%	\$58,365
30 year	14.1%	\$98,364

Annual and Cumulative Cash Flow Diagram



20-Year Cash Flow

Year	00	1	2	3	4	5	6
Focus on Energy Award	\$27,719	\$-	\$-	\$-	\$-	\$-	\$-
Equip purch by non-profit directly	\$(27,719)	\$-	\$-	\$-	\$-	\$-	\$-
Service Agreement Payments	\$-	\$(12,214)	\$(12,517)	\$(12,828)	\$(13,147)	\$(13,474)	\$(13,808)
Energy Cost Savings (kWh)	\$-	\$8,685	\$8,901	\$9,122	\$9,349	\$9,581	\$9,819
kW Savings + Inverter Replacements	\$-	\$1,981	\$2,040	\$2,102	\$2,165	\$2,230	\$2,297
Total	\$-	\$(1,547)	\$(1,576)	\$(1,604)	\$(1,633)	\$(1,663)	\$(1,693)
Cumulative	\$-	\$(1,547)	\$(3,123)	\$(4,727)	\$(6,360)	\$(8,023)	\$(9,715)

Year	7	8	9	10	11	12	13
Buyout Price	\$-	\$-	\$-	\$-	\$-	\$(47,121)	\$-
Service Agreement Payments	\$(14,152)	\$(14,503)	\$(14,864)	\$(15,233)	\$(15,612)	\$(15,999)	\$-
Operation and Maintenance	\$-	\$-	\$-	\$-	\$-	\$-	\$(1,844)
Energy Cost Savings (kWh)	\$10,063	\$10,313	\$10,570	\$10,832	\$11,102	\$11,377	\$11,660
kW Savings + Inverter Replacements	\$2,365	\$2,436	\$2,510	\$2,585	\$2,662	\$2,742	\$2,825
Total	\$(1,723)	\$(1,753)	\$(1,784)	\$(1,816)	\$(1,848)	\$(49,001)	\$12,640
Cumulative	\$(11,438)	\$(13,192)	\$(14,976)	\$(16,792)	\$(18,639)	\$(67,641)	\$(55,000)

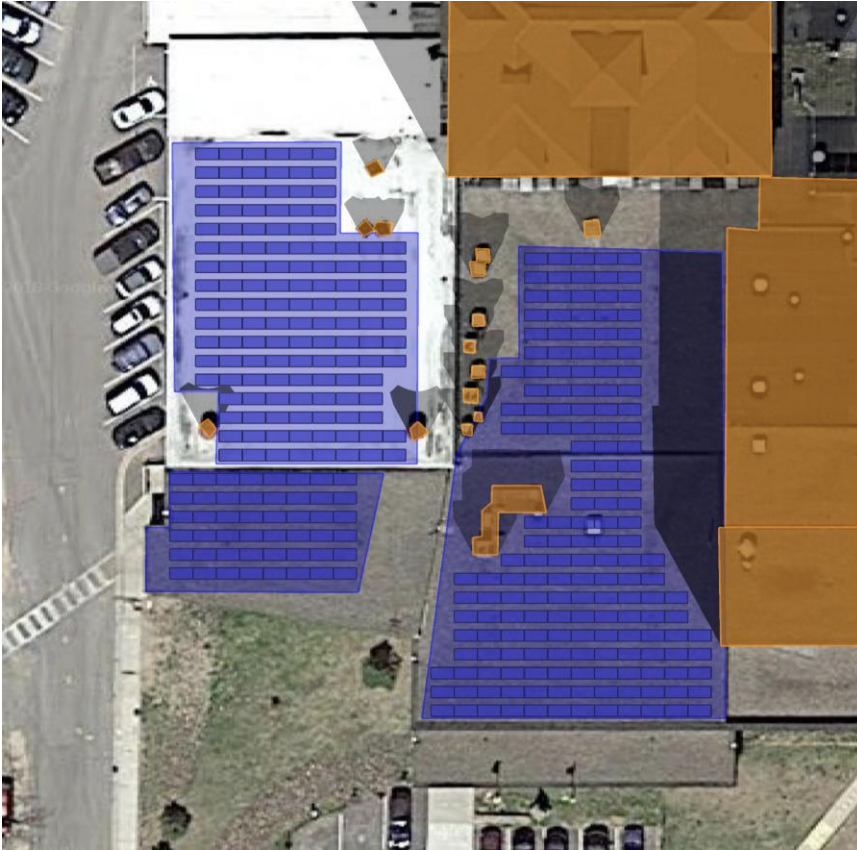
Year	14	15	16	17	18	19	20
Operation and Maintenance	\$(1,900)	\$(1,957)	\$(2,015)	\$(2,076)	\$(2,138)	\$(2,202)	\$(2,268)
Energy Cost Savings (kWh)	\$11,950	\$12,247	\$12,551	\$12,863	\$13,183	\$13,510	\$13,846

kW Savings + Inverter Replacements	\$2,909	\$2,997	\$3,086	\$3,179	\$3,274	\$3,373	\$3,289
Total	\$12,960	\$13,287	\$13,622	\$13,966	\$14,319	\$14,681	\$14,867
Cumulative	\$(42,041)	\$(28,754)	\$(15,132)	\$(1,165)	\$13,154	\$27,835	\$42,701

Comparison of Direct Ownership and TPP Results for Washburn County Jail

Site Owner's	Direct Ownership	Direct Ownership	TPP
	No loan	With loan	
Out of Pocket Year-One Cost	\$147,699	\$2,185	\$1,547
			Energy services agreement > bill savings
Cash Flow Positive	Year 15	Year 18	Year 18
20 year IRR	4.60%	5.2%	7.90%
25 year IRR	6.30%	13.6%	12.50%
20 year NPV	\$18,280	\$3,067	\$17,692
25 year NPV	\$59,690	\$44,477	\$58,365

Bayfield School



kW dc: 120.1
kWh/kW: 1108.8

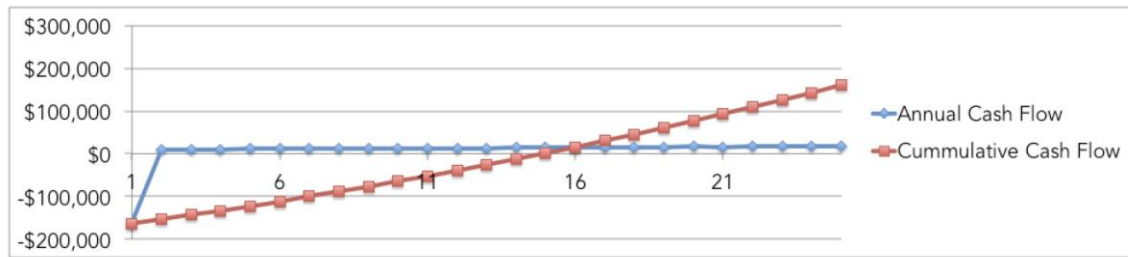
Municipal Ownership Results

System cost	\$204,170	
Focus on Energy grant	\$30,626	
System cost after Focus grant	\$173,545	
Year-one generation	133,167	kWh
Year-one CO ₂ reduction	58.7	Tons
Simple payback period	15.6	Years
Years to cost recovery	15	Years

Financial Metrics

Year	IRR	NPV
20	3.8%	\$8,190
25	5.7%	\$51,128
30	6.7%	\$92,860

Annual and Cumulative Cash Flow Diagram



20-Year Cash Flow

Year	1	2	3	4	5	6	7
System Cost	\$(204,170)						
Focus Incentives	\$30,626						
kWh Savings	\$8,949	\$9,171	\$9,399	\$9,633	\$9,872	\$10,117	\$10,369
Demand Savings	\$2,189	\$2,254	\$2,322	\$2,392	\$2,464	\$2,537	\$2,614
Maintenance and Insurance Cost	\$(1,429)	\$(1,451)	\$(1,494)	\$(1,539)	\$(1,585)	\$(1,633)	\$(1,682)
Annual Cash Flow	\$(163,836)	\$9,975	\$10,227	\$10,485	\$10,750	\$11,022	\$11,301
Cumulative Cash Flow	\$(163,836)	\$(153,861)	\$(143,634)	\$(133,148)	\$(122,398)	\$(111,376)	\$(100,075)

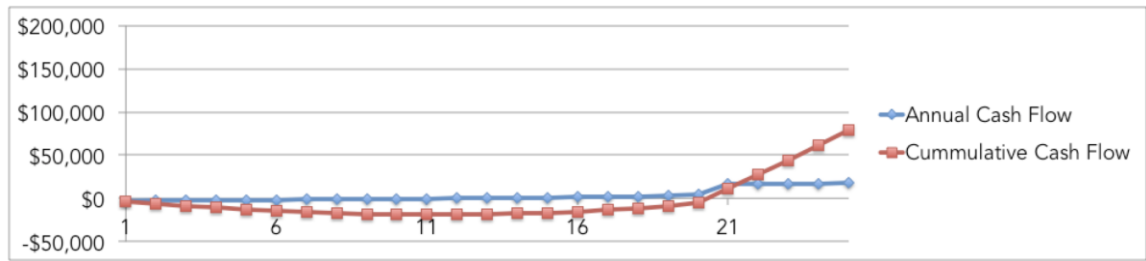
Year	8	9	10	11	12	13	14
kWh Savings	\$10,626	\$10,891	\$11,161	\$11,438	\$11,723	\$12,014	\$12,313
Demand Savings	\$2,692	\$2,773	\$2,856	\$2,942	\$3,030	\$3,121	\$3,214
Maintenance and Insurance Cost	\$(1,732)	\$(1,784)	\$(1,838)	\$(1,893)	\$(1,950)	\$(2,008)	\$(2,068)
Annual Cash Flow	\$11,586	\$11,879	\$12,179	\$12,487	\$12,803	\$13,127	\$13,459
Cumulative Cash Flow	\$(88,489)	\$(76,610)	\$(64,430)	\$(51,943)	\$(39,140)	\$(26,013)	\$(12,555)

Year	15	16	17	18	19	20
kWh Savings	\$12,619	\$12,932	\$13,253	\$13,583	\$13,920	\$14,266
Demand Savings	\$3,311	\$3,410	\$3,512	\$3,618	\$3,726	\$3,838
Maintenance and Insurance Cost	\$(2,130)	\$(2,194)	\$(2,260)	\$(2,328)	\$(2,398)	\$(2,470)
Annual Cash Flow	\$13,799	\$14,148	\$14,506	\$14,873	\$15,249	\$16,656
Cumulative Cash Flow	\$1,245	\$15,393	\$29,898	\$44,771	\$60,020	\$76,676

With 20-year loan covering 85% of system cost and a 4% interest rate
Financial Metrics

