

Type	Item	Qty	Price (Ea)	Amount	Provided by:	cost/w
Materials	PV Modules	81600	\$0.49	\$40,123.00	Owner	\$0.49
Materials	Inverter(s)	2	\$3,337.00	\$6,674.00	Owner	\$0.08
Materials	Poles	24	\$1,755.00	\$42,120.00	Owner	\$0.52
Materials	Racking	12	\$9,118.33	\$109,420.00	Owner	\$1.34
Materials	Racking (concrete footings)	24	\$2,083.50	\$50,004.00	Contractor	\$0.61
Labor	Modules and Racking Install	240	\$123.01	\$29,523.00	Contractor	\$0.36
Materials	DC Conduit & Wire	1	\$4,203.00	\$4,203.00	Contractor	\$0.05
Labor	DC Conduit & Wire	1	\$13,377.00	\$13,377.00	Contractor	\$0.16
Materials	AC Conduit & Wire	1	\$3,735.00	\$3,735.00	Contractor	\$0.05
Materials	AC Disconnect	1	\$647.00	\$647.00	Owner	\$0.01
Materials	Panelboard	1	\$2,841.00	\$2,841.00	Owner	\$0.03
Materials	Monitoring	1	\$10,918.00	\$10,918.00	Owner	\$0.13
Labor	AC Conduit & Wire and BOS	1	\$45,101.00	\$45,101.00	Contractor	\$0.55
Overhead	Engineering	1	\$7,683.00	\$7,683.00	Outsourced	\$0.09
Overhead	PGE Interconnection App / Permit	1	\$4,077.00	\$4,077.00	Owner	\$0.05

Total	\$370,446.00	\$4.54
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30%	<u>-\$111,133.80</u>
	\$259,312.20

Contingency 20 %

<u>\$18,522.00</u>

Total	\$277,834.20
--------------	---------------------

Jeff Gouveia

Subject: FW: BVWD Solar - ETB re-run - Delivered
Attachments: SP, SLD and INTX App Support Exhibit (unsigned).pdf

From: Will Lindsay <will@solrebel.com>
Sent: Tuesday, February 21, 2023 2:18 PM
To: Jeff Gouveia <Jeff.Gouveia@bvwd.ca.gov>
Cc: Randy Batchelor <randybatchelor@solrebel.com>
Subject: Re: BVWD Solar - ETB re-run - Delivered

Thanks Jeff,

Nice to meet you, my name is Will and I head up Sol Rebel's INTX-related work. Randy and I met and put together the attached exhibit for pricing on the initial items needed to get this project through with a valid/approved application by the April 15th deadline for NEM 2.0. Please review and if everything looks in order, sign/return.

I can confirm that Sol Rebel has the bandwidth to help get this project shepherded through in time for the NEM 2.0 deadline, I am following up with one of my contacts at PG&E now to make sure we take the most efficient application route, considering the current/existing BESS application.

Some general items that would need to be finalized before we could apply (i.e. items that cannot change once we submit)

- System equipment (like for like swaps are allowed, but not 2 inverters for 1 or different wattage modules, etc)
- System size (very important, cannot increase, can decrease by up to 20%)
- Address/general customer details
- General SLD details (AC Disco, method of tie-in, etc)

The above list is not exhaustive, but should give you an idea of what we need to lock in before applying.

Please let us know if you have any questions.

Thanks and talk soon sir,
Will



Contract Exhibit: BVWD-439

Client: Bear Valley Water District

Sol Rebel will complete (or has completed) the work, as detailed in the table below.

Client agrees this scope shall be amended to and bound by the terms of the Master Services Agreement.

By signing below, client agrees to the scope, price and estimated completion date for each work request (each row).

Exhibits with a total price of less than \$2000 may be approved by email, simply reply "Approved".

Otherwise please sign below and return

By: _____ Name: _____ Date: _____

Total Price: \$3,100.00

Project	Scope Item	#	Detailed Scope Description	Price
Bear Valley Solar	SLD + Site Plan		Site plan and SLD	\$1,500.00
Bear Valley Solar	Intx App Support		Submit Interconnection Application	\$850.00
Bear Valley Solar	Intx App Support		Follow up and cure potential deficiencies/requests for additional information. INTX app approved	\$750.00

Jeff Gouveia

From: Randy Batchelor <randybatchelor@solrebel.com>
Sent: Friday, February 17, 2023 5:00 PM
To: Will Lindsay
Cc: Jeff Gouveia
Subject: Re: BVWD Solar - ETB re-run - Delivered
Attachments: GSR_BearValley_Helioscope_81.6kW-NEM2_5-5-22.pdf; GSR_BearValley_Helioscope_81.6kW-NEM3_5-5-22.pdf

Jeff,
Thank you for your patience.

See attached.

The influence of the battery is difficult to model without more information on the contract structure, but it doesn't seem (surprisingly) like the battery will make much difference, regardless, in the financial performance of the PV system.

If you don't get the interconnect in soon and let NEM2 sunset, the switch to NEM3 has a pretty significant impact on the NPV of the project if you compare the two attached documents.

These account for your tax status and assume you cannot take advantage of the Depreciation credit and you CAN get the grant in lieu of Tax credit for the 30% ITC. And there could be opportunities to increase that with domestic product.

NEM2

NPV: \$441k
Payback: 7.4 years
IRR: 14.1%

NEM3

NPV: \$143k
Payback: 10.4 years
IRR: 8.9%

Let me know if you have any questions.

Thanks,
Randy

You can use Calendly to find out when I'm free and schedule a call with me:
calendly.com/batchelor



Prepared For

Bear Valley
209.743.0836
Jeff.Gouveia@bvwd.ca.gov



The Sol Rebel team provides industry leading Energy Consulting, Engineering and Construction Management services to Facility Owners, Developers and Investors. We will help you evaluate the feasibility of a solar or energy storage system to lower your energy costs, with less risk.

81.6kW-dc solar -NEM2

Prepared By

Randy Batchelor
(503) 896-7365
randybatchelor@solrebel.com

2/18/2023



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1 Project Summary

Payment Options	Cash Purchase
IRR - Term	14.1%
LCOE PV Generation	\$0.094 /kWh
Net Present Value	\$441,057
Payback Period	7.4 Years
Total Payments	\$470,151
Total Incentives	\$112,500
Net Payments	\$357,651
Electric Bill Savings - Term	\$1,637,482
Upfront Payment	\$375,000

