



BD FIELD WHITE PAPER / OCTOBER 2026

Massachusetts solar without the federal tax credit

A real Massachusetts home. A \$38,056 solar system. A path to payback without a federal tax credit.



CARLISLE, MASSACHUSETTS / BD PROJECT PHOTOGRAPH

\$0 federal credit

6.0-year modeled payback with MA benefits

Modeled at 6.77% utility escalation, with eligible \$1,000 MA credit + 3¢/kWh SMART. Historical growth is not a forecast.

Can solar still pay for itself?

For this Carlisle-based model, the answer is yes.

Losing a federal tax credit changes the calculation. It does not remove the value of making your own electricity. For a well-suited Massachusetts home, electricity savings and eligible state benefits can still make solar a worthwhile investment.

We tested that idea using a BD installation in Carlisle: a **13.64 kW system with 31 panels**, a final solar price of **\$38,056** and forecast first-year production of **18,483 kWh**. We set the federal credit to zero and applied a 6.77% annual utility escalator derived from five years of Massachusetts price history. [1, 7]

6.0 years

Modeled cash payback with eligible Massachusetts benefits

What carries the return	First-year modeled value
Electricity savings and usable bill credits	\$5,175
Less operating allowance	–\$300
Plus SMART income, if eligible	\$554
Recurring benefit after operating allowance	\$5,430
MA residential credit, if eligible	\$1,000 one-time benefit

The SMART scenario reaches modeled payback in **6.0 years**. An alternative REC scenario reaches **5.9 years**. Both include the eligible Massachusetts residential credit. SMART and owner-sold RECs are separate routes; we do not add them together. [3–5]

Real project inputs. Clearly labeled projections.

The installed system and price are real. The annual generation and financial results are modeled. This is a fresh zero-federal-credit analysis using that project's inputs, not a claim about the homeowner's actual tax benefits or measured lifetime savings.

Cash purchase; 28¢/kWh assumed blended electricity value; 6.77% annual electricity-value growth; 0.8% annual production decline; maintenance and replacement allowances included. State and program eligibility must be confirmed. Methods and sources are on page 6.

Electricity prices have risen. The model should reflect that.

Five years of Massachusetts history, translated into one transparent assumption.

We use EIA's statewide residential average retail prices for the five annual changes ending in 2025. The 2020 annual average is the starting point; 2021–2025 are the five completed growth years. Annual averages avoid selecting a single high-priced winter month. [7]

Year	MA residential price	Change from prior year
2020	21.97¢/kWh	Baseline
2021	22.89¢/kWh	+4.19%
2022	25.97¢/kWh	+13.46%
2023	29.61¢/kWh	+14.02%
2024	29.35¢/kWh	-0.88%
2025	30.48¢/kWh	+3.85%

6.77% per year

Historical compound growth rate used as the utility escalator

Calculation: $(30.48 \div 21.97)^{(1 \div 5)} - 1 = 6.76699\%$, rounded to 6.77% in the model. Total growth was 38.73%. This is a compound rate, not the arithmetic average of annual percentage changes.

We apply it to the assumed 28¢/kWh starting electricity value. That produces about 50.5¢ in year 10 and 134.9¢ in year 25. These are scenario values, not promised utility rates. A recent five-year trend cannot establish what prices will do for the next 25 years.

Annual utility escalation	SMART + MA credit payback
0.00%	7.0 years
3.00%	6.5 years
6.77%	6.0 years

The EIA series includes statewide retail revenues and sales, including fixed-charge effects; it is not a specific Eversource export tariff. Prices also fell in 2024. The escalator is a planning assumption applied to usable energy value; project-specific tariff and credit rules still control actual savings.

Your roof produces energy. Your bill determines its value.

A solar proposal should explain both sides of that equation.

A Carlisle electricity bill showed approximately **33.5¢ per kWh in variable charges**, excluding the fixed customer charge. Our model uses **28¢ per kWh** as the blended value of power used at home and excess generation converted into usable bill credits. That is an assumption, not a quoted export rate. [1, 2]

This distinction matters. Electricity used at home avoids a purchase. Exported electricity follows the utility's credit rules. A good proposal checks your usage, credit eligibility and ability to use those credits before assigning a value to every generated kilowatt-hour.



Cumulative modeled benefit after the \$38,056 purchase, operating costs and a \$5,000 year-15 replacement. Includes 6.77% annual electricity-value growth, eligible MA credit and SMART income; federal credit is zero.

Massachusetts still contributes to the return

The residential energy credit is 15% of qualifying net expenditure, capped at **\$1,000**, subject to eligibility. Separately, our SMART scenario uses the published 2026 standard small-system rate of **3¢/kWh for 20 years**. Enrollment, applicable rate and payment start must be verified. [3, 4]

The REC alternative assumes **\$35 per REC net of aggregator fees**, with one REC representing 1,000 kWh. This is an illustrative price, not a guaranteed offer. We model 20 years of REC receipts; that is an analysis period, not a program expiration date. SMART assigns the RECs to the utility, so the owner cannot sell those same RECs separately. [4, 5]

With the same 6.77% escalator but no state credit or production incentives, energy-only payback is 6.6 years. With flat electricity value and no incentives at all, it is 8.1 years. Both checks support project-level viability without a federal credit.