Year	IRR	NPV
20	-2.4%	\$(8,619)
25	9.6%	\$34,320
30	12.1%	\$76,051

Annual and Cumulative Cash Flow Diagram



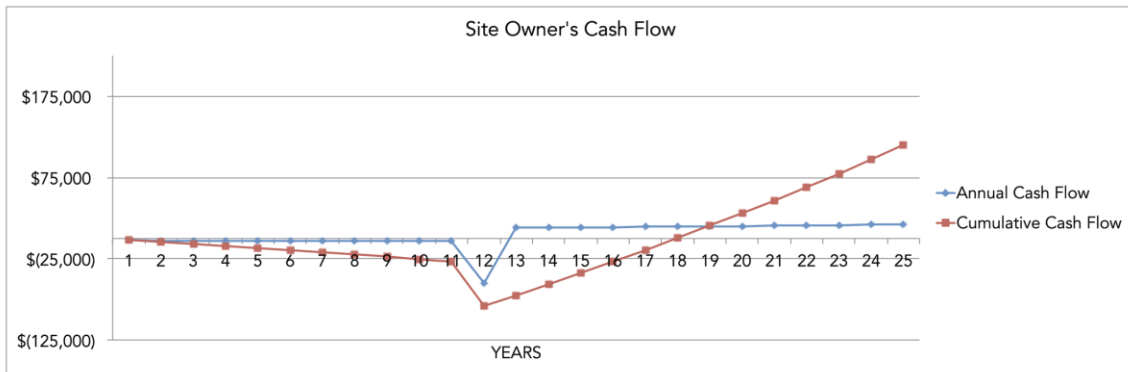
Third Party Participant (TPP) Results

Year-one energy service agreement rate: 10.1 cents/kWh

Financial Metrics

	IRR	NPV
20 year	4.9%	\$8,065
25 year	9.8%	\$50,189
30 year	11.7%	\$91,639

Annual and Cumulative Cash Flow Diagram



20-Year Cash Flow

Year	00	1	2	3	4	5	6
Focus on Energy Award	\$30,626	\$-	\$-	\$-	\$-	\$-	\$-
Equip purch by non-profit directly	\$(30,626)	\$-	\$-	\$-	\$-	\$-	\$-
Service Agreement Payments	\$-	\$(13,450)	\$(13,784)	\$(14,127)	\$(14,478)	\$(14,837)	\$(15,206)
Energy Cost Savings (kWh)	\$-	\$8,949	\$9,171	\$9,399	\$9,633	\$9,872	\$10,117
kW Savings + Inverter Replacements	\$-	\$2,189	\$2,254	\$2,322	\$2,392	\$2,464	\$2,537
Total	\$-	\$(2,312)	\$(2,358)	\$(2,405)	\$(2,453)	\$(2,502)	\$(2,551)
Cumulative	\$-	\$(2,312)	\$(4,671)	\$(7,076)	\$(9,529)	\$(12,031)	\$(14,582)

Year	7	8	9	10	11	12	13
Buyout Price	\$-	\$-	\$-	\$-	\$-	\$(52,063)	\$-
Service Agreement Payments	\$(15,584)	\$(15,971)	\$(16,368)	\$(16,775)	\$(17,192)	\$(17,619)	\$-
Operation and Maintenance	\$-	\$-	\$-	\$-	\$-	\$-	\$(2,038)
Energy Cost Savings (kWh)	\$10,369	\$10,626	\$10,891	\$11,161	\$11,438	\$11,723	\$12,014
kW Savings + Inverter Replacements	\$2,614	\$2,692	\$2,773	\$2,856	\$2,942	\$3,030	\$3,121
Total	\$(2,602)	\$(2,653)	\$(2,705)	\$(2,758)	\$(2,812)	\$(54,930)	\$13,097
Cumulative	\$(17,184)	\$(19,837)	\$(22,542)	\$(25,300)	\$(28,111)	\$(83,041)	\$(69,944)

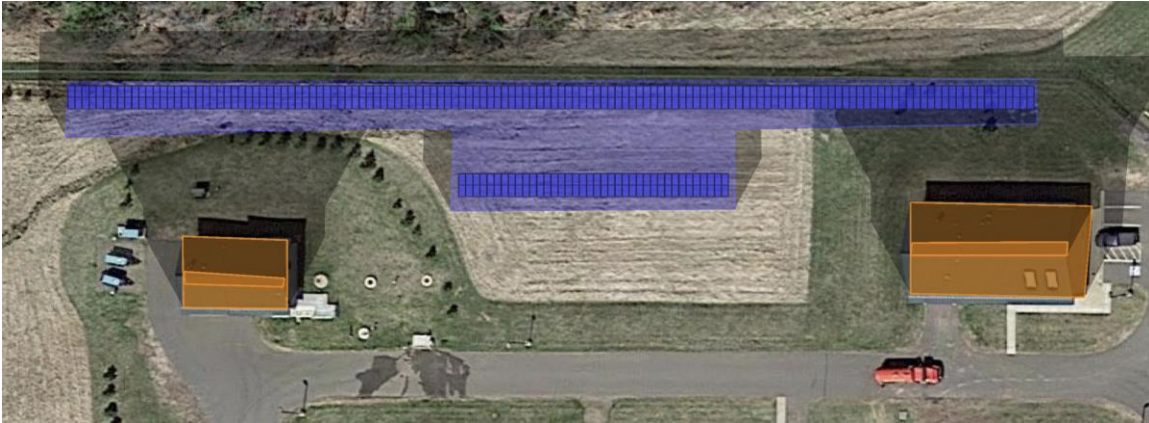
Year	14	15	16	17	18	19	20
Operation and Maintenance	\$(2,099)	\$(2,162)	\$(2,227)	\$(2,293)	\$(2,362)	\$(2,433)	\$(2,506)
Energy Cost Savings (kWh)	\$12,313	\$12,619	\$12,932	\$13,254	\$13,583	\$13,920	\$14,266

kW Savings + Inverter Replacements	\$3,214	\$3,311	\$3,410	\$3,512	\$3,618	\$3,726	\$3,634
Total	\$13,428	\$13,768	\$14,116	\$14,472	\$14,838	\$15,214	\$15,394
Cumulative	\$(56,516)	\$(42,748)	\$(28,633)	\$(14,160)	\$678	\$15,892	\$31,286

Comparison of Direct Ownership and TPP Results for the Bayfield School

Site Owner's	Direct Ownership	Direct Ownership	TPP
	No loan	With Loan	
Out of Pocket Year-One Cost	\$163,836	\$3,061	\$2,312 Energy services agreement > bill savings
Cash Flow Positive	Year 15	Year 22	Year 18
20 year IRR	3.8%	-2.4%	4.9%
25 year IRR	5.7%	9.6%	9.8%
20 year NPV	\$8,190	\$(8,619)	\$8,065
25 year NPV	\$51,128	\$34,320	\$50,189

Bayfield Waste Water Treatment Plant (WWTP)



kW dc: 120.1

kWh/kW: 1273.4

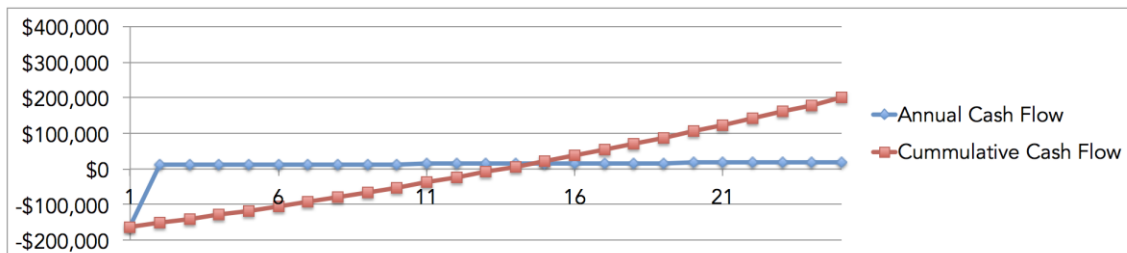
Municipal Ownership Results

System cost	\$204,170	
Focus on Energy grant	\$30,626	
System cost after Focus grant	\$173,545	
Year-one generation	152,935	kWh
Year-one CO ₂ reduction	67.4	Tons
Simple payback period	13.9	Years
Years to cost recovery	14	Years

Financial Metrics

Year	IRR	NPV
20	5.3%	\$32,834
25	7.0%	\$81,548
30	7.9%	\$128,912

Annual and Cumulative Cash Flow Diagram



20-Year Cash Flow

Year	1	2	3	4	5	6	7
System Cost	\$(204,170)						
Focus Incentives	\$30,626						
kWh Savings	\$10,277	\$10,533	\$10,794	\$11,063	\$11,338	\$11,619	\$11,908
Demand Savings	\$2,189	\$2,254	\$2,322	\$2,392	\$2,464	\$2,537	\$2,614
Maintenance and Insurance Cost	\$(1,429)	\$(1,451)	\$(1,494)	\$(1,539)	\$(1,585)	\$(1,633)	\$(1,682)
Annual Cash Flow	\$(162,508)	\$11,337	\$11,622	\$11,915	\$12,216	\$12,524	\$12,840
Cumulative Cash Flow	\$(162,508)	\$(151,171)	\$(139,549)	\$(127,633)	\$(115,417)	\$(102,893)	\$(90,053)

Year	8	9	10	11	12	13	14
kWh Savings	\$12,204	\$12,507	\$12,818	\$13,137	\$13,463	\$13,798	\$14,140
Demand Savings	\$2,692	\$2,773	\$2,856	\$2,942	\$3,030	\$3,121	\$3,214
Year 10 Reroofing	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Maintenance and Insurance Cost	\$(1,732)	\$(1,784)	\$(1,838)	\$(1,893)	\$(1,950)	\$(2,008)	\$(2,068)
Annual Cash Flow	\$13,164	\$13,496	\$13,836	\$14,185	\$14,543	\$14,910	\$15,286
Cumulative Cash Flow	\$(76,890)	\$(63,394)	\$(49,558)	\$(35,372)	\$(20,829)	\$(5,919)	\$9,368