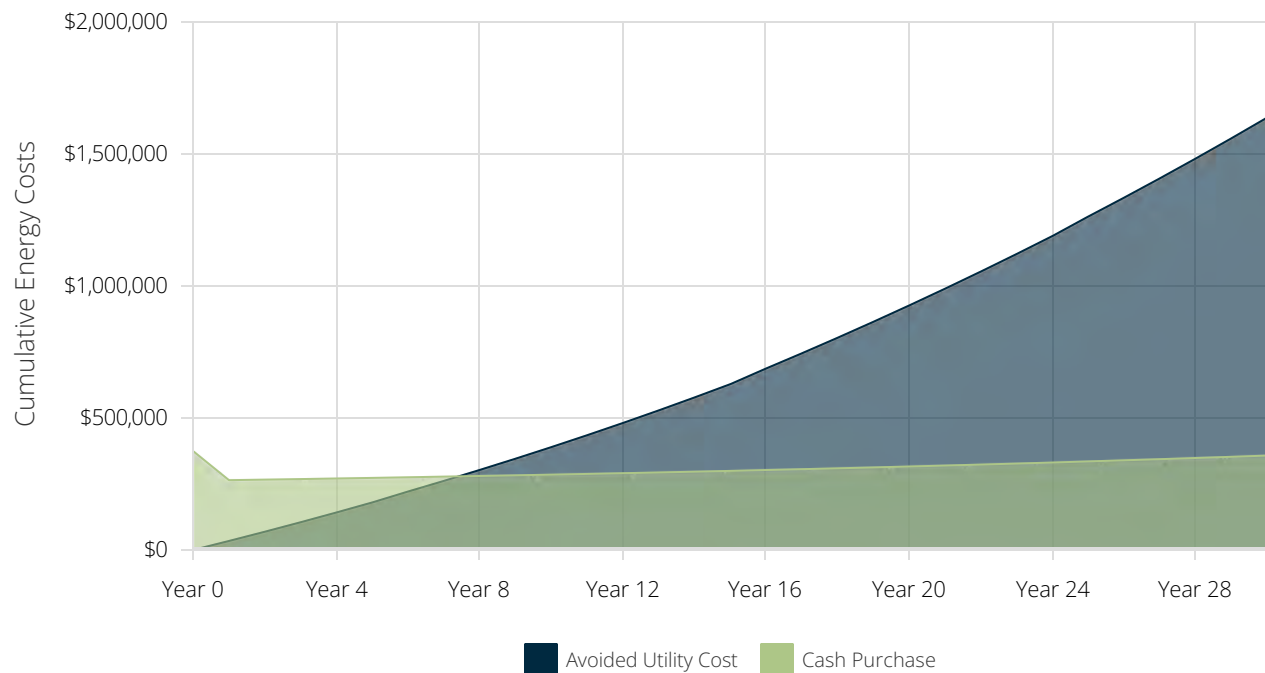
Combined Solar PV Rating

Power Rating: 81,600 W-DC
Power Rating: 69,613 W-AC-CEC

Combined ESS Ratings

Energy Capacity: 696.0 kWh
Power Rating: 140.0 kW

Cumulative Energy Costs By Payment Option



2.1.1 PV System Details

General Information

Facility: Meter #1

Address: 411 Creekside Dr Bear Valley CA 95223

Solar PV Equipment Description

Solar Panels: (240) Hanwha Q CELLS Q.PLUS L-G4.2 340

Inverters: (2) SMA Sunny Tripower_Core1 33-US-41

Solar PV Equipment Typical Lifespan

Solar Panels: Greater than 30 Years

Inverters: 15 Years

Solar PV System Cost and Incentives

Solar PV System Cost \$375,000

Federal Tax Credit **-\$112,500**

Net Solar PV System Cost \$262,500

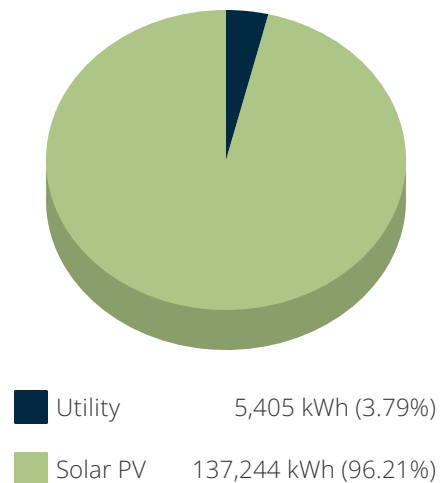
Solar PV System Rating

Power Rating: 81,600 W-DC

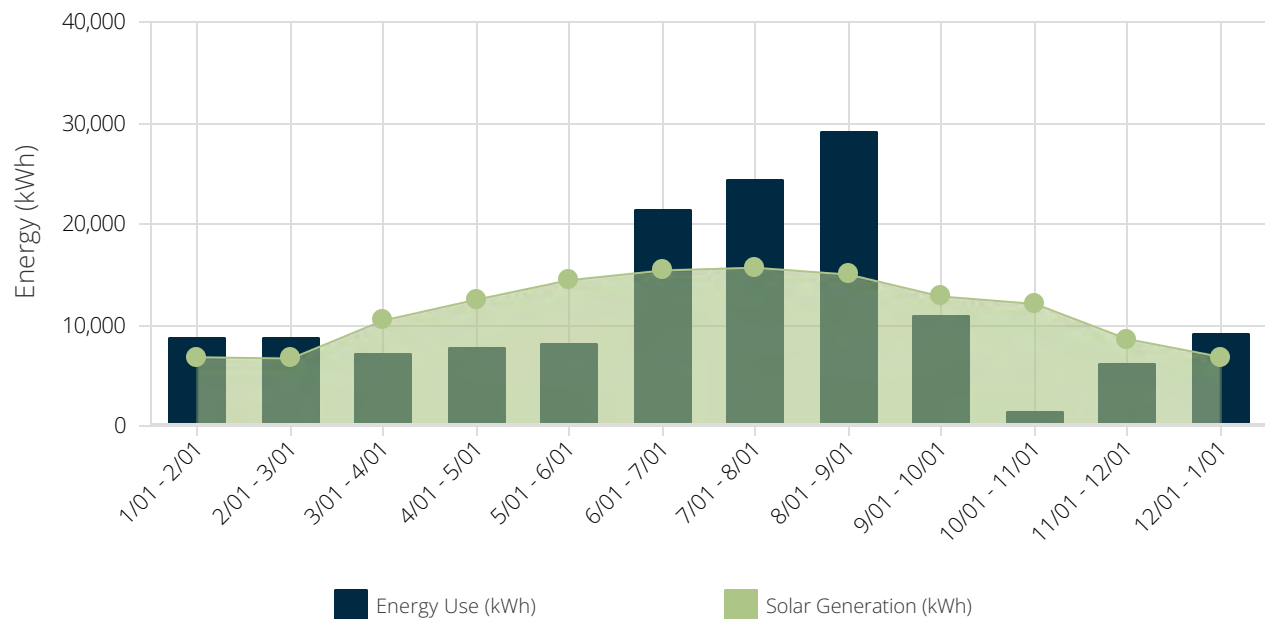
Power Rating: 69,613 W-AC-CEC

Energy Consumption Mix

Annual Energy Use: 142,649 kWh



Monthly Energy Use vs Solar Generation



2.1.2 Energy Storage System (ESS) Details

General Information

Facility: Meter #1
Address: Bear Valley CA 95223

ESS System Ratings

Energy Capacity: 696.0 kWh
Power Rating: 140.0 kW

ESS Equipment Description

Battery Banks: 140kw/696kWh Energy Storage System
Inverters: 140kw/696kWh Energy Storage System

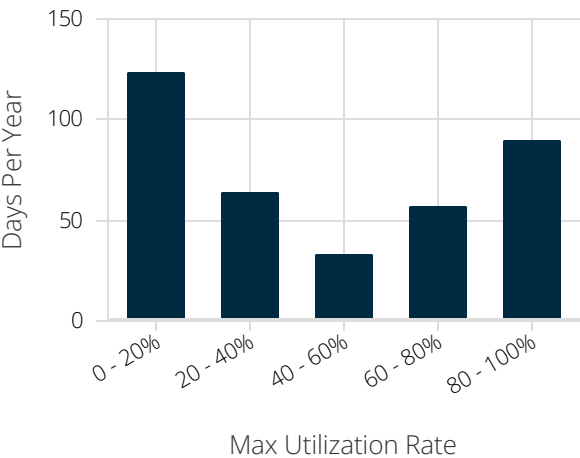
ESS Equipment Typical Lifespan

Battery Banks: 15 Years
Inverters: 15 Years

ESS Cost and Incentives

ESS Cost	-
Net ESS Cost	\$0

Energy Storage Annual Utilization



Energy Output and Demand Savings From Solar PV and Energy Storage				
Date Range	ESS Energy Discharge (kWh)	Solar PV Generation (kWh)	ESS Energy as % of PV Energy	Total Demand Savings
1/1/2020 - 2/1/2020	2,857	6,802	42.00%	\$0
2/1/2020 - 3/1/2020	3,006	6,672	45.05%	\$0
3/1/2020 - 4/1/2020	2,729	10,435	26.15%	\$0
4/1/2020 - 5/1/2020	2,554	12,517	20.40%	\$0
5/1/2020 - 6/1/2020	3,038	14,431	21.05%	\$0
6/1/2020 - 7/1/2020	7,672	15,398	49.82%	\$0
7/1/2020 - 8/1/2020	8,523	15,666	54.40%	\$0
8/1/2020 - 9/1/2020	7,075	14,985	47.21%	\$0
9/1/2020 - 10/1/2020	2,753	12,820	21.47%	\$0
10/1/2020 - 11/1/2020	506	12,082	4.19%	\$0
11/1/2020 - 12/1/2020	2,252	8,610	26.16%	\$0
12/1/2020 - 1/1/2021	3,804	6,826	55.73%	\$0
Total	46,769	137,244	34.08%	\$0

2.1.3 Rebates and Incentives

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

Investment Tax Credit (ITC), Commercial - 30%

The Inflation Reduction Act (IRA) of 2022 establishes and extends the federal Investment Tax Credit (ITC) for solar photovoltaic (PV) systems at a rate of 30% of the total PV system cost. The 30% ITC was extended for 10 years, through 2032. Unlike tax deductions, this tax credit can be used to directly offset your tax liability dollar for dollar. The IRA extended the carryback period to 3 years, and the carryforward period to 22 years, in cases where the tax credit exceeds a customer's tax liability in the 'placed-in-service' year. For PV projects greater than 1 MW AC in size, the IRA established prevailing wage and apprenticeship requirements in order to qualify for the full 30% "increased rate", rather than a "base rate" which would only qualify for a 6% ITC. Projects with an output of less than 1 megawatt qualify for the "increased rate" irrespective of if prevailing wage or apprenticeship requirements are met.

Total Incentive Value: \$112,500

2.1.4 Utility Rates

The table below shows the rates associate with your current utility rate schedule (B-6). Your estimated electric bills after solar are shown on the following page.