The next step is your own set of numbers.

The strongest solar proposal starts with your property and your electricity use.

This example shows a viable path without the federal credit. Your result will depend on the roof, installation scope, utility rules and how you pay for the system. These are the details BD evaluates before turning an estimate into a recommendation.

Start with the roof and the electrical scope

Roof orientation, shade and usable area shape production. Roof condition, service capacity and utility requirements shape cost. A needed roof replacement or electrical upgrade belongs in the decision before the savings are presented.

Match the system to the bill

We look at electricity use and the value of exported energy, including whether credits can actually be used. Future electric vehicles or heat pumps can change the right system size. Generating more electricity is only valuable if there is a useful destination for it.

Show the cash purchase and financing separately

The main example is a cash-purchase model. Loan interest and fees change the economics. State credits and production payments arrive after installation; they should not be presented as cash already taken off the upfront price.

Assumption in this example	What to check for your home
28¢/kWh initially; +6.77% annually	Your tariff, credits and future price uncertainty
18,483 kWh in year one	A site-specific production forecast
\$38,056 solar price	Full scope, upgrades and any roof work
\$300/year operating allowance	Service costs; allowance rises 2% per year
\$5,000 replacement in year 15	Equipment needs and warranty coverage

There is a limit to the margin. With flat electricity value, 15% less production and a starting value of 24¢/kWh, the energy-only case takes about 11.6 years to pay back and barely meets a 6% modeled return hurdle. That is why the site assessment matters as much as the headline.

Find out what solar could save at your home.

Ask BD for a site-specific assessment with the federal credit set to zero, eligible Massachusetts benefits shown separately, and the assumptions explained.

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A closer look at the calculation

For readers who want to examine the assumptions.

7 / Five-year utility escalation U.S. EIA electricity retail-sales series, Massachusetts residential, annual frequency, 2020–2025. Retrieved October 4, 2026; recent annual estimates may be revised. Values in cents/kWh: 21.97, 22.89, 25.97, 29.61, 29.35, 30.48. Compound annual growth: $(30.48/21.97)^{(1/5)} - 1$. Rounded model rate: 6.77%. [Source](#).

1 / Carlisle project and bill BD project records: 13.64 kW DC, 31 × 440 W panels, final solar price \$38,056 and forecast first-year production 18,483 kWh. August 4, 2025 Eversource bill: 2,658 kWh and \$901.54 in electricity charges, including a \$10 fixed charge. Variable cost: $(\$901.54 - \$10) / 2,658 = 33.54¢/\text{kWh}$. Cover: actual BD Carlisle project photograph.

2 / Electricity credits Eversource net-metering guidance. Export credits depend on applicable tariff rules; purchase and export values need not match. [Source](#).

3 / Massachusetts residential credit Massachusetts DOR, 830 CMR 62.6.1. The model assumes eligibility and sufficient liability to use \$1,000 at the end of year one. [Source](#).

4 / SMART 3.0 MassCEC, June 10, 2026: standard 2026 rate for qualifying systems up to 25 kW, term and REC ownership. This scenario does not establish the Carlisle project's enrollment. Qualification and payment commencement require confirmation. [Source](#).

5 / Renewable energy certificates MassCEC REC guidance. REC prices vary. The \$35 net price used here is a modeling assumption, not a current market quotation. [Source](#).

6 / Federal residential credit IRS residential clean energy credit guidance. This analysis assigns no federal credit. Residential and business-owned systems have distinct eligibility rules. [Source](#).

Calculation method The model starts with a \$38,056 cash purchase and runs 25 years. Generation declines 0.8% annually; electricity value starts at 28¢/kWh and compounds by 6.77% annually from year two. This statewide retail-price trend is a proxy for blended avoided purchases and usable export credits, not a utility-specific tariff forecast. SMART and REC unit payments do not escalate. The \$300 first-year operating allowance rises 2% annually; a \$5,000 replacement is charged in year 15. Eligible scenarios add \$1,000 in year one and either SMART at 3¢/kWh or RECs at 3.5¢/kWh in years 1–20. Payments and usable bill credits are assumed realized in the year generated. Payback is interpolated cumulative cash payback, not discounted payback. NPV discounts year-end net cash flows at 6%; IRR is the rate that makes NPV zero.

Financial detail At these assumptions, 25-year NPV / project IRR are: MA credit + SMART, \$83,059 / 19.3%; MA credit + RECs, \$84,057 / 19.5%; energy only, \$76,126 / 17.9%. All use 6.77% utility escalation and zero federal credit. Positive NPV means modeled benefits exceed costs at the stated 6% discount rate. These long-term values are particularly sensitive to escalation.

Scope No financing, terminal value, income tax on incentive receipts, roof replacement, end-of-life removal, additional property tax or costs beyond the stated allowances are included. Add applicable costs and program fees to a personal proposal. Delayed payments or unused credits reduce value. Operating allowances are not vendor quotes. Results are projections, not guaranteed savings or tax advice. Policy sources reviewed October 4, 2026.