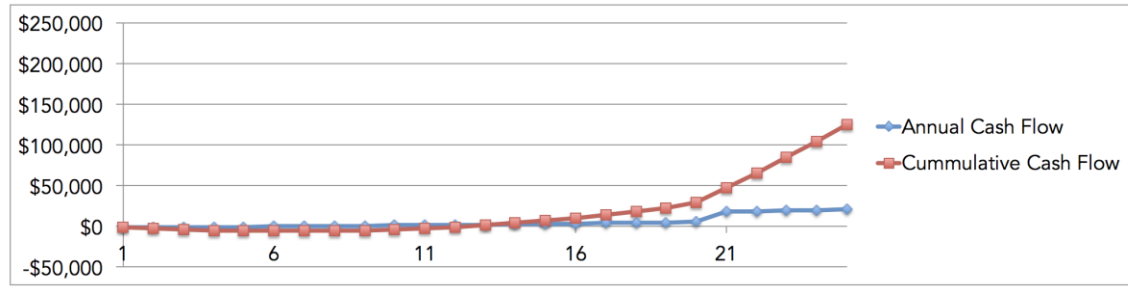
Year	15	16	17	18	19	20
kWh Savings	\$14,492	\$14,852	\$15,221	\$15,599	\$15,987	\$16,384
Demand Savings	\$3,311	\$3,410	\$3,512	\$3,618	\$3,726	\$3,838
Maintenance and Insurance Cost	\$(2,130)	\$(2,194)	\$(2,260)	\$(2,328)	\$(2,398)	\$(2,470)
Annual Cash Flow	\$15,672	\$16,068	\$16,473	\$16,889	\$17,315	\$18,773
Cumulative Cash Flow	\$25,040	\$41,108	\$57,581	\$74,470	\$91,786	\$110,559

With 20-year loan covering 85% of system cost and a 4% interest rate

Financial Metrics

Year	IRR	NPV
20	14.6%	\$16,026
25	19.7%	\$64,740
30	20.9%	\$112,104

Annual and Cumulative Cash Flow Diagram



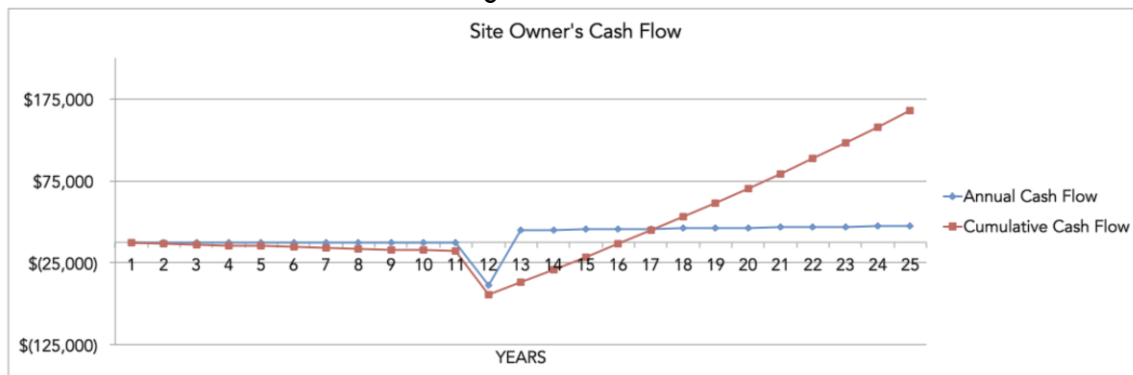
Third Party Participant (TPP) Results

Year-one energy service agreement rate: 8.76 cents/kWh

Financial Metrics

-	IRR	NPV
20 year	12.9%	\$33,268
25 year	17.0%	\$81,168
30 year	18.3%	\$128,250

Annual and Cumulative Cash Flow Diagram



20-Year Cash Flow

Year	00	1	2	3	4	5	6
Focus on Energy Award	\$30,626	\$-	\$-	\$-	\$-	\$-	\$-
Equip purch by non-profit directly	\$(30,626)	\$-	\$-	\$-	\$-	\$-	\$-
Service Agreement Payments	\$-	\$(13,397)	\$(13,730)	\$(14,071)	\$(14,421)	\$(14,779)	\$(15,147)
Energy Cost Savings (kWh)	\$-	\$10,277	\$10,533	\$10,794	\$11,063	\$11,338	\$11,619
kW Savings + Inverter Replacements	\$-	\$2,189	\$2,254	\$2,322	\$2,392	\$2,464	\$2,537
Total	\$-	\$(931)	\$(943)	\$(955)	\$(966)	\$(978)	\$(990)
Cumulative	\$-	\$(931)	\$(1,874)	\$(2,829)	\$(3,795)	\$(4,773)	\$(5,763)

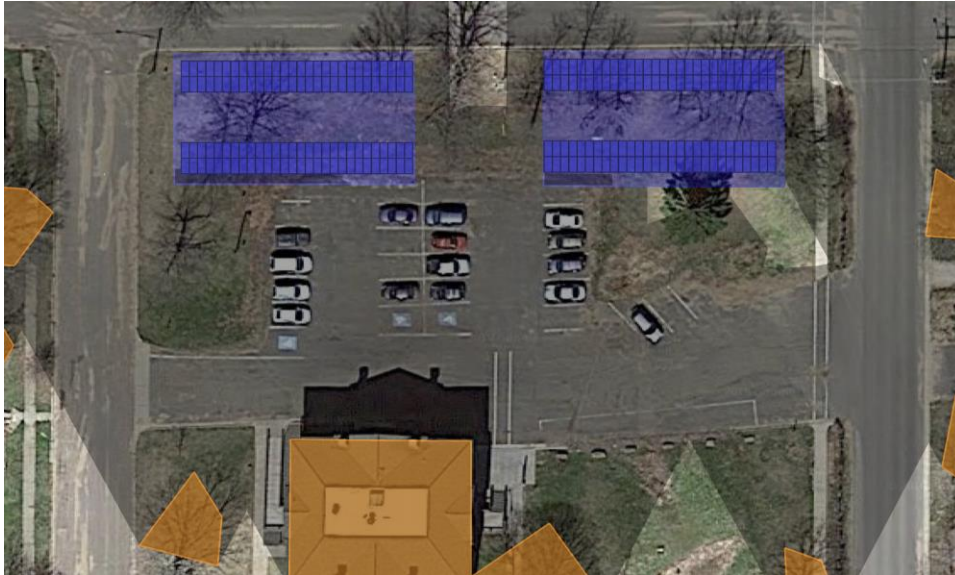
Year	7	8	9	10	11	12	13
Buyout Price	\$-	\$-	\$-	\$-	\$-	\$(52,063)	\$-
Service Agreement Payments	\$(15,523)	\$(15,909)	\$(16,304)	\$(16,709)	\$(17,124)	\$(17,550)	\$-
Operation and Maintenance	\$-	\$-	\$-	\$-	\$-	\$-	\$(2,038)
Site year 10 roof replacement cost				\$-			
Energy Cost Savings (kWh)	\$11,908	\$12,204	\$12,507	\$12,818	\$13,136	\$13,463	\$13,797
kW Savings + Inverter Replacements	\$2,614	\$2,692	\$2,773	\$2,856	\$2,942	\$3,030	\$3,121
Total	\$(1,001)	\$(1,013)	\$(1,024)	\$(1,035)	\$(1,046)	\$(53,120)	\$14,881
Cumulative	\$(6,765)	\$(7,777)	\$(8,801)	\$(9,837)	\$(10,883)	\$(64,003)	\$(49,123)

Year	14	15	16	17	18	19	20
Operation and Maintenance	\$(2,099)	\$(2,162)	\$(2,227)	\$(2,293)	\$(2,362)	\$(2,433)	\$(2,506)
Energy Cost Savings (kWh)	\$14,140	\$14,492	\$14,852	\$15,221	\$15,599	\$15,987	\$16,384
kW Savings + Inverter Replacements	\$3,214	\$3,311	\$3,410	\$3,512	\$3,618	\$3,726	\$3,634
Total	\$15,256	\$15,641	\$16,035	\$16,440	\$16,855	\$17,280	\$17,512
Cumulative	\$(33,867)	\$(18,226)	\$(2,191)	\$14,249	\$31,104	\$48,384	\$65,896

Comparison of Direct Ownership and TPP Results for Bayfield WWTP

Site Owner's	Direct Ownership No loan	Direct Ownership With loan	TPP
Out of Pocket Year-One Cost	\$162,508	\$1,733	\$931
Cash Flow Positive	Year 14	Year 13	Year 17
20 year IRR	5.3%	14.60%	12.90%
25 year IRR	7.0%	19.70%	17.00%
20 year NPV	\$32,834	\$16,026	\$33,268
25 year NPV	\$81,548	\$65,740	\$81,168

Bayfield Old Court House (aka National Park Headquarters)



kW dc: 86.9
kWh/kW: 1212.5

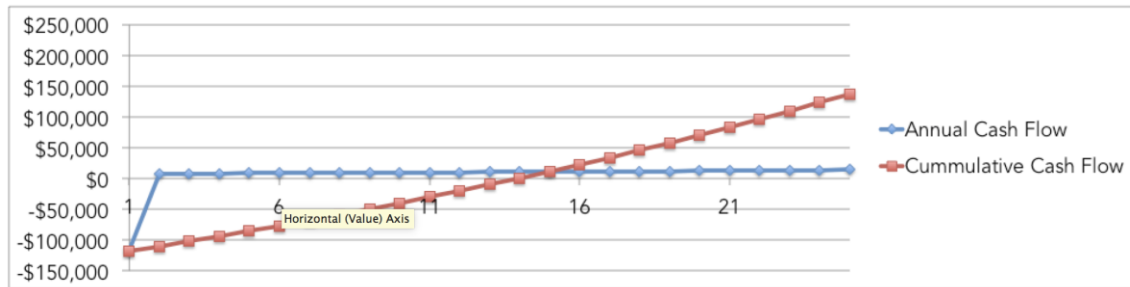
Municipal Ownership Results

System cost	\$147,730	
Focus on Energy grant	\$22,160	
System cost after Focus grant	\$125,571	
Year-one generation	105,366	kWh
Year-one CO ₂ reduction	46.4	Tons
Simple payback period	14.5	Years
Years to cost recovery	14	Years

Financial Metrics

Year	IRR	NPV
20	4.8%	\$17,160
25	6.5%	\$50,861
30	7.5%	\$83,625

Annual and Cumulative Cash Flow Diagram



20-Year Cash Flow

Year	1	2	3	4	5	6	7
System Cost	\$(147,730)						
Focus Incentives	\$22,160						
kWh Savings	\$7,081	\$7,257	\$7,437	\$7,622	\$7,811	\$8,005	\$8,204
Demand Savings	\$1,584	\$1,631	\$1,680	\$1,731	\$1,783	\$1,836	\$1,891
Maintenance and Insurance Cost	\$(1,034)	\$(1,050)	\$(1,081)	\$(1,114)	\$(1,147)	\$(1,181)	\$(1,217)
Annual Cash Flow	\$(117,940)	\$7,838	\$8,036	\$8,239	\$8,447	\$8,660	\$8,878
Cumulative Cash Flow	\$(117,940)	\$(110,102)	\$(102,066)	\$(93,827)	\$(85,381)	\$(76,721)	\$(67,842)