Customer Charges				Energy Charges			
Season	Charge Type	Rate Type	B-6	Season	Charge Type	Rate Type	B-6
W1	Flat Rate	per day	\$0.82	W1	On Peak	Import	\$0.32318
W2	Flat Rate	per day	\$0.82	W1	Off Peak	Import	\$0.27959
S	Flat Rate	per day	\$0.82	W2	On Peak	Import	\$0.32318
				W2	Off Peak	Import	\$0.27959
				W2	Super Off Peak	Import	\$0.24351
				S	On Peak	Import	\$0.56987
				S	Off Peak	Import	\$0.31225

2.1.5 Current Electric Bill

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

Rate Schedule: PG&E - B-6

Time Periods	Energy Use (kWh)			Charges			
Bill Ranges & Seasons	On Peak	Off Peak	Super Off Peak	Other	NBC	Energy	Total
1/1/2020 - 2/1/2020 W1	1,676	6,971	-	\$25	\$234	\$2,257	\$2,516
2/1/2020 - 3/1/2020 W1	1,385	7,338	-	\$24	\$236	\$2,263	\$2,523
3/1/2020 - 4/1/2020 W2	926	4,319	1,821	\$25	\$191	\$1,759	\$1,976
4/1/2020 - 5/1/2020 W2	1,339	4,042	2,340	\$25	\$209	\$1,924	\$2,157
5/1/2020 - 6/1/2020 W2	1,518	4,519	2,043	\$25	\$218	\$2,033	\$2,277
6/1/2020 - 7/1/2020 S	808	20,547	-	\$25	\$577	\$6,299	\$6,901
7/1/2020 - 8/1/2020 S	544	23,902	-	\$25	\$661	\$7,112	\$7,799
8/1/2020 - 9/1/2020 S	795	28,346	-	\$25	\$788	\$8,516	\$9,330
9/1/2020 - 10/1/2020 S	366	10,463	-	\$25	\$293	\$3,183	\$3,500
10/1/2020 - 11/1/2020 W1	175	1,253	-	\$25	\$39	\$368	\$432
11/1/2020 - 12/1/2020 W1	1,152	5,028	-	\$25	\$167	\$1,611	\$1,803
12/1/2020 - 1/1/2021 W1	1,768	7,267	-	\$25	\$244	\$2,359	\$2,629
Total	12,452	123,995	6,204	\$301	\$3,857	\$39,685	\$43,842

2.1.6 New Electric Bill

Rate Schedule: PG&E - B-6

Time Periods	Energy Use (kWh)			Charges			
Bill Ranges & Seasons	On Peak	Off Peak	Super Off Peak	Other	NBC	Energy	Total
1/1/2020 - 2/1/2020 W1	868	2,075	-	\$25	\$118	\$781	\$924
2/1/2020 - 3/1/2020 W1	681	2,515	-	\$24	\$107	\$837	\$968
3/1/2020 - 4/1/2020 W2	-402	38	-1,947	\$25	\$51	\$531	\$454
4/1/2020 - 5/1/2020 W2	-565	-644	-2,635	\$25	\$40	\$900	\$836
5/1/2020 - 6/1/2020 W2	-863	-1,164	-3,129	\$25	\$37	\$1,227	\$1,164
6/1/2020 - 7/1/2020 S	296	8,608	-	\$25	\$285	\$2,616	\$2,926
7/1/2020 - 8/1/2020 S	333	11,719	-	\$25	\$329	\$3,523	\$3,878
8/1/2020 - 9/1/2020 S	776	16,095	-	\$25	\$457	\$5,012	\$5,495
9/1/2020 - 10/1/2020 S	-462	-469	-	\$25	\$152	\$384	\$208
10/1/2020 - 11/1/2020 W1	-849	-9,615	-	\$25	\$6	\$2,680	\$2,648
11/1/2020 - 12/1/2020 W1	493	-2,061	-	\$25	\$63	\$374	\$286
12/1/2020 - 1/1/2021 W1	729	2,948	-	\$25	\$102	\$960	\$1,088
Total	1,035	30,045	-7,711	\$301	\$1,748	\$7,634	\$9,683

Annual Electricity Savings: \$34,160

3.1 Cash Purchase

Assumptions and Key Financial Metrics

IRR - Term	14.1%	Net Present Value	\$441,057	Payback Period	7.4 Years
ROI	341.3%	PV Degradation Rate	0.50%	Discount Rate	5.0%
Energy Cost Escalation Rate	3.0%	Federal Income Tax Rate	0.0%	State Income Tax Rate	0.0%
Total Project Costs	\$375,000				

Years	Project Costs	O&M Costs	Electric Bill Savings	Federal Tax Effect	Total Cash Flow	Cumulative Cash Flow
Upfront	-\$375,000	-	-	-	-\$375,000	-\$375,000
1	-	-\$2,000	\$34,160	\$112,500	\$144,660	-\$230,340
2	-	-\$2,060	\$35,139	-	\$33,079	-\$197,262
3	-	-\$2,122	\$36,146	-	\$34,024	-\$163,237
4	-	-\$2,185	\$37,182	-	\$34,997	-\$128,241
5	-	-\$2,251	\$38,248	-	\$35,997	-\$92,244
6	-	-\$2,319	\$39,344	-	\$37,025	-\$55,219
7	-	-\$2,388	\$40,471	-	\$38,083	-\$17,135
8	-	-\$2,460	\$41,631	-	\$39,171	\$22,036
9	-	-\$2,534	\$42,824	-	\$40,290	\$62,326
10	-	-\$2,610	\$44,051	-	\$41,441	\$103,768
11	-	-\$2,688	\$45,313	-	\$42,625	\$146,393
12	-	-\$2,768	\$46,611	-	\$43,843	\$190,236
13	-	-\$2,852	\$47,946	-	\$45,095	\$235,330
14	-	-\$2,937	\$49,320	-	\$46,383	\$281,713
15	-	-\$3,025	\$50,732	-	\$47,707	\$329,420
16	-	-\$3,116	\$56,523	-	\$53,407	\$382,827
17	-	-\$3,209	\$57,904	-	\$54,695	\$437,522
18	-	-\$3,306	\$59,317	-	\$56,011	\$493,533
19	-	-\$3,405	\$60,763	-	\$57,358	\$550,891
20	-	-\$3,507	\$62,242	-	\$58,735	\$609,626
21	-	-\$3,612	\$63,755	-	\$60,142	\$669,768
22	-	-\$3,721	\$65,303	-	\$61,582	\$731,350
23	-	-\$3,832	\$66,886	-	\$63,054	\$794,404
24	-	-\$3,947	\$68,505	-	\$64,558	\$858,962
25	-	-\$4,066	\$70,162	-	\$66,096	\$925,058
26	-	-\$4,188	\$71,856	-	\$67,669	\$992,727
27	-	-\$4,313	\$73,589	-	\$69,276	\$1,062,003
28	-	-\$4,443	\$75,361	-	\$70,918	\$1,132,921
29	-	-\$4,576	\$77,173	-	\$72,597	\$1,205,518
30	-	-\$4,713	\$79,026	-	\$74,313	\$1,279,831
Totals:	-\$375,000	-\$95,151	\$1,637,482	\$112,500	\$1,279,831	-

4.1 Cash Purchase

Assumptions and Key Financial Metrics

IRR - Term	14.1%	Net Present Value	\$441,057	Payback Period	7.4 Years
ROI	341.3%	PV Degradation Rate	0.50%	Discount Rate	5.0%
Energy Cost Escalation Rate	3.0%	Federal Income Tax Rate	0.0%	State Income Tax Rate	0.0%
Total Project Costs	\$375,000				

Years	Upfront	1	2	3	4	5	6	7	8	9	10	11	12
Cash													
Project Costs	-\$375,000	-	-	-	-	-	-	-	-	-	-	-	-
O&M Costs	-	-\$2,000	-\$2,060	-\$2,122	-\$2,185	-\$2,251	-\$2,319	-\$2,388	-\$2,460	-\$2,534	-\$2,610	-\$2,688	-\$2,768
Electric Bill Savings	-	\$34,160	\$35,139	\$36,146	\$37,182	\$38,248	\$39,344	\$40,471	\$41,631	\$42,824	\$44,051	\$45,313	\$46,611
Cash Total	-\$375,000	\$32,160	\$33,079	\$34,024	\$34,997	\$35,997	\$37,025	\$38,083	\$39,171	\$40,290	\$41,441	\$42,625	\$43,843
Total Cash Flow	-\$375,000	\$144,660	\$33,079	\$34,024	\$34,997	\$35,997	\$37,025	\$38,083	\$39,171	\$40,290	\$41,441	\$42,625	\$43,843
Cumulative Cash Flow	-\$375,000	-\$230,340	-\$197,262	-\$163,237	-\$128,241	-\$92,244	-\$55,219	-\$17,135	\$22,036	\$62,326	\$103,768	\$146,393	\$190,236

4.1 Cash Purchase

Assumptions and Key Financial Metrics

IRR - Term	14.1%	Net Present Value	\$441,057	Payback Period	7.4 Years
ROI	341.3%	PV Degradation Rate	0.50%	Discount Rate	5.0%
Energy Cost Escalation Rate	3.0%	Federal Income Tax Rate	0.0%	State Income Tax Rate	0.0%
Total Project Costs	\$375,000				

Years	13	14	15	16	17	18	19	20	21	22	23	24	25
Cash													
Project Costs	-	-	-	-	-	-	-	-	-	-	-	-	-
O&M Costs	-\$2,852	-\$2,937	-\$3,025	-\$3,116	-\$3,209	-\$3,306	-\$3,405	-\$3,507	-\$3,612	-\$3,721	-\$3,832	-\$3,947	-\$4,066
Electric Bill Savings	\$47,946	\$49,320	\$50,732	\$56,523	\$57,904	\$59,317	\$60,763	\$62,242	\$63,755	\$65,303	\$66,886	\$68,505	\$70,162
Cash Total	\$45,095	\$46,383	\$47,707	\$53,407	\$54,695	\$56,011	\$57,358	\$58,735	\$60,142	\$61,582	\$63,054	\$64,558	\$66,096
Total Cash Flow	\$45,095	\$46,383	\$47,707	\$53,407	\$54,695	\$56,011	\$57,358	\$58,735	\$60,142	\$61,582	\$63,054	\$64,558	\$66,096
Cumulative Cash Flow	\$235,330	\$281,713	\$329,420	\$382,827	\$437,522	\$493,533	\$550,891	\$609,626	\$669,768	\$731,350	\$794,404	\$858,962	\$925,058

