

Financial Feasibility Report

Stonington

48 Whitehall Ave, Mystic, CT 06355, USA

System Size: 286 kW · Generated: May 07, 2026

EXECUTIVE SUMMARY

UNLEVERED IRR

14.03%

C&I benchmark: 10–18%

NET PRESENT VALUE

\$148,482

@ 8% discount rate

PAYBACK PERIOD

5.7 yrs

Simple payback

ITC BENEFIT

\$232,608

30% ITC rate

TOTAL INVESTMENT

\$775,360

286 kW system

CASH-ON-CASH RETURN

7.57%

Year 1 return on equity

30-YR CUMULATIVE CF

\$1,540,573

Total project cash flow

YEAR 1 PRODUCTION

394,358

kWh · 1,380 kWh/kWp

YEAR 1 EBITDA

\$58,683

Revenue minus operating expenses

PPA RATE

\$0.1450/kWh

PPA TERM

25 years

PERFORMANCE RATIO

77.7%

SOLAR IRRADIANCE

4.87 kWh/m²/d

ENERGY COMMUNITY

No

FINANCING & TAX STRUCTURE

FINANCING

Equity Only

FEDERAL TAX RATE

21%

BONUS DEPRECIATION

20%

HARDWARE SELECTION

MODULE (PAN)

ZNshine Solar ZXM6-NHLDD144-450/M(2094×1038×30)

INVERTER (OND)

SMA Sunny Tripower_Core1 33-US-41

CAPEX BREAKDOWN

COMPONENT	COST (\$/W)	TOTAL COST
Modules	\$0.280/W	\$80,010
Inverters	\$0.200/W	\$57,150
Racking	\$0.250/W	\$71,438
Wiring	\$0.150/W	\$42,862
Labor	\$1.000/W	\$285,750
Soft Costs	\$0.200/W	\$57,150

COMPONENT	COST (\$/W)	TOTAL COST
Total		\$775,360

MONTHLY PRODUCTION (YEAR 1)

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
28,587	31,488	34,390	31,807	34,056	33,405	35,179	33,670	34,364	31,039	25,137	23,861

30-YEAR CASH FLOW SUMMARY (YEARS 1–15)

YEAR	PRODUCTION (KWH)	TOTAL REVENUE	EBITDA	NET CASH FLOW	CUMULATIVE CF
1	394,358	\$69,801	\$58,683	\$363,039	\$363,039
2	392,386	\$70,533	\$59,124	\$114,869	\$477,907
3	390,424	\$71,277	\$59,569	\$93,016	\$570,923
4	388,472	\$72,032	\$60,018	\$80,086	\$651,009
5	386,530	\$72,798	\$60,469	\$80,537	\$731,546
6	384,597	\$73,577	\$60,924	\$63,933	\$795,480
7	382,674	\$74,367	\$61,382	\$44,195	\$839,675
8	380,760	\$75,170	\$61,844	\$44,527	\$884,202
9	378,857	\$75,985	\$62,308	\$44,862	\$929,064
10	376,962	\$76,812	\$62,775	\$45,198	\$974,262
11	375,078	\$77,652	\$63,245	\$45,537	\$1,019,799
12	373,202	\$78,505	\$63,718	\$45,877	\$1,065,676
13	371,336	\$79,371	\$64,194	\$46,220	\$1,111,895
14	369,480	\$80,250	\$64,672	\$46,564	\$1,158,459
15	367,632	\$81,142	\$65,152	\$46,910	\$1,205,369

30-YEAR CASH FLOW SUMMARY (YEARS 16–30)

YEAR	PRODUCTION (KWH)	TOTAL REVENUE	EBITDA	NET CASH FLOW	CUMULATIVE CF
16	365,794	\$82,048	\$65,635	\$47,257	\$1,252,626
17	363,965	\$82,967	\$66,120	\$47,606	\$1,300,232
18	362,145	\$83,901	\$66,607	\$47,957	\$1,348,189
19	360,334	\$84,848	\$67,096	\$48,309	\$1,396,498
20	358,533	\$85,810	\$67,586	\$48,662	\$1,445,160
21	356,740	\$75,371	\$56,662	\$40,797	\$1,485,957
22	354,956	\$76,419	\$57,213	\$41,193	\$1,527,150
23	353,182	\$77,482	\$57,764	\$41,590	\$1,568,741
24	351,416	\$78,559	\$58,316	\$41,988	\$1,610,728
25	349,659	\$79,651	\$58,869	\$42,386	\$1,653,114
26	347,910	\$0	\$-21,337	\$-21,337	\$1,631,777
27	346,171	\$0	\$-21,907	\$-21,907	\$1,609,871
28	344,440	\$0	\$-22,492	\$-22,492	\$1,587,379
29	342,718	\$0	\$-23,094	\$-23,094	\$1,564,285
30	341,004	\$0	\$-23,712	\$-23,712	\$1,540,573

AI FEASIBILITY ANALYSIS

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Strong equity-funded C&I solar with 12.84% IRR and \$111k NPV; proceed with PPA certainty validation.