Year	8	9	10	11	12	13	14
kWh Savings	\$8,408	\$8,617	\$8,831	\$9,051	\$9,275	\$9,506	\$9,742
Demand Savings	\$1,948	\$2,006	\$2,066	\$2,128	\$2,192	\$2,258	\$2,326
Maintenance and Insurance Cost	\$(1,253)	\$(1,291)	\$(1,330)	\$(1,370)	\$(1,411)	\$(1,453)	\$(1,497)
Annual Cash Flow	\$9,103	\$9,332	\$9,568	\$9,809	\$10,057	\$10,311	\$10,571
Cumulative Cash Flow	\$(58,740)	\$(49,408)	\$(39,840)	\$(30,030)	\$(19,973)	\$(9,662)	\$909

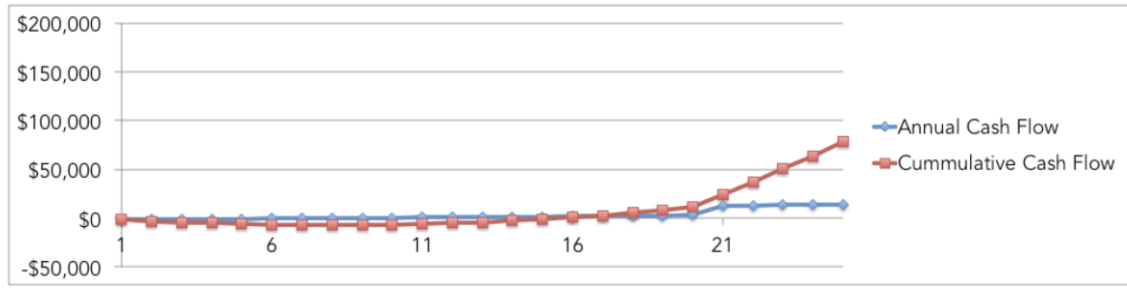
Year	15	16	17	18	19	20
kWh Savings	\$9,984	\$10,232	\$10,487	\$10,747	\$11,014	\$11,288
Demand Savings	\$2,396	\$2,467	\$2,541	\$2,618	\$2,696	\$2,777
Maintenance and Insurance Cost	\$(1,541)	\$(1,588)	\$(1,635)	\$(1,684)	\$(1,735)	\$(1,787)
Annual Cash Flow	\$10,838	\$11,112	\$11,393	\$11,681	\$11,976	\$12,277
Cumulative Cash Flow	\$11,748	\$22,860	\$34,253	\$45,933	\$57,909	\$70,186

With 20-year loan covering 85% of system cost and a 4% interest rate

Financial Metrics

Year	IRR	NPV
20	7.6%	\$4,998
25	15.0%	\$38,699
30	16.8%	\$71,463

Annual and Cumulative Cash Flow Diagram



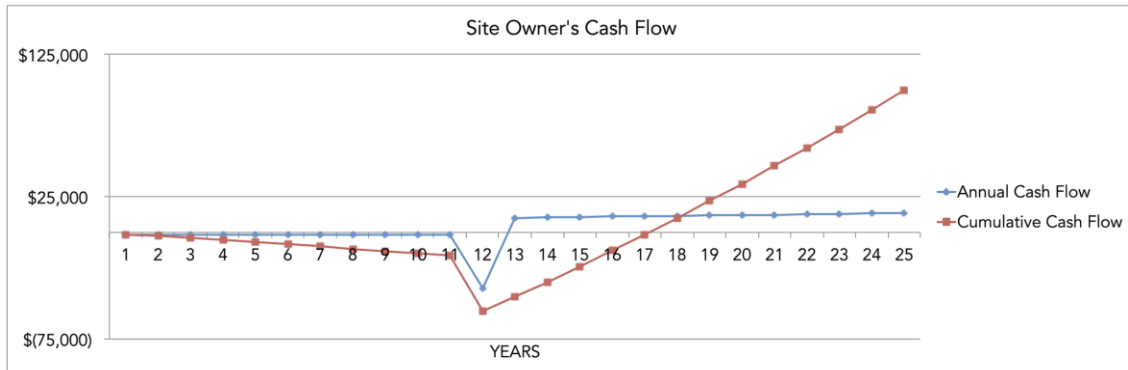
Third Party Participant (TPP) Results

Year-one energy service agreement rate: 9.5 cents/kWh

Financial Metrics

	IRR	NPV
20 year	7.6%	\$13,901
25 year	12.2%	\$47,014
30 year	13.8%	\$79,572

Annual and Cumulative Cash Flow Diagram



20-Year Cash Flow

Year	00	1	2	3	4	5	6
Focus on Energy Award	\$22,160	\$-	\$-	\$-	\$-	\$-	\$-
Equip purch by non-profit directly	\$(22,160)	\$-	\$-	\$-	\$-	\$-	\$-
Service Agreement Payments	\$-	\$(10,010)	\$(10,259)	\$(10,513)	\$(10,775)	\$(11,042)	\$(11,317)
Energy Cost Savings (kWh)	\$-	\$7,081	\$7,257	\$7,437	\$7,622	\$7,811	\$8,005
kW Savings + Inverter Replacements	\$-	\$1,584	\$1,631	\$1,680	\$1,731	\$1,783	\$1,836
Total	\$-	\$(1,345)	\$(1,371)	\$(1,396)	\$(1,422)	\$(1,449)	\$(1,476)
Cumulative	\$-	\$(1,345)	\$(2,716)	\$(4,112)	\$(5,535)	\$(6,984)	\$(8,459)

Year	7	8	9	10	11	12	13
Buyout Price	\$-	\$-	\$-	\$-	\$-	\$(37,671)	\$-
Service Agreement Payments	\$(11,598)	\$(11,886)	\$(12,182)	\$(12,484)	\$(12,795)	\$(13,113)	\$-
Operation and Maintenance	\$-	\$-	\$-	\$-	\$-	\$-	\$(1,474)
Site year 10 roof replacement cost				\$-			
Energy Cost Savings (kWh)	\$8,204	\$8,408	\$8,617	\$8,831	\$9,051	\$9,275	\$9,506
kW Savings + Inverter Replacements	\$1,891	\$1,948	\$2,006	\$2,066	\$2,128	\$2,192	\$2,258
Total	\$(1,503)	\$(1,530)	\$(1,558)	\$(1,587)	\$(1,616)	\$(39,316)	\$10,290
Cumulative	\$(9,962)	\$(11,493)	\$(13,051)	\$(14,638)	\$(16,254)	\$(55,570)	\$(45,280)

Year	14	15	16	17	18	19	20
Operation and Maintenance	\$(1,519)	\$(1,564)	\$(1,611)	\$(1,659)	\$(1,709)	\$(1,761)	\$(1,813)

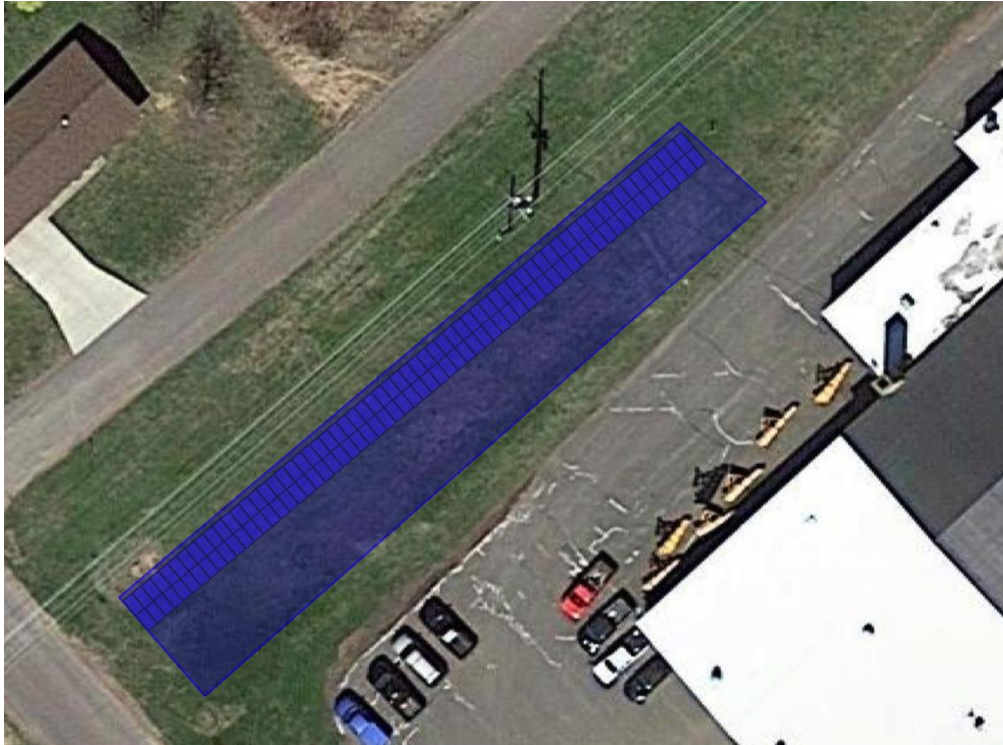
Energy Cost Savings (kWh)	\$9,742	\$9,984	\$10,232	\$10,487	\$10,747	\$11,014	\$11,288
kW Savings + Inverter Replacements	\$2,326	\$2,396	\$2,467	\$2,541	\$2,618	\$2,696	\$2,629
Total	\$10,549	\$10,816	\$11,089	\$11,369	\$11,656	\$11,950	\$12,104
Cumulative	\$(34,731)	\$(23,915)	\$(12,827)	\$(1,458)	\$10,198	\$22,148	\$34,252

Comparison of Direct Ownership and TPP Results for Bayfield Old Court House

Site Owner's	Direct Ownership	Direct Ownership	TPP
	No loan	With loan	
Out of Pocket Year-One Cost	\$117,940	\$1,609	\$1,345
			Energy services agreement > bill savings
Cash Flow Positive	Year 14	Year 16	Year 18
20 year IRR	4.8%	7.6%	7.60%
25 year IRR	6.5%	15.0%	12.20%
20 year NPV	\$17,160	\$4,998	\$13,901
25 year NPV	\$50,861	\$38,699	\$47,014

Direct Ownership Analysis of Sites of under 50 kW dc

Bayfield County Garage



kW dc: 40.3

kWh/kW: 1224.4

Cost per kW: \$1,850

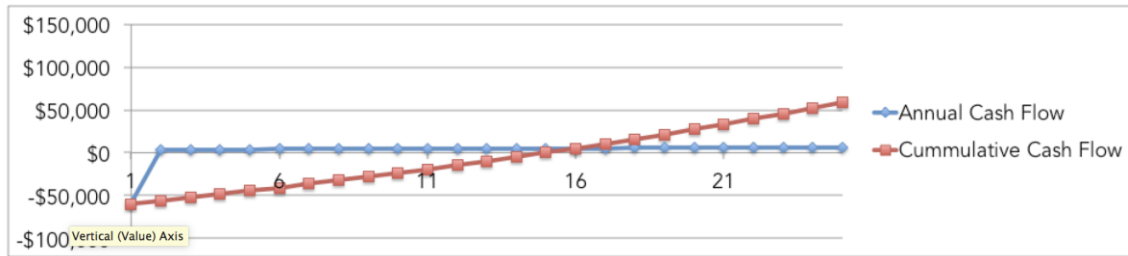
Municipal Ownership

System cost	\$74,555	
Focus on Energy grant	\$11,183	
System cost after Focus grant	\$63,372	
Year-one generation	49,343	kWh
Year-one CO ₂ reduction	21.7	Tons
Simple payback period	15.6	Years
Years to cost recovery	15	Years