4.1 Cash Purchase

Assumptions and Key Financial Metrics

IRR - Term	14.1%	Net Present Value	\$441,057	Payback Period	7.4 Years
ROI	341.3%	PV Degradation Rate	0.50%	Discount Rate	5.0%
Energy Cost Escalation Rate	3.0%	Federal Income Tax Rate	0.0%	State Income Tax Rate	0.0%
Total Project Costs	\$375,000				

Years	26	27	28	29	30	Totals
Cash						
Project Costs	-	-	-	-	-	-\$375,000
O&M Costs	-\$4,188	-\$4,313	-\$4,443	-\$4,576	-\$4,713	-\$95,151
Electric Bill Savings	\$71,856	\$73,589	\$75,361	\$77,173	\$79,026	\$1,637,482
Cash Total	\$67,669	\$69,276	\$70,918	\$72,597	\$74,313	\$1,167,331
Total Cash Flow	\$67,669	\$69,276	\$70,918	\$72,597	\$74,313	\$1,279,831
Cumulative Cash Flow	\$992,727	\$1,062,003	\$1,132,921	\$1,205,518	\$1,279,831	-



Prepared For

Bear Valley
209.743.0836
Jeff.Gouveia@bvwd.ca.gov



The Sol Rebel team provides industry leading Energy Consulting, Engineering and Construction Management services to Facility Owners, Developers and Investors. We will help you evaluate the feasibility of a solar or energy storage system to lower your energy costs, with less risk.

81.6kW-dc solar-NEM3

Prepared By

Randy Batchelor
(503) 896-7365
randybatchelor@solrebel.com

5/5/2022



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4.1 Cash Purchase	10

1 Project Summary

Payment Options	Cash Purchase
IRR - Term	8.9%
LCOE PV Generation	\$0.094 /kWh
Net Present Value	\$143,075
Payback Period	10.4 Years
Total Payments	\$470,151
Total Incentives	\$112,500
Net Payments	\$357,651
Electric Bill Savings - Term	\$924,677
Upfront Payment	\$375,000

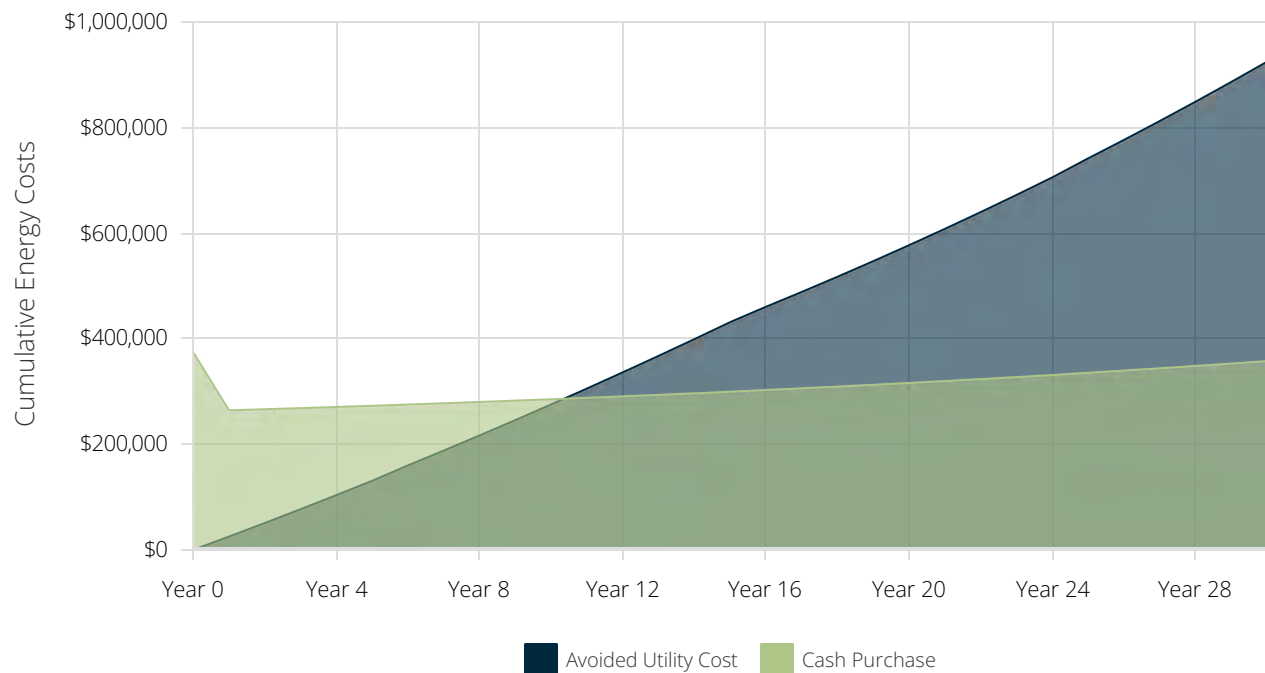
Combined Solar PV Rating

Power Rating: 81,600 W-DC
Power Rating: 69,613 W-AC-CEC

Combined ESS Ratings

Energy Capacity: 696.0 kWh
Power Rating: 140.0 kW

Cumulative Energy Costs By Payment Option



2.1.1 PV System Details

General Information

Facility: Meter #1
Address: 411 Creekside Dr Bear Valley CA 95223

Solar PV Equipment Description

Solar Panels: (240) Hanwha Q CELLS Q.PLUS L-G4.2 340
Inverters: (2) SMA Sunny Tripower_Core1 33-US-41

Solar PV Equipment Typical Lifespan

Solar Panels: Greater than 30 Years
Inverters: 15 Years

Solar PV System Cost and Incentives

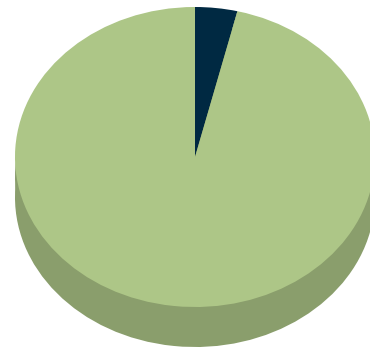
Solar PV System Cost	\$375,000
Federal Tax Credit	-\$112,500
Net Solar PV System Cost	\$262,500

Solar PV System Rating

Power Rating: 81,600 W-DC
Power Rating: 69,613 W-AC-CEC

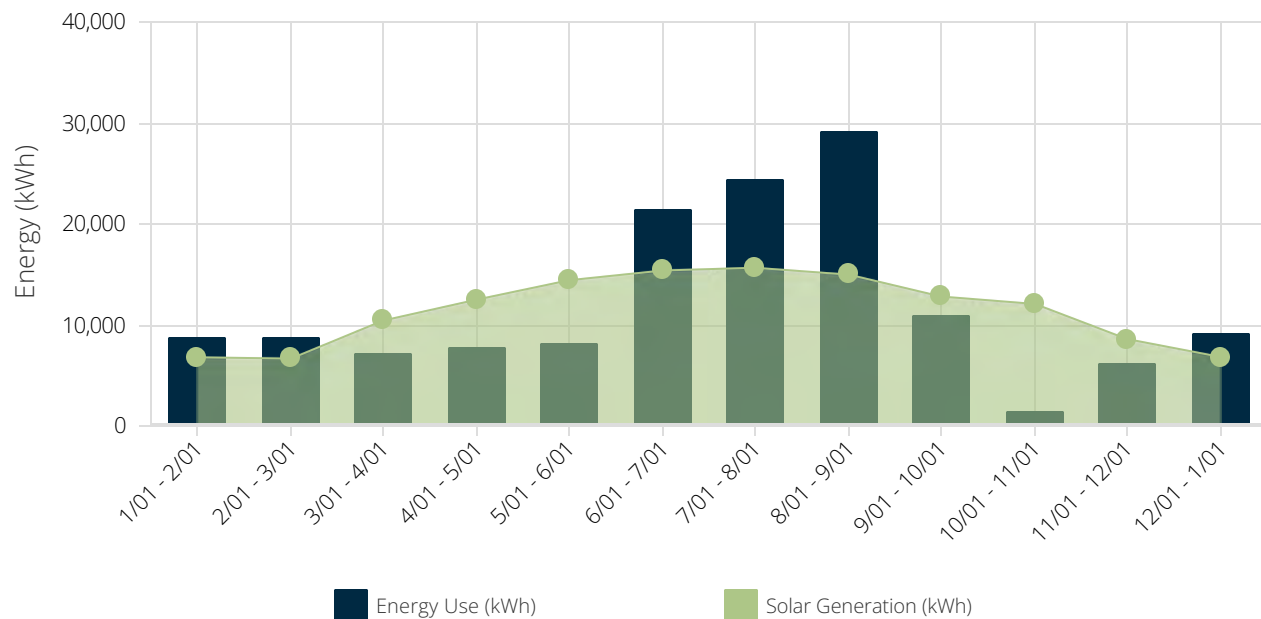
Energy Consumption Mix

Annual Energy Use: 142,649 kWh



Utility	5,405 kWh (3.79%)
Solar PV	137,244 kWh (96.21%)

Monthly Energy Use vs Solar Generation



2.1.2 Energy Storage System (ESS) Details

General Information

Facility: Meter #1
Address: Bear Valley CA 95223

ESS System Ratings

Energy Capacity: 696.0 kWh
Power Rating: 140.0 kW

ESS Equipment Description

Battery Banks: 140kw/696kWh Energy Storage System
Inverters: 140kw/696kWh Energy Storage System