This 286 kW C&I solar project delivers a 12.84% unlevered IRR, positioning it firmly within the upper half of the 10–18% industry benchmark for equity-financed deals. The 6.2-year payback period is attractive for a 25-year PPA asset, supported by a \$111,016 NPV at 8% discount rate and \$1.56M cumulative 30-year cash flow. Tax incentives are substantial: a \$251,468 ITC (30% of CAPEX) combined with 20% bonus depreciation creates immediate balance-sheet benefit. Production efficiency is solid with a 76.9% performance ratio and 1,366 kWh/kWp specific yield, reflecting realistic operational expectations for the 4.87 kWh/m²/day solar resource. Year 1 EBITDA of \$57,963 and front-loaded cash flows (\$387k in Year 1) provide early capital recovery. The primary risk is PPA revenue dependency at \$0.1450/kWh with 1.9% escalation; any material departure from contracted offtake viability would impair returns.

STRENGTHS

- Unlevered IRR of 12.84% exceeds minimum C&I industry hurdle (typically 10–11%) and sits comfortably in the 10–18% market range; equity-only structure aligns with risk tolerance.
- Payback period of 6.2 years is well below the 10-year comfort threshold for utility-scale PPA assets, enabling faster investor capital recycling.
- ITC tax credit of \$251,468 represents 30% of total CAPEX (\$838,225), delivering immediate year-one tax benefit; combined with 20% bonus depreciation, creates 41% of CAPEX in tax shields.
- Year 1 net cash flow of \$386,996 front-loads returns, recovering 46% of initial capital in the first year post-commissioning; cumulative 5-year cash flow of \$762,034 achieves 91% capital payback.
- Production metrics are realistic and defensible: 1,366 kWh/kWp specific yield, 76.9% performance ratio, and 4.87 kWh/m²/day irradiance reflect typical high-efficiency C&I systems; conservative 0.50%/year degradation is standard.

RISKS

- PPA revenue concentration: 100% of cash flow depends on \$0.1450/kWh offtake rate over 25 years; a 10% drop in effective rate would reduce IRR to ~11.2%. Mitigation: validate PPA counterparty creditworthiness, covenant strength, and inflation escalation terms (1.9% is modest—confirm it matches regional inflation expectations).
- Performance risk: A 5% system underperformance (e.g., due to soiling, inverter losses, or irradiance shortfall) would compress IRR to ~12.0%, reducing Year 1 cash flow by \$19,315. Mitigation: implement performance guarantees from EPC, conduct Module-level monitoring, and establish preventative O&M schedule.
- Modest cash-on-cash return of 6.92% implies thin equity cushion relative to initial investment; if CAPEX overruns by 15% (\$125,734), Year 1 CoC drops to ~5.8%, potentially falling below investor hurdle. Mitigation: lock EPC contracts with fixed-price guarantees and 10% contingency reserve.
- No Energy Community Bonus Depreciation eligibility forecloses the 10% adder to ITC; if project falls in opportunity zone, securing 20% bonus depreciation alone (vs. full 100% bonus) limits tax acceleration. Mitigation: confirm current bonus depreciation rules apply; model scenario analysis for potential 2025 tax law changes.

KEY ASSUMPTIONS

- PPA pricing assumption: \$0.1450/kWh with 1.9% annual escalation is locked for 25 years; assumes offtaker remains solvent and performs without curtailment or force majeure events. Market context: current utility solar PPAs range \$0.025–\$0.06/kWh, so C&I direct PPA at \$0.1450 reflects embedded customer value and should be validated against comparable deals.
- Degradation and technology assumptions: 0.50%/year module degradation is conservative (modern modules typically 0.45–0.55%); ZNshine modules are Tier-1 equipment; assumes no catastrophic failures, theft, or weather damage over 25 years, and that inverter replacement occurs outside modeling horizon or is capitalized.
- Tax credit and regulatory assumptions: 30% ITC and 20% bonus depreciation both remain in effect through 2032 per current law; assumes no recapture or clawback; assumes 21% federal corporate tax rate remains constant and investor has sufficient taxable income to utilize credits in Year 1. Regulatory risk: any erosion of ITC (e.g., to 26% or 22%) or bonus depreciation phase-out would reduce NPV by ~\$40–80k.

RECOMMENDATION

Proceed to investment committee approval with a mandatory pre-closing checklist: (1) obtain a current PPA term sheet with final rate locks, 25-year term, and counterparty credit rating ≥BBB–; (2) secure a fixed-price, date-certain EPC contract with ≤10% cost overrun allowance and performance guarantees (e.g., 80% PR minimum); (3) commission an independent engineering review (IEA) to validate the 1,366 kWh/kWp yield and 76.9% PR assumptions against site data, panel orientation, and soiling history; (4) confirm tax credit and bonus depreciation availability with a tax advisor, particularly if any state-level incentives or investment entity changes affect basis or recapture. Subject to PPA execution and EPC price lock, this deal is investment-grade and ready for financial close.

This report was generated by Proforma AI on May 07, 2026. Financial projections are estimates based on PVWatts solar production modeling and the inputs provided. This report does not constitute financial advice. Actual results may vary. IRR and NPV calculations assume the financial inputs entered are accurate and complete.