Financial Metrics

Year	IRR	NPV
20	3.8%	\$2,623
25	5.6%	\$18,197
30	6.7%	\$33,325

Annual and Cumulative Cash Flow Diagram



20-Year Cash Flow

Year	1	2	3	4	5	6	7
System Cost	\$(74,555)						
Focus Incentives	\$11,183						
kWh Savings	\$3,316	\$3,398	\$3,483	\$3,569	\$3,658	\$3,749	\$3,842
Demand Savings	\$734	\$757	\$779	\$803	\$827	\$851	\$877
Maintenance and Insurance Cost	\$(522)	\$(530)	\$(546)	\$(562)	\$(579)	\$(596)	\$(614)
Annual Cash Flow	\$(59,843)	\$3,625	\$3,716	\$3,810	\$3,906	\$4,004	\$4,105
Cumulative Cash Flow	\$(59,843)	\$(56,218)	\$(52,502)	\$(48,692)	\$(44,786)	\$(40,782)	\$(36,677)

Year	8	9	10	11	12	13	14
kWh Savings	\$3,937	\$4,035	\$4,136	\$4,238	\$4,344	\$4,452	\$4,562
Demand Savings	\$903	\$930	\$958	\$987	\$1,017	\$1,047	\$1,079
Maintenance and Insurance Cost	\$(633)	\$(651)	\$(671)	\$(691)	\$(712)	\$(733)	\$(755)
Annual Cash Flow	\$4,208	\$4,314	\$4,423	\$4,534	\$4,648	\$4,766	\$4,886
Cumulative Cash Flow	\$(32,469)	\$(28,155)	\$(23,732)	\$(19,197)	\$(14,549)	\$(9,783)	\$(4,898)

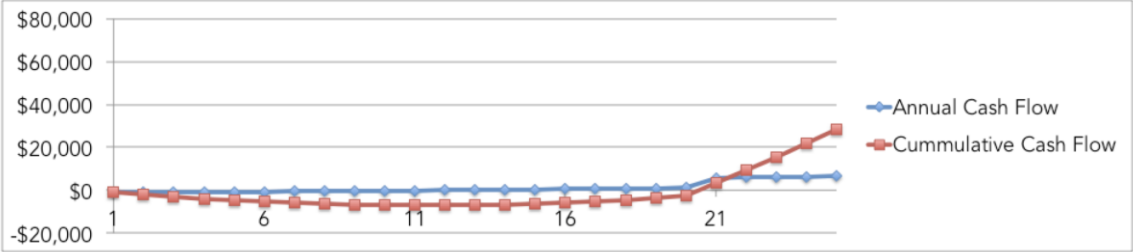
Year	15	16	17	18	19	20
kWh Savings	\$4,676	\$4,792	\$4,911	\$5,033	\$5,158	\$5,286
Demand Savings	\$1,111	\$1,144	\$1,179	\$1,214	\$1,250	\$1,288
Maintenance and Insurance Cost	\$(778)	\$(801)	\$(825)	\$(850)	\$(876)	\$(902)
Annual Cash Flow	\$5,009	\$5,135	\$5,264	\$5,397	\$5,533	\$6,045
Cumulative Cash Flow	\$111	\$5,246	\$10,510	\$15,907	\$21,440	\$27,485

With 20-year loan covering 85% of system cost and a 4% interest rate

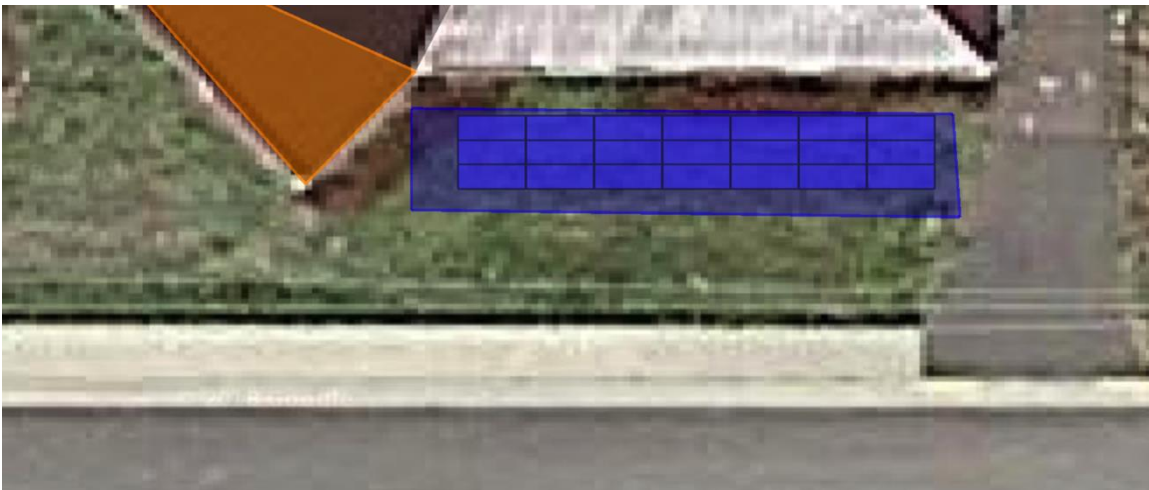
Financial Metrics

Year	IRR	NPV
20	-3.0%	\$(3,515)
25	9.3%	\$12,059
30	11.8%	\$27,187

Annual and Cumulative Cash Flow Diagram



Bayfield Rec Center



kW dc: 41.55
kWh/kW: 1138.4
Cost per kW: \$1,850

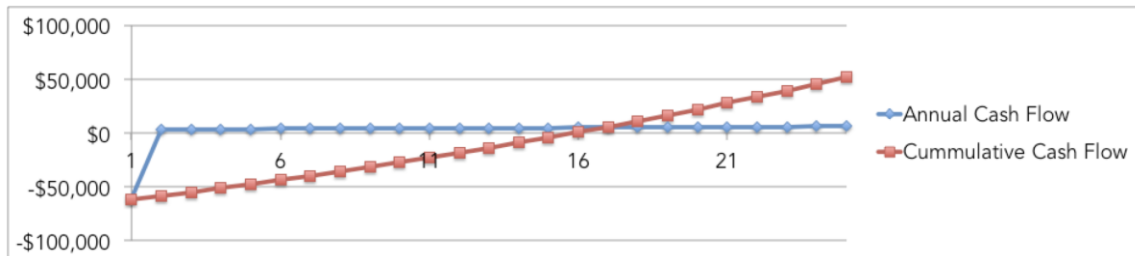
Municipal Ownership Results

System cost	\$76,868	
Focus on Energy grant	\$11,530	
System cost after Focus grant	\$65,337	
Year-one generation	47,301	kWh
Year-one CO ₂ reduction	20.8	Tons
Simple payback period	16.6	Years
Years to cost recovery	16	Years

Financial Metrics

Year	IRR	NPV
20	3.0%	\$(1,751)
25	5.0%	\$13,263
30	6.1%	\$27,842

Annual and Cumulative Cash Flow Diagram



20-Year Cash Flow

Year	1	2	3	4	5	6	7
System Cost	\$(76,868)						
Focus Incentives	\$11,530						
kWh Savings	\$3,179	\$3,258	\$3,339	\$3,421	\$3,507	\$3,594	\$3,683
Demand Savings	\$757	\$780	\$803	\$827	\$852	\$878	\$904
Maintenance and Insurance Cost	\$(538)	\$(546)	\$(563)	\$(579)	\$(597)	\$(615)	\$(633)
Annual Cash Flow	\$(61,940)	\$3,491	\$3,579	\$3,670	\$3,762	\$3,857	\$3,954
Cumulative Cash Flow	\$(61,940)	\$(58,448)	\$(54,869)	\$(51,199)	\$(47,437)	\$(43,580)	\$(39,626)

Year	8	9	10	11	12	13	14
kWh Savings	\$3,774	\$3,868	\$3,964	\$4,063	\$4,164	\$4,267	\$4,373
Demand Savings	\$931	\$959	\$988	\$1,018	\$1,048	\$1,080	\$1,112
Maintenance and Insurance Cost	\$(652)	\$(672)	\$(692)	\$(713)	\$(734)	\$(756)	\$(779)
Annual Cash Flow	\$4,054	\$4,156	\$4,261	\$4,368	\$4,478	\$4,591	\$4,707
Cumulative Cash Flow	\$(35,573)	\$(31,417)	\$(27,156)	\$(22,788)	\$(18,310)	\$(13,719)	\$(9,012)

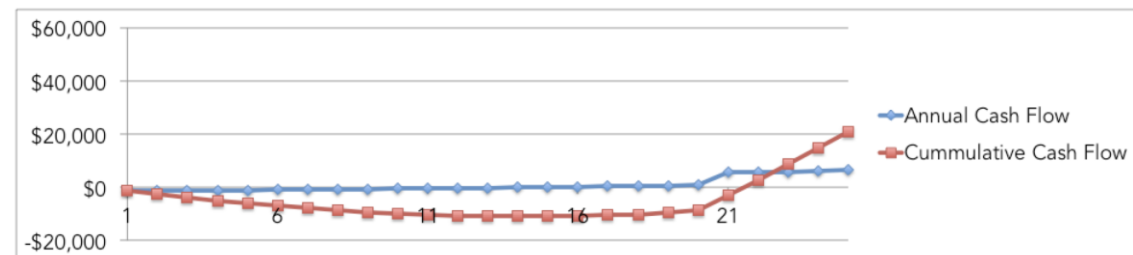
Year	15	16	17	18	19	20
kWh Savings	\$4,482	\$4,593	\$4,708	\$4,825	\$4,944	\$5,067
Demand Savings	\$1,145	\$1,180	\$1,215	\$1,252	\$1,289	\$1,328
Maintenance and Insurance Cost	\$(802)	\$(826)	\$(851)	\$(876)	\$(903)	\$(930)
Annual Cash Flow	\$4,825	\$4,947	\$5,072	\$5,200	\$5,331	\$5,850
Cumulative Cash Flow	\$(4,187)	\$760	\$5,832	\$11,032	\$16,363	\$22,213