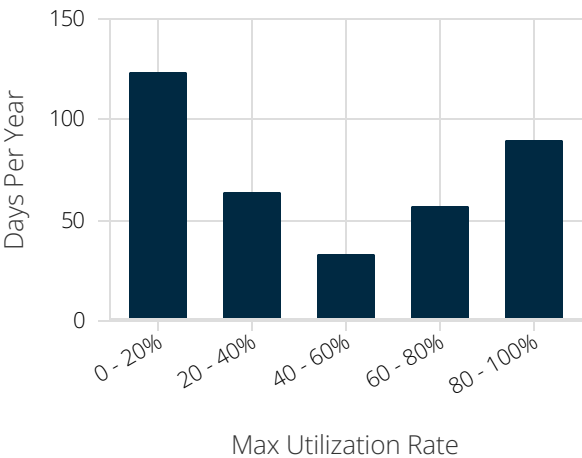
ESS Equipment Typical Lifespan

Battery Banks: 15 Years
Inverters: 15 Years

ESS Cost and Incentives

ESS Cost	-
Net ESS Cost	\$0

Energy Storage Annual Utilization



Energy Output and Demand Savings From Solar PV and Energy Storage				
Date Range	ESS Energy Discharge (kWh)	Solar PV Generation (kWh)	ESS Energy as % of PV Energy	Total Demand Savings
1/1/2020 - 2/1/2020	2,857	6,802	42.00%	\$0
2/1/2020 - 3/1/2020	3,006	6,672	45.05%	\$0
3/1/2020 - 4/1/2020	2,729	10,435	26.15%	\$0
4/1/2020 - 5/1/2020	2,554	12,517	20.40%	\$0
5/1/2020 - 6/1/2020	3,038	14,431	21.05%	\$0
6/1/2020 - 7/1/2020	7,672	15,398	49.82%	\$0
7/1/2020 - 8/1/2020	8,523	15,666	54.40%	\$0
8/1/2020 - 9/1/2020	7,075	14,985	47.21%	\$0
9/1/2020 - 10/1/2020	2,753	12,820	21.47%	\$0
10/1/2020 - 11/1/2020	506	12,082	4.19%	\$0
11/1/2020 - 12/1/2020	2,252	8,610	26.16%	\$0
12/1/2020 - 1/1/2021	3,804	6,826	55.73%	\$0
Total	46,769	137,244	34.08%	\$0

2.1.3 Rebates and Incentives

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

Investment Tax Credit (ITC), Commercial - 30%

The Inflation Reduction Act (IRA) of 2022 establishes and extends the federal Investment Tax Credit (ITC) for solar photovoltaic (PV) systems at a rate of 30% of the total PV system cost. The 30% ITC was extended for 10 years, through 2032. Unlike tax deductions, this tax credit can be used to directly offset your tax liability dollar for dollar. The IRA extended the carryback period to 3 years, and the carryforward period to 22 years, in cases where the tax credit exceeds a customer's tax liability in the 'placed-in-service' year. For PV projects greater than 1 MW AC in size, the IRA established prevailing wage and apprenticeship requirements in order to qualify for the full 30% "increased rate", rather than a "base rate" which would only qualify for a 6% ITC. Projects with an output of less than 1 megawatt qualify for the "increased rate" irrespective of if prevailing wage or apprenticeship requirements are met.

Total Incentive Value: \$112,500

2.1.4 Utility Rates

You have the option to remain on your current rate schedule (B-6 (Pacific Gas & Electric)) or switch to an alternative rate schedule (B-6 (Pacific Gas & Electric NEM 3.0)). The rates for each are shown below and your estimated electric bills are shown on the following page for each rate schedule.

Customer Charges					Energy Charges				
Season	Charge Type	Rate Type	B-6, CARE: False, PDP: False	B-6	Season	Charge Type	Rate Type	B-6, CARE: False, PDP: False	B-6
W1	Flat Rate	per day	\$0.82	\$0.82	W1	On Peak	Import	\$0.32318	\$0.32318
W2	Flat Rate	per day	\$0.82	\$0.82	W1	Off Peak	Import	\$0.27959	-
S	Flat Rate	per day	\$0.82	\$0.82	W2	On Peak	Import	\$0.32318	\$0.32318
					W2	Off Peak	Import	\$0.27959	-
					W2	Super Off Peak	Import	\$0.24351	-
					S	On Peak	Import	\$0.56987	\$0.56987
					S	Off Peak	Import	\$0.31225	-
					W1	Off-Peak	Import	-	\$0.27959
					W2	Off-Peak	Import	-	\$0.27959
					W2	Super Off-Peak	Import	-	\$0.24351
					S	Off-Peak	Import	-	\$0.31225

2.1.5 Current Electric Bill

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

Rate Schedule: PG&E - B-6 (Pacific Gas & Electric)

Time Periods	Energy Use (kWh)			Charges			
	On Peak	Off Peak	Super Off Peak	Other	NBC	Energy	Total
1/1/2020 - 2/1/2020 W1	1,676	6,971	-	\$25	\$234	\$2,257	\$2,516
2/1/2020 - 3/1/2020 W1	1,385	7,338	-	\$24	\$236	\$2,263	\$2,523
3/1/2020 - 4/1/2020 W2	926	4,319	1,821	\$25	\$191	\$1,759	\$1,976
4/1/2020 - 5/1/2020 W2	1,339	4,042	2,340	\$25	\$209	\$1,924	\$2,157
5/1/2020 - 6/1/2020 W2	1,518	4,519	2,043	\$25	\$218	\$2,033	\$2,277
6/1/2020 - 7/1/2020 S	808	20,547	-	\$25	\$577	\$6,299	\$6,901
7/1/2020 - 8/1/2020 S	544	23,902	-	\$25	\$661	\$7,112	\$7,799
8/1/2020 - 9/1/2020 S	795	28,346	-	\$25	\$788	\$8,516	\$9,330
9/1/2020 - 10/1/2020 S	366	10,463	-	\$25	\$293	\$3,183	\$3,500
10/1/2020 - 11/1/2020 W1	175	1,253	-	\$25	\$39	\$368	\$432
11/1/2020 - 12/1/2020 W1	1,152	5,028	-	\$25	\$167	\$1,611	\$1,803
12/1/2020 - 1/1/2021 W1	1,768	7,267	-	\$25	\$244	\$2,359	\$2,629
Total	12,452	123,995	6,204	\$301	\$3,857	\$39,685	\$43,842

2.1.6 New Electric Bill

Rate Schedule Option 1: PG&E - B-6 (Pacific Gas & Electric)

Time Periods	Energy Use (kWh)			Charges			
Bill Ranges & Seasons	On Peak	Off Peak	Super Off Peak	Other	NBC	Energy	Total
1/1/2020 - 2/1/2020 W1	868	2,075	-	\$25	\$118	\$781	\$924
2/1/2020 - 3/1/2020 W1	681	2,515	-	\$24	\$107	\$837	\$968
3/1/2020 - 4/1/2020 W2	-402	38	-1,947	\$25	\$51	\$531	\$454
4/1/2020 - 5/1/2020 W2	-565	-644	-2,635	\$25	\$40	\$900	\$836
5/1/2020 - 6/1/2020 W2	-863	-1,164	-3,129	\$25	\$37	\$1,227	\$1,164
6/1/2020 - 7/1/2020 S	296	8,608	-	\$25	\$285	\$2,616	\$2,926
7/1/2020 - 8/1/2020 S	333	11,719	-	\$25	\$329	\$3,523	\$3,878
8/1/2020 - 9/1/2020 S	776	16,095	-	\$25	\$457	\$5,012	\$5,495
9/1/2020 - 10/1/2020 S	-462	-469	-	\$25	\$152	\$384	\$208
10/1/2020 - 11/1/2020 W1	-849	-9,615	-	\$25	\$6	\$2,680	\$2,648
11/1/2020 - 12/1/2020 W1	493	-2,061	-	\$25	\$63	\$374	\$286
12/1/2020 - 1/1/2021 W1	729	2,948	-	\$25	\$102	\$960	\$1,088
Total	1,035	30,045	-7,711	\$301	\$1,748	\$7,634	\$9,683

New Rate Schedule Option 2: PG&E - B-6 (Pacific Gas & Electric NEM 3.0)

Time Periods	Energy Use (kWh)			Charges			
Bill Ranges & Seasons	On Peak	Off-Peak	Super Off-Peak	Other	NBC	Energy	Total
1/1/2020 - 2/1/2020 W1	868	2,075	-	\$25	\$118	\$1,082	\$1,226
2/1/2020 - 3/1/2020 W1	681	2,515	-	\$24	\$107	\$1,007	\$1,137
3/1/2020 - 4/1/2020 W2	-402	38	-1,947	\$25	\$51	\$408	\$485
4/1/2020 - 5/1/2020 W2	-565	-644	-2,635	\$25	\$40	\$334	\$398
5/1/2020 - 6/1/2020 W2	-863	-1,164	-3,129	\$25	\$37	\$193	\$255
6/1/2020 - 7/1/2020 S	296	8,608	-	\$25	\$285	\$2,970	\$3,280
7/1/2020 - 8/1/2020 S	333	11,719	-	\$25	\$329	\$3,555	\$3,909
8/1/2020 - 9/1/2020 S	776	16,095	-	\$25	\$457	\$5,018	\$5,501
9/1/2020 - 10/1/2020 S	-462	-469	-	\$25	\$152	\$946	\$1,123
10/1/2020 - 11/1/2020 W1	-849	-9,615	-	\$25	\$6	\$524	\$492
11/1/2020 - 12/1/2020 W1	493	-2,061	-	\$25	\$63	\$454	\$542
12/1/2020 - 1/1/2021 W1	729	2,948	-	\$25	\$102	\$983	\$1,111
Total	1,035	30,045	-7,711	\$301	\$1,748	\$16,426	\$18,475

