

Washburn and Bayfield Solar Photovoltaic
Financial Scenario Analysis
Washburn Elementary School
Greater Bayfield WWTP
Bayfield County Garage
March 5 2018

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Supported by the
Solar in Your Community Challenge
A program of the
US Department of Energy's SunShot Initiative

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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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Scenarios Analysis

At the:

- Washburn Elementary School
- Bayfield WWTP
- Bayfield County Garage

For:

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

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	\$(346)	\$86,361	86.5%	4

10%				
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 projects are cash flow positive from year one, the IRR cannot be determined

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	\$(313)	\$87,118	95.8%	4

decrease of 10%				
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