With 20-year loan covering 85% of system cost and a 4% interest rate

Financial Metrics

Year	IRR	NPV
20	-11.3%	\$(8,079)
25	6.3%	\$6,934
30	9.3%	\$21,514

Annual and Cumulative Cash Flow Diagram



Bayfield City Hall

Sited on garage



kW dc: 26.9

kWh/kW: 1121.3

Cost per kW: \$1,850

No roof replacement costs

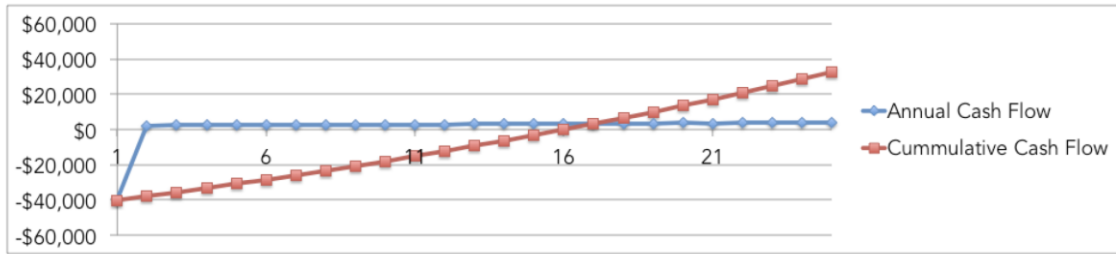
Municipal Ownership Results

System cost	\$49,765	
Focus on Energy grant	\$7,465	
System cost after Focus grant	\$42,300	
Year-one generation	30,163	kWh
Year-one CO ₂ reduction	13.3	Tons
Simple payback period	16.8	Years
Years to cost recovery	17	Years

Financial Metrics

Year	IRR	NPV
20	2.9%	\$(1,707)
25	4.8%	\$7,879
30	5.9%	\$17,186

Annual and Cumulative Cash Flow Diagram



20-Year Cash Flow

Year	1	2	3	4	5	6	7
System Cost	\$(49,765)						
Focus Incentives	\$7,465						
kWh Savings	\$2,027	\$2,077	\$2,129	\$2,182	\$2,236	\$2,292	\$2,349
Demand Savings	\$490	\$505	\$520	\$536	\$552	\$568	\$585
Maintenance and Insurance Cost	\$(348)	\$(354)	\$(364)	\$(375)	\$(386)	\$(398)	\$(410)
Annual Cash Flow	\$(40,131)	\$2,229	\$2,285	\$2,342	\$2,401	\$2,462	\$2,524
Cumulative Cash Flow	\$(40,131)	\$(37,903)	\$(35,618)	\$(33,275)	\$(30,874)	\$(28,412)	\$(25,888)

Year	8	9	10	11	12	13	14
kWh Savings	\$2,407	\$2,467	\$2,528	\$2,591	\$2,655	\$2,721	\$2,789
Demand Savings	\$603	\$621	\$640	\$659	\$679	\$699	\$720
Maintenance and Insurance Cost	\$(422)	\$(435)	\$(448)	\$(461)	\$(475)	\$(489)	\$(504)
Annual Cash Flow	\$2,588	\$2,653	\$2,720	\$2,788	\$2,859	\$2,931	\$3,005
Cumulative Cash Flow	\$(23,300)	\$(20,647)	\$(17,927)	\$(15,139)	\$(12,280)	\$(9,350)	\$(6,345)

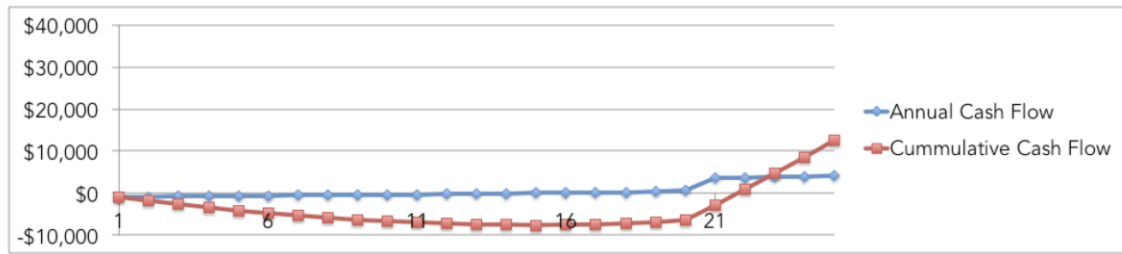
Year	15	16	17	18	19	20
kWh Savings	\$2,858	\$2,929	\$3,002	\$3,077	\$3,153	\$3,231
Demand Savings	\$742	\$764	\$787	\$810	\$835	\$860
Maintenance and Insurance Cost	\$(519)	\$(535)	\$(551)	\$(567)	\$(584)	\$(602)
Annual Cash Flow	\$3,080	\$3,158	\$3,238	\$3,320	\$3,403	\$3,738
Cumulative Cash Flow	\$(3,264)	\$(106)	\$3,132	\$6,451	\$9,854	\$13,592

With 20-year loan covering 85% of system cost and a 4% interest rate

Financial Metrics

Year	IRR	NPV
20	-13.2%	\$(5,804)
25	5.7%	\$3,782
30	8.8%	\$13,089

Annual and Cumulative Cash Flow Diagram



Bayfield Pavilion, City Dock 1 and City Dock 2



kW dc: 38.6

kWh/kW: 1104.8

Cost per kW: \$2,050

- Includes extra cost for serving three meters: \$0.20/watt

Small General Service Rate

- No demand savings
- Value of Kwh saving in year one: 11.9 cents/kWh

Municipal Ownership Results

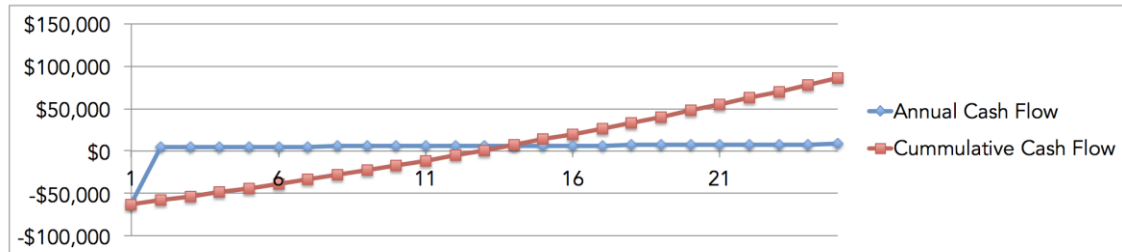
System cost	\$79,130	
Focus on Energy grant	\$11,870	
System cost after Focus grant	\$67,261	
Year-one generation	42,645	kWh
Year-one CO2 reduction	18.8	Tons
Simple payback period	13.3	Years
Years to cost recovery	13	Years

Financial Metrics

Year	IRR	NPV
20	5.9%	\$16,480

25	7.5%	\$35,988
30	8.4%	\$54,855

Annual and Cumulative Cash Flow Diagram



20-Year Cash Flow

Year	1	2	3	4	5	6	7
System Cost	\$(79,130)						
Focus Incentives	\$11,870						
kWh Savings	\$5,075	\$5,201	\$5,330	\$5,463	\$5,598	\$5,737	\$5,880
Demand Savings	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Maintenance and Insurance Cost	\$(554)	\$(562)	\$(579)	\$(596)	\$(614)	\$(633)	\$(652)
Annual Cash Flow	\$(62,740)	\$4,639	\$4,751	\$4,866	\$4,984	\$5,105	\$5,228
Cumulative Cash Flow	\$(62,740)	\$(58,101)	\$(53,350)	\$(48,484)	\$(43,500)	\$(38,395)	\$(33,167)

Year	8	9	10	11	12	13	14
kWh Savings	\$6,026	\$6,176	\$6,329	\$6,487	\$6,648	\$6,813	\$6,982
Demand Savings	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Year 10 Reroofing	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Maintenance and Insurance Cost	\$(671)	\$(691)	\$(712)	\$(734)	\$(756)	\$(778)	\$(802)
Annual Cash Flow	\$5,355	\$5,484	\$5,617	\$5,753	\$5,892	\$6,035	\$6,181
Cumulative Cash Flow	\$(27,812)	\$(22,328)	\$(16,710)	\$(10,957)	\$(5,065)	\$970	\$7,151

Year	15	16	17	18	19	20
kWh Savings	\$7,156	\$7,334	\$7,516	\$7,703	\$7,894	\$8,090
Demand Savings	\$-	\$-	\$-	\$-	\$-	\$-
Maintenance and Insurance Cost	\$(826)	\$(850)	\$(876)	\$(902)	\$(929)	\$(957)
Annual Cash Flow	\$6,330	\$6,483	\$6,640	\$6,801	\$6,965	\$7,529
Cumulative Cash Flow	\$13,481	\$19,964	\$26,604	\$33,405	\$40,369	\$47,898

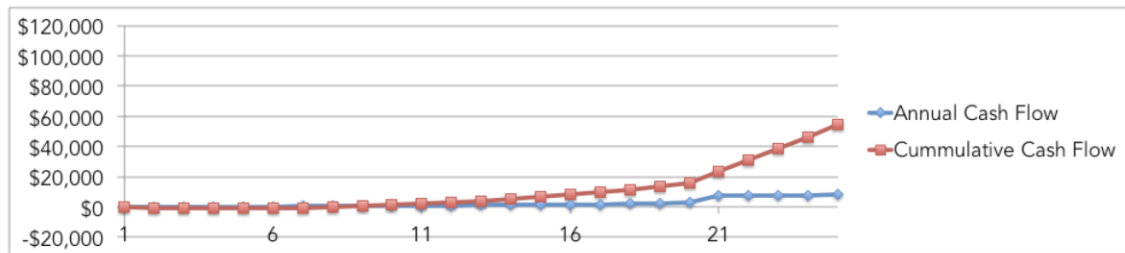
With 20-year loan covering 85% of system cost and a 4% interest rate

Financial Metrics

Year	IRR	NPV
20	27.0%	\$9,966
25	29.4%	\$29,474

30	29.9%	\$48,341
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Annual and Cumulative Cash Flow Diagram



Scenario Analysis

At the:

- Washburn Elementary School
- Bayfield WWTP
- Bayfield County Garage

For:

- Direct ownership with loan
- Direct ownership without loan
- TPP

Under the following scenarios

- Energy escalation rate 2%/year
- Energy escalation rate 4%/year
- System cost decreases 10%
- System cost increases 10%
- System generation increases 10%
- System generation decreases 10%
- Grant covers additional 10% of system cost

Summary data provided in the Tables below.