Annual Electricity Savings: \$25,367

3.1 Cash Purchase

Assumptions and Key Financial Metrics

IRR - Term	8.9%	Net Present Value	\$143,075	Payback Period	10.4 Years
ROI	151.2%	PV Degradation Rate	0.50%	Discount Rate	5.0%
Energy Cost Escalation Rate	3.0%	Federal Income Tax Rate	0.0%	State Income Tax Rate	0.0%
Total Project Costs	\$375,000				

Years	Project Costs	O&M Costs	Electric Bill Savings	Federal Tax Effect	Total Cash Flow	Cumulative Cash Flow
Upfront	-\$375,000	-	-	-	-\$375,000	-\$375,000
1	-	-\$2,000	\$25,367	\$112,500	\$135,867	-\$239,133
2	-	-\$2,060	\$25,838	-	\$23,778	-\$215,355
3	-	-\$2,122	\$26,314	-	\$24,192	-\$191,163
4	-	-\$2,185	\$26,795	-	\$24,609	-\$166,554
5	-	-\$2,251	\$27,281	-	\$25,030	-\$141,524
6	-	-\$2,319	\$27,772	-	\$25,454	-\$116,070
7	-	-\$2,388	\$28,269	-	\$25,881	-\$90,189
8	-	-\$2,460	\$28,770	-	\$26,310	-\$63,879
9	-	-\$2,534	\$29,276	-	\$26,742	-\$37,137
10	-	-\$2,610	\$29,786	-	\$27,176	-\$9,961
11	-	-\$2,688	\$30,300	-	\$27,612	\$17,652
12	-	-\$2,768	\$30,819	-	\$28,050	\$45,702
13	-	-\$2,852	\$31,341	-	\$28,489	\$74,191
14	-	-\$2,937	\$31,867	-	\$28,930	\$103,121
15	-	-\$3,025	\$32,396	-	\$29,371	\$132,492
16	-	-\$3,116	\$27,606	-	\$24,490	\$156,982
17	-	-\$3,209	\$28,280	-	\$25,071	\$182,053
18	-	-\$3,306	\$28,971	-	\$25,665	\$207,718
19	-	-\$3,405	\$29,677	-	\$26,272	\$233,990
20	-	-\$3,507	\$30,399	-	\$26,892	\$260,882
21	-	-\$3,612	\$31,138	-	\$27,526	\$288,407
22	-	-\$3,721	\$31,894	-	\$28,173	\$316,581
23	-	-\$3,832	\$32,667	-	\$28,835	\$345,416
24	-	-\$3,947	\$33,458	-	\$29,511	\$374,927
25	-	-\$4,066	\$34,267	-	\$30,202	\$405,128
26	-	-\$4,188	\$35,095	-	\$30,907	\$436,036
27	-	-\$4,313	\$35,941	-	\$31,628	\$467,663
28	-	-\$4,443	\$36,806	-	\$32,364	\$500,027
29	-	-\$4,576	\$37,692	-	\$33,116	\$533,143
30	-	-\$4,713	\$38,597	-	\$33,883	\$567,026
Totals:	-\$375,000	-\$95,151	\$924,677	\$112,500	\$567,026	-

4.1 Cash Purchase

Assumptions and Key Financial Metrics

IRR - Term	8.9%	Net Present Value	\$143,075	Payback Period	10.4 Years
ROI	151.2%	PV Degradation Rate	0.50%	Discount Rate	5.0%
Energy Cost Escalation Rate	3.0%	Federal Income Tax Rate	0.0%	State Income Tax Rate	0.0%
Total Project Costs	\$375,000				

Years	Upfront	1	2	3	4	5	6	7	8	9	10	11	12
Cash													
Project Costs	-\$375,000	-	-	-	-	-	-	-	-	-	-	-	-
O&M Costs	-	-\$2,000	-\$2,060	-\$2,122	-\$2,185	-\$2,251	-\$2,319	-\$2,388	-\$2,460	-\$2,534	-\$2,610	-\$2,688	-\$2,768
Electric Bill Savings	-	\$25,367	\$25,838	\$26,314	\$26,795	\$27,281	\$27,772	\$28,269	\$28,770	\$29,276	\$29,786	\$30,300	\$30,819
Cash Total	-\$375,000	\$23,367	\$23,778	\$24,192	\$24,609	\$25,030	\$25,454	\$25,881	\$26,310	\$26,742	\$27,176	\$27,612	\$28,050
Total Cash Flow	-\$375,000	\$135,867	\$23,778	\$24,192	\$24,609	\$25,030	\$25,454	\$25,881	\$26,310	\$26,742	\$27,176	\$27,612	\$28,050
Cumulative Cash Flow	-\$375,000	-\$239,133	-\$215,355	-\$191,163	-\$166,554	-\$141,524	-\$116,070	-\$90,189	-\$63,879	-\$37,137	-\$9,961	\$17,652	\$45,702

4.1 Cash Purchase

Assumptions and Key Financial Metrics

IRR - Term	8.9%	Net Present Value	\$143,075	Payback Period	10.4 Years
ROI	151.2%	PV Degradation Rate	0.50%	Discount Rate	5.0%
Energy Cost Escalation Rate	3.0%	Federal Income Tax Rate	0.0%	State Income Tax Rate	0.0%
Total Project Costs	\$375,000				

Years	13	14	15	16	17	18	19	20	21	22	23	24	25
Cash													
Project Costs	-	-	-	-	-	-	-	-	-	-	-	-	-
O&M Costs	-\$2,852	-\$2,937	-\$3,025	-\$3,116	-\$3,209	-\$3,306	-\$3,405	-\$3,507	-\$3,612	-\$3,721	-\$3,832	-\$3,947	-\$4,066
Electric Bill Savings	\$31,341	\$31,867	\$32,396	\$27,606	\$28,280	\$28,971	\$29,677	\$30,399	\$31,138	\$31,894	\$32,667	\$33,458	\$34,267
Cash Total	\$28,489	\$28,930	\$29,371	\$24,490	\$25,071	\$25,665	\$26,272	\$26,892	\$27,526	\$28,173	\$28,835	\$29,511	\$30,202
Total Cash Flow	\$28,489	\$28,930	\$29,371	\$24,490	\$25,071	\$25,665	\$26,272	\$26,892	\$27,526	\$28,173	\$28,835	\$29,511	\$30,202
Cumulative Cash Flow	\$74,191	\$103,121	\$132,492	\$156,982	\$182,053	\$207,718	\$233,990	\$260,882	\$288,407	\$316,581	\$345,416	\$374,927	\$405,128

4.1 Cash Purchase

Assumptions and Key Financial Metrics

IRR - Term	8.9%	Net Present Value	\$143,075	Payback Period	10.4 Years
ROI	151.2%	PV Degradation Rate	0.50%	Discount Rate	5.0%
Energy Cost Escalation Rate	3.0%	Federal Income Tax Rate	0.0%	State Income Tax Rate	0.0%
Total Project Costs	\$375,000				

Years	26	27	28	29	30	Totals
Cash						
Project Costs	-	-	-	-	-	-\$375,000
O&M Costs	-\$4,188	-\$4,313	-\$4,443	-\$4,576	-\$4,713	-\$95,151
Electric Bill Savings	\$35,095	\$35,941	\$36,806	\$37,692	\$38,597	\$924,677
Cash Total	\$30,907	\$31,628	\$32,364	\$33,116	\$33,883	\$454,526
Total Cash Flow	\$30,907	\$31,628	\$32,364	\$33,116	\$33,883	\$567,026
Cumulative Cash Flow	\$436,036	\$467,663	\$500,027	\$533,143	\$567,026	-







Inflation Reduction Act provides major tax incentives for public power

Treasury is requesting comments on the new provisions by November 4, 2022

Steve Watson

October 11, 2022

The Inflation Reduction Act, signed into law by President Biden on August 16, 2022, provides major tax incentives for public power agencies to finance and own clean energy projects.

On October 5, 2022, the Treasury Department requested comments on the new provisions. The Treasury said it seeks input by November 4, 2022, but that it will consider comments received after that date if the consideration will not delay issuance of guidance.

The new incentives for public power will be in the form of cash payments from the Internal Revenue Service. The payments are called "refundable tax credits" because they are based on tax credits for taxable entities that are payable in cash. The payments have similarities to direct-pay subsidies for Build America Bonds and New Clean Renewable Energy Bonds but there are significant differences.

The incentives include a production tax credit (PTC) and an investment tax credit (ITC) for generating renewable energy or installing batteries and other energy storage facilities, as well as credits for carbon oxide sequestration, production of clean hydrogen, and production of energy from existing nuclear facilities. Direct-pay subsidies generally will be available only for facilities placed in service after 2022.

