

System Advisor Model Report

Photovoltaic System
Residential

5.18 kW Nameplate
\$2.99/W Installed Cost

Waterville (awos), ME
44.53 N, -69.68 E GMT -5

Performance Model

Financial Model

Modules	
SolarWorld SW 285 mono	
Cell material	Mono-c-Si
Module area	1.7 m ²
Module capacity	288 DC Watts
Quantity	18
Total capacity	5.2 DC kW
Total area	30 m ²

Inverters	
SMA America: SB5000US-11 208V	
Unit capacity	5 AC kW
Input voltage	250 - 480 VDC DC V
Quantity	1
Total capacity	5 AC kW
DC to AC Capacity Ratio	1.04
AC losses (%)	1.0

Array	
Strings	2
Modules per string	9
String voltage (DC V)	281.7
Tilt (deg from horizontal)	30.0
Azimuth (deg E of N)	135
Tracking	no
Backtracking	-
Self shading	no
Rotation limit (deg)	-
Shading	yes
Snow	no
Soiling	yes
DC losses (%)	4.4

Performance Adjustments	
Availability/Curtailment	none
Degradation	0.5 %/yr
Hourly or custom losses	none

Annual Results (in Year 1)	
GHI kW/m ² /day	3.8
POA kW/m ² /day	3.0
Net to inverter	6,390 DC kWh
Net to grid	6,020 AC kWh
Capacity factor	13.27
Performance ratio	0.77

Project Costs	
Total installed cost	\$15,521
Salvage value	\$0

Analysis Parameters	
Project life	25 years
Inflation rate	2%
Real discount rate	4%

Project Debt Parameters (Mortgage)	
Debt fraction	70%
Amount	\$10,864
Term	10 years
Rate	4%

Tax and Insurance Rates	
Federal income tax	30 %/year
State income tax	7 %/year
Sales tax (% of indirect cost basis)	5%
Insurance (% of installed cost)	0.5%/year
Property tax (% of assessed val.)	0%/year

Incentives	
Federal ITC	30%

Electricity Demand and Rate Summary	
Annual peak demand 2.7 kW	
Annual total demand 9,371 kWh	
Central Maine Power Co	
A Residential Standard Offer Service (Bundled)	
Fixed charge: \$11.51/month	
Monthly excess with kWh rollover	
Annual rate escalation: 2%/year	
Tiered TOU energy rates: 1 period, 2 tiers	

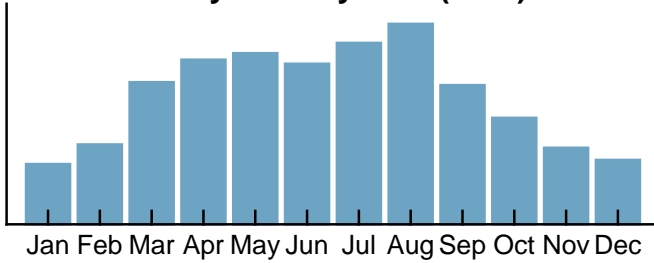
Results	
Nominal LCOE	16.6 cents/kWh
Net present value	\$1,400
Payback period	14.2 years

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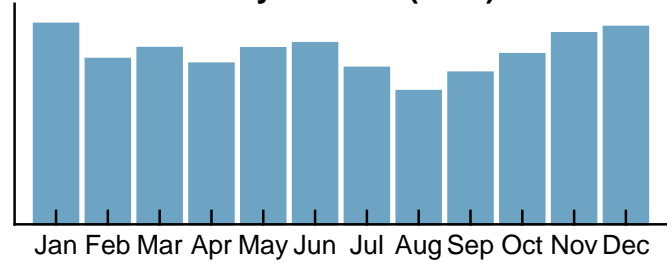
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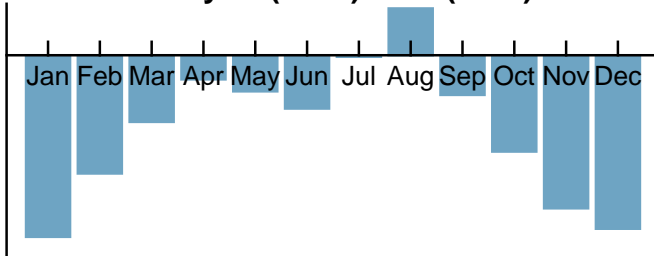
Electricity from System (kWh)



Electricity to Load (kWh)



Electricity to (from) Grid (kWh)



No Net Metering Credits

Monthly Electricity Purchases and Savings (Year 1 \$)

Month	Without System	With System	Savings
Jan	125	95	30
Feb	104	65	39
Mar	111	40	71
Apr	102	19	82
May	111	25	85
Jun	114	33	80
Jul	99	11	87
Aug	86	11	74
Sep	96	11	85
Oct	107	51	56
Nov	119	81	38
Dec	123	91	32
Annual	1,304	539	764

NPV Approximation using Annuities

Annuities, Capital Recovery Factor (CRF) = 0.0788

Investment	\$-300	Sum:
Expenses	\$-900	\$100
Savings	\$400	NPV = Sum / CRF:
Energy value	\$1,000	\$1,000

Investment = Installed Cost - Debt Principal - IBI - CBI
 Expenses = Operating Costs + Debt Payments
 Savings = Tax Deductions + PBI
 Energy value = Tax Adjusted Net Savings
 Nominal discount rate = 6.08%

Payback Cash Flow (Payback Period = 14.2 years)