Washburn Elementary

Washburn Elementary School Direct Ownership: No Loan

	Year One Cash Flow	25 Year NPV	25 Year IRR	Year Cumulative Cash Flow Positive
Base without loan	\$(162,541)	\$80,790	7.0%	14
Energy Escalation rate 2%/year	\$(162,541)	\$50,493	5.8%	15
Energy Escalation rate 4%/year	\$(162,541)	\$115,951	8.1%	13
System cost decrease of 10%	\$(145,043)	\$101,488	8.3%	13
System cost increase of 10%	\$(180,038)	\$60,092	5.8%	15
System generation increase of 10%/year	\$(161,516)	\$104,248	8.0%	13
System generation decrease of 10%/year	\$(163,565)	\$57,332	6.0%	15
Grant covers additional 10% of system cost	\$(142,124)	\$101,207	8.4%	13

Washburn Elementary School Direct Ownership: With Loan

	Year One Cash Flow	25 Year NPV	25 Year IRR	Year Cumulative Cash Flow Positive
Base with loan	\$(1,766)	\$63,982	19.3%	13
Energy Escalation rate 2%/year	\$(1,766)	\$33,685	12.1%	21
Energy Escalation rate 4%/year	\$(1,766)	\$99,142	26.9%	10
System cost decrease of 10%	\$(346)	\$86,361	86.5%	4
System cost increase of 10%	\$(3,186)	\$41,603	10.5%	21
System generation increase of 10%/year	\$(741)	\$87,440	44.6%	6
System generation decrease of 10%/year	\$(2,790)	\$40,524	11.2%	20
Grant covers additional 10% of system cost (and loan covers 75% of system cost)	\$(264)	\$86,376	112.1%	3

Washburn Elementary School TPP Ownership

	Year One Cash Flow	25 Year NPV	25 Year IRR	Year Cumulative Cash Flow Positive
Base	(\$829)	\$81,869	17.6%	17
Energy Escalation rate 2%/year	(\$829)	\$51,305	12.2%	18
Energy Escalation rate 4%/year	(\$829)	\$117,292	24.5%	15
System cost decrease of 10%	\$314	\$100,327	Can not be determined	1
System cost increase of 10%	\$(2,047)	\$62,547	11.3%	18
System generation increase of 10%/year	\$210	\$105,451	Can not be determined	1
System generation decrease of 10%/year	\$(1,830)	\$58,719	11.6%	18
Grant covers additional 10% of system cost	\$390	\$99,974	Can not be determined	1

When a project's is cash flow positive from year one, the IRR cannot be determined because there is no first cost.

Bayfield WWTP

Bayfield WWTP Direct Ownership: No Loan

	Year One Cash Flow	25 Year NPV	25 Year IRR	Year Cumulative Cash Flow Positive
Base without loan	\$(162,508)	\$81,548	7.0%	14
Energy Escalation rate 2%/year	\$(162,508)	\$51,171	5.8%	15
Energy Escalation rate 4%/year	\$(162,508)	\$116,802	8.2%	13
System cost decrease of 10%	\$(145,010)	\$102,246	8.4%	13
System cost increase of 10%	\$(180,005)	\$60,850	5.9%	15
System generation increase of 10%/year	\$(161,480)	\$105,082	8.0%	13
System generation decrease of 10%/year	\$(163,535)	\$58,014	6.0%	15
Grant covers additional 10% of system cost	\$(142,091)	\$101,965	8.4%	13

Bayfield WWTP Direct Ownership: With Loan

	Year One Cash Flow	25 Year NPV	25 Year IRR	Year Cumulative Cash Flow Positive
Base with loan	-\$1,733	\$64,740	19.7%	13
Energy Escalation rate 2%/year	\$(1,733)	\$34,362	12.3%	21
Energy Escalation rate 4%/year	\$(1,733)	\$99,993	27.4%	9
System cost decrease of 10%	\$(313)	\$87,118	95.8%	4
System cost increase of 10%	\$(3,153)	\$42,361	10.7%	21
System generation increase of 10%/year	\$(705)	\$88,273	46.9%	6
System generation decrease of 10%/year	\$(2,761)	\$41,206	11.3%	20
Grant covers additional 10% of system cost and loan covers 75% of system cost	\$(231)	\$87,134	128.5%	3

Bayfield WWTP TPP Ownership

	Year One Cash Flow	25 Year NPV	25 Year IRR	Year Cumulative Cash Flow Positive
Base	\$(931)	\$81,168	17.0%	13
Energy Escalation rate 2%/year	\$(931)	\$50,499	11.8%	18
Energy Escalation rate 4%/year	\$(931)	\$116,713	23.4%	16
System cost decrease of 10%	\$262	\$100,203	Can not be determined	1
System cost increase of 10%	\$(2,185)	\$61,439	11.0%	18
System generation increase of 10%/year	\$35	\$103,979	39.6%	1
System generation decrease of 10%/year	\$(1,982)	\$57,404	11.2%	18
Grant covers additional 10% of system cost	\$277	\$99,159	Can not be determined	1

Bayfield County Garage

Bayfield County Garage Direct Ownership: No Loan

	Year One Cash Flow	20 Year IRR	25 Year IRR	Years to Cumulative Cash Flow Positive
Base no loan	\$(59,843)	\$18,197	5.6%	15
Energy Escalation rate 2%/year	\$(59,843)	\$8,334	4.5%	17
Energy Escalation rate 4%/year	\$(59,843)	\$29,645	6.8%	15
System cost decrease of 10%	\$(53,454)	\$25,755	6.9%	14
System cost increase of 10%	\$(66,233)	\$10,639	4.6%	17
System generation increase of 10%/year	\$(59,512)	\$25,790	6.6%	14
System generation decrease of 10%/year	\$(60,175)	\$10,604	4.7%	17
Grant covers additional 10% of system cost	\$(52,388)	\$25,652	6.9%	14

Bayfield County Garage Direct Ownership: With Loan

	Year One Cash Flow	20 Year IRR	25 Year IRR	Years to Cumulative Cash Flow Positive
Base with loan	\$(1,135)	\$12,059	9.3%	21
Energy Escalation rate 2%/year	\$(1,135)	\$2,196	4.3%	23
Energy Escalation rate 4%/year	\$(1,135)	\$23,507	14.3%	16
System cost decrease of 10%	\$(616)	\$20,231	18.2%	14
System cost increase of 10%	\$(1,653)	\$3,887	4.7%	23
System generation increase of 10%/year	\$(803)	\$19,652	15.2%	16
System generation decrease of 10%/year	\$(1,466)	\$4,466	5.1%	23
Grant covers additional 10% of system cost and loan covers 75% of system cost	\$(586)	\$20,237	18.8%	13

Annex 1, Site Ownership

Site	Site Owner	System Size kW dc
Washburn High School	Washburn School District	120
Washburn Elementary		120
Housing Authority Lakeview	50% City of Washburn 50% County of Bayfield	56
Washburn WWTP	City of Washburn	120
County Jail	County of Bayfield	109
County Garage		40
Totals	Washburn School District	240
	City of Washburn	148
	County of Bayfield	177 (137 ³)

Bayfield School District, City of Bayfield and Pike's Sanitary District Site Ownership

Site	Site Owner	System Size kW dc
Bayfield Rec Center	Bayfield School District owns, operated by nonprofit	42
Bayfield School		120
Bayfield City Hall	City of Bayfield	27
Bayfield Pavilion and Docks 1 & 2	City of Bayfield	39
Bayfield Old Court House	City of Bayfield	87
Bayfield WWTP	50% City of Bayfield, 50% Pikes Sanitary District	120
Totals	Bayfield School District	162 (120)
	City of Bayfield	213 (147)
	Pikes Sanitary District	60

As mapped out above the TPP would require 6 sets of contracts

- Washburn School District
- City of Washburn
- County of Bayfield
- Bayfield School District
- City of Bayfield
- Pikes Sanitation District

Complexities at the Washburn Lakeview Apartment may require an additional contract.

³ Systems larger than 50 kW dc

Annex 2, XCEL Cg-7 General Service TOD Rate Sheet

NSP	NORTHERN STATES	REVISION: 5	SHEET NO. E 25.2
	POWER COMPANY		SCHEDULE Cg-7
	WISCONSIN		
WISCONSIN ELECTRIC RATE BOOK		VOLUME NO. 7	AMENDMENT NO. 750

GENERAL TIME-OF-DAY SERVICE

Availability: Available to any non-residential customer for single- or three-phase electric service supplied through one meter where customer's demands are measured and where customer is not required to be on the Large General Time-of-Day service, Schedule Cg-9. This service is mandatory for customers that meet the above criteria and Time-of-Day metering is available. Other customers may select this service on an optional basis, if Time-of-Day metering is available.

Any customer that chooses this rate schedule as an option to other available rate schedules waives all rights to any billing adjustments arising from a claim that the bill for the customer's service would be less on any alternative rate schedule for any period of time.

Kind of Service: Alternating current at the following nominal voltages:

- Secondary Voltage Service— three-wire single-phase and three- or four-wire three-phase at 208 volts or higher;
- for Primary Voltage Service— three-phase at 2400 volts or higher.

Service voltage available in any given case is dependent upon voltage and capacity of existing Company lines in vicinity of customer's premises.

Rate:

<u>Customer Charge per Month</u>		\$ 42.00	
<u>Demand Charges per Month per kW</u>			
On-peak Demand		<u>Secondary Voltage</u>	<u>Primary Voltage</u>
June—September		\$ 13.00	\$ 12.35
October—May		\$ 11.00	\$ 10.45
Distribution Demand		\$ 0.50	\$ 0.30
<u>Energy Charge per kWh</u>		<u>June to September</u>	<u>October to May</u>
On-Peak	Secondary	7.521 ¢	7.021 ¢
Off-Peak	Secondary	5.602 ¢	5.602 ¢
Energy Charge Discount (before Energy Cost Adjustment and Energy Charge Credit)			
Primary			2.0 %
<u>Energy Charge Credit per Month</u>			
All kWh in Excess of 400 Hours		1.50 ¢	
times the On-Peak Billing Demand			

Energy Cost Adjustment: Bills subject to the adjustment provided for in Energy Cost Adjustment. See schedule X-1, Sheet No. E 63.

Non-Demand Billing Option: Customers with a measured 15-minute demand of less than 25 kW for twelve consecutive months will have the option of transferring to either the Small General Service (Schedule Cg-2) or the Small General Time of Day Service (Schedule Cg-1).

(continued)

ISSUED: December 26, 2017.

EFFECTIVE: For service rendered on and after January 1, 2018.

PSCW AUTHORIZATION: Order in Docket No. 4220-UR-123 dated December 21, 2017.



NORTHERN STATES
POWER COMPANY
WISCONSIN

REVISION: 1

SHEET NO. E 25.3

SCHEDULE Cg-7

WISCONSIN ELECTRIC RATE BOOK

VOLUME NO. 7

AMENDMENT NO. 750

GENERAL TIME-OF-DAY SERVICE (continued)

Billing Demand Limit: In no month will the on-peak billing demand be greater than the value in kW determined by dividing the kWh sales for the billing month by 100 hours.