A public power agency will need to own a facility in order to receive subsidies for it.

For each of the credits there is a base rate that is increased to a full rate if the facility meets certain wage and/or apprenticeship requirements. Additional, bonus rates are available for PTC and ITC facilities that are located in certain areas or meet domestic content requirements.

For facilities financed with tax-exempt debt, the credits are reduced by 15% or, if less, the percentage of the facility financed with tax-exempt proceeds. This reduction does not apply to the existing nuclear facility credit.

PTC and ITC facilities that start construction after 2023 generally must meet or be excepted from domestic content requirements to qualify for certain direct payments.

Overview of credits

PTC – In general

The PTC is a per-MWh credit for producing energy from a qualifying resource. For 2022 the base rate is \$5.20 per MWh and the full rate, which applies if wage and apprenticeship requirements are met, is \$26 per MWh. Subject to possible clarification from Congress or the Treasury, these rates may be increased for 2022 to \$5.50 and \$27.50, respectively, based on a rounding convention in the IRA. The rates are adjusted annually for inflation.

The PTC is paid over the 10-year period beginning on the date the facility is placed in service.

There are two types of PTC. One is limited to specified renewable generation facilities. The other is technology-neutral.

Renewable generation PTC

The renewable generation PTC applies to certain facilities that start construction before 2025. It is calculated based on the amount of electricity produced and sold to unrelated persons.

It is available for facilities that produce electricity using one of the following resources: wind, solar, geothermal, incremental hydropower, marine and hydrokinetic, biomass, or municipal solid waste (from landfill gas or otherwise). Detailed rules apply to determine whether a facility using one of these resources is eligible for the PTC.

The renewable generation PTC is reduced by one-half for facilities using municipal solid waste or biomass. This reduction does not apply, however, to “closed-loop” biomass facilities that use plants grown exclusively to produce electricity.

A generation facility using renewable natural gas is not eligible for the PTC if the RNG was produced at a facility claiming the ITC.

If a public power agency owns both a PTC-eligible generation facility and a qualified clean hydrogen production facility described below, and uses electricity generated by the generation facility to produce qualified clean hydrogen, the agency is eligible to claim production credits for both the electricity and the hydrogen production if the production and use of each are verified by an unrelated party and other requirements are met. This treatment is an exception to the requirement that electricity from renewable generation PTC facilities must be sold to unrelated persons.

Technology-neutral PTC

The second PTC is technology-neutral. It applies to generation facilities with a greenhouse gas emissions rate of zero or less that are placed in service after 2024.

Facilities eligible for the tech-neutral PTC include not only renewable resources but also, for example, nuclear facilities and natural-gas fired plants that meet carbon capture and storage or utilization requirements.

The tech-neutral PTC is calculated based on the amount of electricity produced and sold to unrelated persons and, if the facility has a metering device owned and operated by an unrelated person, sold, consumed or stored by the facility owner.

For a combined heat and power facility, both electricity and thermal energy produced are taken into account in computing the tech-neutral PTC and greenhouse gas emissions. Thermal energy is converted to a megawatt-hour equivalent based on the facility’s heat rate.

For each year beginning in 2025, the Treasury is directed to publish a table identifying greenhouse gas emissions rates for types and categories of facilities.

The tech-neutral PTC will start to phase out after 2032 or, if later, the year total US greenhouse gas emissions from electricity production fall by at least 75% from the 2022 amount. The PTC will be reduced to 75% of its value for facilities starting construction in the second year after the phase-out is triggered. It will be reduced to 50% for facilities starting construction in the third year after the phase-out trigger and 0% for facilities starting construction in any subsequent year.

ITC – In general

The ITC is a one-time payment after the facility is placed in service. It is calculated based on a percentage of the cost of qualifying energy property. For most ITC projects the base rate is 6% and the full rate is 30%.

There are two types of ITC. One is limited to certain types of energy property. The other is technology-neutral.

Energy-property ITC

Property eligible for the first ITC includes a variety of generation facilities including solar, wind, geothermal, fuel cell, microturbine, and combined heat and power system property. It also includes energy storage technology, renewable natural gas production facilities, microgrid controllers, waste energy recovery property that generates electricity from building or equipment heat, electrochromic glass, and geothermal heat pumps.

The owner of a PTC-eligible facility can elect to claim the ITC instead of the PTC.

The ITC is available for certain hydrogen production facilities in lieu of the hydrogen production credit described below. The ITC amount for these facilities varies depending on the expected lifecycle greenhouse gas emissions rate through the point of production.

The ITC is also available for network upgrades and gen-tie lines needed to connect generation assets to the grid. It applies only with respect to generation facilities that have a maximum net output of five megawatts (AC) or less and for which the ITC is claimed. The interconnection property is required to be installed pursuant to an "interconnection agreement" with a utility and must be owned by the utility.

If a municipal utility owns the generation facility and the interconnection property, there will not be an interconnection agreement. From a policy standpoint, it appears that a municipal utility should be eligible for an ITC for the interconnection property in these circumstances. However, confirmation from the Treasury may be needed on this point.

For most facilities claiming the energy-property ITC, construction must begin before 2025. It must start before 2033 for hydrogen production projects and before 2035 for geothermal heat pumps. The ITC starts to phase down for geothermal heat pumps starting construction after 2032.

Detailed rules apply to determine whether facilities are ITC-eligible.

Technology-neutral ITC

The second ITC is technology-neutral. It applies to generation facilities with anticipated greenhouse gas emissions rates of not greater than zero and to energy storage facilities, in each case that are placed in service after 2024.

As with the tech-neutral PTC, generation facilities eligible for the tech-neutral ITC include not only renewable resources but also, for example, nuclear facilities and facilities producing electricity through combustion or gasification but with a net greenhouse gas emissions rate of zero or less.

For each year beginning in 2025, the Treasury is directed to publish a table identifying greenhouse gas emissions rates for types and categories of facilities.

Interconnection property for generation facilities with a maximum net output of five megawatts (AC) or less is eligible for the tech-neutral ITC in the same manner as described above for the energy-property ITC.

The tech-neutral ITC will phase down on the same schedule that applies to the tech-neutral PTC as described above.

Carbon capture

The carbon capture credit is available for certain electricity generation facilities that capture CO₂ and other carbon oxide using carbon capture equipment placed in service after 2022. The credit is paid over the 12-year period beginning on the date the carbon capture equipment is placed in service.

The full credit equals \$85 per metric ton of carbon oxide captured and stored permanently underground and \$60 per metric ton of carbon oxide captured and used for enhanced oil or natural gas recovery or used to make a commercial product. These amounts will be adjusted for inflation each year after 2026.

To be eligible for the credit, a generation facility must capture at least 18,750 metric tons of carbon oxide during the year and the capture equipment must have a design capacity of at least 75 percent of the baseline carbon oxide emissions for the turbine with which it is paired.

Clean hydrogen

The clean hydrogen production credit is available for facilities that start construction before 2033 and produce hydrogen through a process that results in a lifecycle greenhouse gas emissions rate through the point of production of not greater than four kilograms of CO₂e per kilogram of hydrogen. It is paid over the 10-year period beginning on the date the facility is placed in service.

If wage and apprenticeship requirements are met, the credit equals the applicable percentage of \$3, multiplied by the kilograms of qualified clean hydrogen produced and sold or used by the facility owner during the year and verified by an unrelated party. The applicable percentage ranges from 20 to 100 percent depending on the lifecycle greenhouse gas emissions rate of the production process. The \$3 is available only where the lifecycle emissions to produce the hydrogen are less than 0.45 kilograms per kilogram of hydrogen. The \$3 amount will be adjusted annually for inflation beginning in 2024.

The IRA states that direct-pay subsidies are available for qualified clean hydrogen production facilities placed in service after 2012. Clarification from Congress or the Treasury may be needed to confirm whether 2012 (and not 2022) was the intended date.

Existing nuclear

Certain nuclear facilities are eligible for a production credit if they were put in service before the enactment of the IRA and are not “advanced” facilities described in section 45J of the tax code. The credit is available over a nine-year period for electricity produced and sold after 2023.

If prevailing wage requirements are met for any alteration or repair of the facility, the credit is \$15, multiplied by the megawatt hours of electricity produced and sold during the year to unrelated persons.

The credit is reduced by 16 percent of the excess of (1) gross receipts from electricity sales, over (2) the product of \$25 and the megawatt hours of such sales. Gross receipts are increased to include certain amounts received by the facility owner under a federal, state or local government zero-emission credit program.

The \$15 and \$25 amounts will be adjusted for inflation after 2024.

Treasury guidance will be needed on the calculation of gross receipts including the determination of gross receipts for a public power agency that is a member of a regional transmission organization and also supplies wholesale electricity to other municipal utilities.

If a public power agency owns both an existing nuclear facility and a qualified clean hydrogen production facility, and uses electricity generated by the nuclear facility to produce qualified clean hydrogen, it appears the agency should be eligible to claim production credits for both the electricity and the hydrogen production if the production and use of each are verified by an unrelated party and other requirements are met. Treasury guidance will be needed to clarify how a facility owner may be eligible for both credits in these circumstances including how receipts from deemed electricity sales would be determined.

Wage and apprenticeship

For each of the credits described herein, the base rate is increased by a multiple of five if the facility satisfies wage and apprenticeship requirements (except that for existing nuclear, only wage, and not apprenticeship, requirements apply).

A facility is deemed to meet the wage and apprenticeship requirements if its construction starts no later than 59 days after the US Treasury publishes guidance on those requirements (except that facilities claiming the hydrogen production credit must satisfy the wage requirements for alterations or repairs to receive the full credit, regardless of when construction begins).

Projects claiming the ITC or PTC are deemed to satisfy the wage and apprenticeship provisions if they have a maximum net output of less than one megawatt (AC) of electrical energy (or, for certain ITC projects, less than one megawatt of thermal energy).

To meet the wage requirements, the facility owner must ensure that any laborers and mechanics employed by it or any contractor or subcontractor in the construction of the facility, and in its alteration or repair during the applicable credit period, are paid wages not less than Davis-Bacon prevailing rates.

For the PTC and hydrogen production credit, the credit period is the first ten years of facility operation. For carbon oxide sequestration, it is the 12-year period beginning on the date the carbon capture equipment is placed in service. For the ITC, it is the first five years of facility operation.

For existing nuclear, the wage requirements apply only to alterations or repairs (and not original construction, which will have occurred in the past) and appear to apply throughout the nine-year credit period, subject to possible clarification from the Treasury.

To meet the apprenticeship requirements, the facility owner must ensure that qualified apprentices perform a minimum percentage of the total labor hours of the construction, alteration or repair work. The minimum percentage is 10% if construction starts before 2023, 12.5% if it starts in 2023 and 15% if it starts after 2023.

The apprenticeship requirements will be deemed met if the facility owner and its contractors and subcontractors make a good faith effort to comply but are unable to find apprentices from a registered apprenticeship program.

Additional rules apply to the wage and apprenticeship requirements, and there are cure provisions if the IRS asserts later on audit that some workers were paid too little or total labor hours worked by apprentices fell short of what was required.

Domestic content

Bonus credit

A bonus credit applies to PTC and ITC facilities that meet domestic content requirements. For the PTC, the bonus is 10% of the otherwise-applicable direct payment (excluding any energy community bonus described below). For the ITC, it is an additional ten percentage points if the facility meets wage and apprenticeship requirements, and an extra two percentage points if it does not.

A facility meets the domestic content requirements if all the steel and iron, and a specified portion of manufactured products, that are components of the facility are produced in the United States.

For facilities (other than offshore wind) that begin construction before 2025, manufactured components are considered produced in the United States if at least 40% of their total cost is attributable to mining, production or manufacturing in the United States. The percentage is increased to 45% if construction starts in 2025, 50% if it starts in 2026, and 55% if it starts after 2026.

For offshore wind the percentages are 20% if construction starts before 2025, 27.5% if it starts in 2025, 35% if it starts in 2026, 45% if it starts in 2027, and 55% if it starts after 2027.

For the tech-neutral ITC, clarification from Congress or the Treasury may be needed as to whether the 40% (20% for offshore wind) threshold is increased for construction starting after 2024.

Additional Treasury guidance will be necessary to clarify the domestic content bonus requirements.

Requirements if construction starts after 2023

PTC and ITC projects that start construction after 2023 must meet domestic content requirements, or be excepted from them, to qualify for certain direct payments.

For projects starting construction in 2024 or 2025, the otherwise-available direct payments are reduced to 90% or 85% of their value, respectively, unless the project meets or is excepted from domestic content requirements. For projects that begin construction after 2025, direct payments are not available unless domestic content requirements are met or an exception applies.

These reductions do not apply to PTC and ITC projects with a maximum net output of less than one megawatt (AC).

The IRA directs the Treasury to provide exceptions for projects if the inclusion of US-made steel, iron or manufactured products would increase overall construction costs by more than 25%, or the relevant steel, iron or manufactured products are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality.

Energy communities

A bonus credit applies to any PTC or ITC project located in an energy community. For the PTC, the bonus is 10% of the otherwise-applicable direct payment (excluding any domestic content bonus). For the ITC, it is an additional ten percentage points if the facility meets wage and apprenticeship requirements, and an extra two percentage points if it does not.

There are three types of energy communities.

The first is a brownfield site, as defined in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980.

The second is a metropolitan or non-metropolitan statistical area with an unemployment rate at or above the national average that has, or at any time after 2009 had, at least 0.17% direct employment or 25% local tax revenues related to the extraction, processing, transport or storage of coal, oil or natural gas.

The third is a census tract in which a coal mine closed after 1999 or a coal-fired electric generating unit was retired after 2009, or any census tract that directly adjoins such a tract.

Treasury guidance will be needed to clarify the areas that qualify as energy communities.

Environmental justice allocation

Certain ITC projects are eligible for a 10- or even 20-percent bonus if the facility owner applies for and receives an "environmental justice" allocation from the IRS. A project with such an allocation could receive a total ITC of as high as 70%, assuming compliance with wage and apprenticeship, domestic content and energy community requirements and eligibility for the 20% environmental justice bonus.

Eligible projects are wind and solar (and certain related storage) facilities with a maximum net output of less than five megawatts (AC) that either are located in a low-income community or on Indian land, or are part of a qualified low-income residential building project or a qualified low-income economic benefit project.

Projects in a low-income community or on Indian land are eligible for a 10% bonus. Facilities that are part of a qualified low-income residential building project can receive a 20% bonus if the financial benefits of the electricity produced by the facility are allocated equitably among residents. Qualified low-income economic benefit projects can receive a 20% bonus if low-income households receive at least one-half of the financial benefits.

A nationwide allocation of 1,800 megawatts (DC) will be available for each year from 2023 through at least 2032.

Beginning in 2025 eligible facilities will be expanded to include not only solar and wind but also other zero-emission generation projects that do not use fuel combustion or gasification.

Direct-pay procedures

Treasury guidance will be needed on the procedures and timing for requesting direct payments. The IRA provides that the right of a state or local government to receive a direct-pay subsidy for a year accrues on the date the entity would

be required to file a Form 990 tax return for that year if it were a 501(c)(3) organization (or, if later, the date it submits a claim for the subsidy). Thus, subject to Treasury guidance, it appears that a state or local government with a calendar year accounting period will file for year 1 subsidies by May 15 of year 2.

If a facility owner requests and receives a subsidy in excess of the permitted amount, the IRS is authorized to receive a return of the excessive payment plus a penalty equal to 20% of that excessive payment. The 20% penalty would not apply, however, if the facility owner demonstrates to the IRS that it had reasonable cause for requesting the excessive payment.

Sequestration

The IRA contains a "gross-up" provision to prevent direct-pay subsidies from being reduced under budget sequestration rules. Under pre-IRA law, certain federal spending such as subsidies for Build America Bonds is subject to across-the-board cuts. The current sequester rate of 5.7% is scheduled to continue through the end of the federal government's 2030 fiscal year.

Under the IRA gross-up, the new direct-pay subsidies are automatically increased by 6.0445%. Thus, a \$1,000,000 subsidy is increased to \$1,060,445. If this grossed-up amount is reduced by 5.7%, the resulting subsidy equals the original \$1,000,000.

Thus, the current sequester does not adversely impact the newly-authorized direct payments. On the other hand, the IRA does not preclude the possibility of a future change in the gross-up percentage or sequestration rate.

The gross-up does not apply to BABs or other previously-authorized direct-pay bonds.

Tax-exempt vs. taxable financing

One consideration for public power agencies will be whether tax-exempt or taxable financing is most advantageous for a project receiving a direct-pay subsidy. If a facility is financed with tax-exempt debt, the subsidy is reduced by 15% or, if less, the percentage of the facility financed with tax-exempt proceeds.

For facilities claiming the direct-pay ITC, absent favorable Treasury guidance, overissuance rules generally will limit an issuer's ability to use long-term tax-exempt financing for the costs that are expected as of the date of bond issuance to be covered by the ITC.

For example, if an issuer finances 15% or more of the cost of a project with tax-exempt debt and otherwise would be eligible for a 30% ITC, the ITC will be reduced by 15% to 25.5%. The issuer will thus expect to receive a payment from the IRS for 25.5% of the project costs within a year or so after the project is placed in service.

Absent unique circumstances (for example, if the bonds were issued before the enactment of the IRA), overissuance rules generally would limit the term of any tax-exempt debt for the 25.5% portion based on the expected date of receipt of the subsidy from the IRS. Accordingly, any tax-exempt debt issued for the 25.5% portion generally would need to have a maturity or optional redemption date corresponding to the expected subsidy receipt date. The remaining 74.5% of the costs would be eligible for long-term tax-exempt financing under established tax rules.

PTC vs. ITC

For certain renewable generation projects that would qualify for the PTC, the facility owner can elect to claim the ITC instead.

A public power agency should consider a number of factors in evaluating whether the PTC or ITC would be more advantageous for a particular project.

The ITC is a one-time payment, equal to a percentage of project costs, for the date the facility is placed in service. The PTC is a per-MWh payment based on actual production over the first ten years of facility operation that is adjusted each year for inflation. It is paid once a year based on the preceding year's production.

An evaluation of the PTC vs. the ITC for a project would include a calculation of the present value of the expected subsidy amounts for each of the credits. Factors relevant to this determination would include the ITC percentage and PTC amount for the project, the expected project cost and capacity factor, the assumed discount rate, and the expected inflation rate. Other considerations would include the potential for future sequestration and the need to send the IRS only one payment request rather than ten.



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