Definition of Peak Periods: Unless specified to the contrary in writing by the Company to any customers using this schedule and refiling this rate sheet not later than November 1 of each year, on-peak hours shall be from 9:00 a.m. to 9:00 p.m. Monday through Friday, inclusive (excluding holidays), for the twelve months beginning with the first full billing period following December 15. The holidays designated shall be New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving and Christmas, on the day nationally designated to be celebrated as such. When a designated holiday occurs on Saturday, the preceding Friday will be considered an off-peak day. When a designated holiday occurs on Sunday, the following Monday will be considered an off-peak day.

Off-peak hours are times not specified as on-peak hours.

Determination of On-Peak Billing Demand: The On-Peak Billing Demand in kilowatts will be the greatest Current Month On-Peak Period Demand, rounded to the nearest whole kW. The On-Peak Billing Demand will be adjusted for power factor, when customer's measured demand is greater than 100 kW for four of twelve months. When customer's measured demand remains below 100 kW for twelve consecutive months Power factor adjustment is discontinued.

Current Month On-Peak Period Demand: The Current Month On-peak Period Demand shall be the greatest 15-minute load, adjusted for power factor, which occurs during any on-peak hours. The Company, at its sole discretion, has the option of adjusting Current Month On-peak Period Demand if the Power Factor Adjustment provides a significant and unintended bill increase for a customer new to this service.

Power Factor Adjustment for On-Peak Period Demand: When the average on-peak power factor is less than 90%, the On-Peak Billing Demand shall be determined by multiplying the greatest 15-minute load during the on-peak period by 90% and dividing the product thus obtained by the Average On-Peak Power Factor expressed in percent.

Distribution Billing Demand: The distribution billing demand shall be the customer's greatest 15 minute load, regardless of time-of-day and not adjusted for power factor, which occurred during the past 12 months, including the current month. In no month will the distribution demand be greater than the value in kW determined by dividing the kWh sales for the billing month by 100 hours.

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Average On-Peak Power Factor: The Average On-Peak Power Factor is defined to be the quotient obtained by dividing the on-peak kilowatt-hours used during the month by the square root of the sum of the squares of the on-peak kilowatt-hours used and the lagging reactive kilovolt-ampere-hours supplied during the same on-peak period. Any leading kilovolt-ampere-hours supplied during the on-peak period will not be considered in determining the Average On-Peak Power Factor.

(continued)

ISSUED: December 26, 2017.

EFFECTIVE: For service rendered on and after January 1, 2018.

PSCW AUTHORIZATION: Order in Docket No. 4220-UR-123 dated December 21, 2017.

GENERAL TIME-OF-DAY SERVICE (continued)

Commercial Load Control Rider: A monthly credit is available, on an optional basis, for company control of all or part of customer's load during company's interruption periods.
(See Rate Sheet No. E24.50)

Monthly Minimum Charge: The customer charge.

Term of Agreement: One year or longer as provided in General Rules and Regulations.

Late Payment Charge: A one percent (1%) per month late payment charge will be applied to outstanding charges unpaid 20 days after the date of billing.

Rate Code:

B15 General Time of Day Service

ISSUED: December 27, 2012

EFFECTIVE: For service rendered on and after January 1, 2013.

PSCW AUTHORIZATION: Order in Docket No. 4220-UR-118 dated December 27, 2012.

Annex 3, XCEL Cg-2 Small General Service Rate Sheet

NSP

NORTHERN STATES
POWER COMPANY
WISCONSIN

REVISION: 25

SHEET NO. E 19

SCHEDULE Cg-2

WISCONSIN ELECTRIC RATE BOOK

VOLUME NO. 7

AMENDMENT NO. 750

SMALL GENERAL SERVICE

Availability Available to non-residential customers for single- or three- phase electric service. Not available for customers with a Maximum Demand of 25 kW or greater.

Rate:

Customer Charge per Month (metered)

Single Phase	\$ 17.00	R
Three Phase	\$ 20.50	R

Customer Charge per Month (unmetered)

Single Phase	\$ 4.50
Three Phase	\$ 6.50

<u>Delivery Charge per kWh</u>	4.200 ¢	N
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Energy Charge per kWh

June—September	8.318 ¢	R
October—May	7.165 ¢	R

<u>Water Heating Meter Charge per Month per Meter</u>	\$ 2.50
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Energy Cost Adjustment: Bills subject to the adjustment provided for in Energy Cost Adjustment. See Schedule X-1, Sheet No. E 63.

Monthly Minimum Charge The total of the customer charge and any applicable meter charges.

Terms and Conditions

1. To measure demands, the Company will install a Time-of-Day demand meter for customer when:
 - A. Customer's connected load is estimated to be 20 kW or greater, or
 - B. Customer is serviced single-phase and has a service entrance capacity greater than 200 amperes, or
 - C. Customer is served three-phase at 120/208 or 120/240 volts and has a service entrance capacity greater than 200 amperes, or
 - D. Customer is served three-phase at 240/480 or 277/480 volts and has service entrance capacity greater than 100 amperes, or
 - E. Customer's average monthly kWh use for four consecutive months exceeds 3,500 kWh.

A customer's Maximum Demand is the greatest 15-minute load, regardless of time-of-day. If a demand meter is installed in accordance with the above, then the customer may remain on the Small General Service Schedule as long as customer's Maximum Demand is less than 25 kW. Company will notify customer of any failure to comply with this Maximum Demand requirement. Any customer that has a Maximum Demand of 25 kW or greater for at least four out of twelve consecutive months or a Maximum Demand of 50 kW or greater during any month, will be placed on the General Time-of-Day Service Schedule Cg-7, in the next billing month. Customers with a Maximum Demand of less than 25 kW for twelve consecutive months may return to the Small General Service schedule.

(continued)

ISSUED: December 26, 2017.

EFFECTIVE: For service rendered on and after January 1, 2018.

PSCW AUTHORIZATION: Order in Docket No. 4220-UR-123 dated December 21, 2017.

SMALL GENERAL SERVICE (continued)

Terms and Conditions (Continued)

2. Any customer that chooses this rate schedule as an option to other available rate schedules waives all rights to any billing adjustments arising from a claim that the bill for the customer's service would be less on any alternative rate schedule for any period of time.
3. Customers served on the Athletic Field Lighting Rider as of December 31, 1987 will be billed on the Small General Service schedule.

Commercial Load Control Rider: A monthly credit is available on an optional basis for company control of all or part of customer's load during company's interruption periods. R
(see Rate Sheet No. E24.50)

Term of Agreement: One year or longer as provided in the General Rules and Regulations.

Late Payment Charge: A one percent (1%) per month late payment charge will be applied to outstanding charges unpaid 20 days after the date of billing.

Rate Codes:

- B06 Small General Service
- B07 General Water Heating Service – Commercial (Closed) – [No Customer Charge]
- B09 Small General Service – Unmetered
- B37 Controlled Water Heating Service – Commercial (Closed) – [Includes Extra Meter Charge, No Customer Charge]

ISSUED: December 23, 2009

EFFECTIVE: For service rendered on and after January 1, 2010.

PSCW AUTHORIZATION: Order in Docket No. 4220-UR-116 dated December 22, 2009

Annex 4, Xcel Pg-1 Net Metering Rate Sheet

NSP

NORTHERN STATES
POWER COMPANY
WISCONSIN

REVISION: 9

SHEET NO. E 55

SCHEDULE Pg-1

WISCONSIN ELECTRIC RATE BOOK

VOLUME NO. 7

AMENDMENT NO. 750

PARALLEL GENERATION - NET ENERGY BILLING SERVICE

Effective In All territories served by the Company.

Availability Available to any retail electric customer with customer owned renewable resource generation of 100 kW or less per site for purpose of operating generation interconnected with Company's system, where customer's delivery offsets retail electric consumption at the same site. If a customer has more than one electric generator on a site, the generators' ratings shall be summed and the sum may not exceed 100 kW per site. For purposes of determining compliance with this paragraph, generator size shall be determined based on the alternating current (AC) nameplate rating of the generator or inverter, as applicable.

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Renewable resource generators include generating systems which exclusively utilize wind, solar photovoltaic, wood or wood waste, refuse derived fuel, biogas, or hydro-electric generators that must meet the renewable resource definition contained in Wisconsin Statute 196.378. Renewable resource generation equipment must be located on the customer's premises serving only the customer's premises.

Monthly Energy Credit

- 1) A retail electric customer generating power with renewable resource facilities shall be billed monthly on a net energy basis. The retail electric customer may offset electricity usage measured on a single retail electric meter located at the same site each month on a net energy basis. For customers served under a Time of Use metered service, on-peak period generation shall only offset customer's on-peak period consumption. Off-peak period generation shall only offset customer's off-peak period consumption. For customers served under a non-Time of Use metered service, all generation shall offset customer's consumption, regardless of Time of Use.
- 2) Generation produced by Customer's facility and delivered to the Company in excess of Customer usage will be carried forward from month-to-month until the end of the calendar year in which the excess generation is produced. Customer usage in any given month will be netted against the outstanding generation balance(s).
- 3) At the end of the calendar year any excess generation will be netted against any usage not already offset during the calendar year. Customer will receive a credit for generation that is netted against any usage not already offset during the calendar year at the customer's retail rate. If customer receives retail service on a Time of Use basis, then customer will receive credit for any remaining generation balance after this netting at the appropriate (either on-peak or off-peak) Pg-2A service rate. If customer receives retail service on a non-Time of Use basis, then excess generation at the end of the calendar year, shall be compensated at the Pg-2A service using the weighted average of 34.8% of the on-peak Pg-2A rate and 65.2% of the off-peak Pg-2A rate.
- 4) This credit will be issued to the customer in the form of a check. Any credit balance \$2.00 or less in value will be applied to the customer's account.

(continued)

ISSUED: December 26, 2017

EFFECTIVE: For service rendered on and after January 1, 2018.

PSCW AUTHORIZATION: Order in Docket No. 4220-UR-123 dated December 21, 2017.

Special Rules

- 1) Customer's generation facility shall be permanently connected to only those facilities receiving service under schedules with similar rate designs. Customer shall not switch the generation between two or more rate schedules. This tariff applies only to the energy generated by Customer's renewable resource generation facilities.
- 2) Customer shall retain all renewable credits and other attributes associated with the energy provided to the Company pursuant to this tariff.

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Energy Cost Adjustment Energy Payments based on retail energy rates are subject to the adjustment provided for in Energy Cost Adjustment. See Schedule X-1, Sheet No. E 63.

Late Payment Charge A one percent (1%) per month late payment charge will be applied to outstanding charges unpaid 20 days after the date of billing.

Terms and Conditions of Service See Schedule PG-3.