



COULD MY BUSINESS USE SOLAR ELECTRIC ENERGY?

Solar can be a smart business investment for your business depending on a few factors.

- Does your business property have a good south-facing roof or good southern ground exposure?
- Is your roof or property largely unshaded?
- Is the roof in good condition?
- Do you own your building?

Assuming the answer is yes to these questions, it's worth your time to investigate solar PV as a business investment.¹

DOES MY BUSINESS PAY A LOT OF FEDERAL INCOME TAXES?

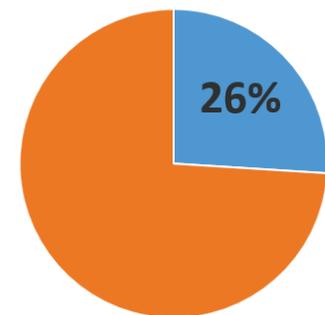
Up to 26% of the cost of a solar PV installation qualifies for the Federal Business Energy Investment Tax Credit (the "ITC") through 2020. After January 1, 2021, the 26% Federal Business Energy Investment Tax Credit (the ITC) is slated to step down to 22%.²

The 26% ITC is taken after determining the business adjusted gross income and makes solar an attractive way to re-invest in the business in lieu of paying federal business income taxes.

The ITC has a twenty-year carryforward and one-year carryback period which makes realizing the ITC a possibility for many businesses.³ Regardless, the sooner the full income tax credit amount can be taken, the better the return on the solar PV investment.

As an example with round numbers, assume a turnkey 39.9 kilowatt AC solar array⁴ costs roughly \$100,000 out of pocket. With the 26% ITC, this reduces the project cost by \$26,000 down to \$74,000 *after* realizing the federal income tax benefit. The \$100,000 is paid up front, but the tax savings benefit is realized when federal taxes are counted.

Solar Business Income Tax Credit



¹ The information provided herein is not to be considered legal or tax advice. Proper legal counsel, along with IRS guidance, is required to definitively determine the tax and utility implications of investing in a solar PV system for your business. CERTs provides the following information as a courtesy to help you evaluate whether a solar PV system is right for your business. Enjoy!

² Bipartisan Budget Act of 2018, Pub. L. No. 115-123, 132 Stat. 64 (2018).

³ 26 U.S.C. §§ 39 and 48(a)(3) (2018)

⁴ Minn. Stat. § 216B.164 (2019) (Minnesota policy allows a solar owner to sell energy back to the grid at the retail cost for that customer for solar equipment sized less than 40 kW alternating current (AC). Thus the 39.9 kW AC example size).



CAN I DEPRECIATE A SOLAR ARRAY AS A BUSINESS INVESTMENT?

Yes. Solar PV is considered “energy property” by the Internal Revenue Service like geothermal, wind energy, shale oil machinery and other energy-related equipment.⁵ A business may depreciate the solar array by one of two federal methods depending on the tax situation of the business:

- 100% Bonus Depreciation⁶
- 5-Year Modified Accelerated Cost Recovery System (MACRS)⁷

Generally speaking, depreciation is an annual income tax deduction that allows you to recover the cost of certain property over the time you use the property. This accounts for the reduction in value related to age and wear. To claim depreciation on property, a business must use it in its business or income-producing activity. A business cannot depreciate property used solely for personal activities. The IRS assigns solar arrays a 5-year depreciation schedule.

WHAT IS 100% BONUS DEPRECIATION AND HOW DOES IT APPLY TO SOLAR?

Bonus depreciation allows for a certain depreciation percentage of the solar array’s “adjusted tax basis” in the year it is placed in service to immediately deduct a large percentage of the purchase price. Adjusted tax basis is the net cost of an asset after adjusting for various tax-related items, in particular the 26% Federal Business Energy Investment Tax Credit which is an income tax credit, unlike a depreciation deduction.

In brief, a business is allowed to deduct the full cost of a solar array for the year it is placed in service through the combination of a federal income tax credit and federal bonus depreciation deduction on the equipment. This incentive structure was created by the U.S. government to encourage businesses to buy solar equipment and invest in themselves. The 100% Bonus Depreciation deduction is a great tool for a business with high federal tax bills.

For solar energy property, the depreciation adjusted tax basis is calculated by reducing the full upfront purchase price by the 26% income tax credit. This is because the bonus is 100% (simple math: $1 \times 0.26 = 0.26$). In the 39.9 kilowatt AC array example, the cost basis is \$100,000, but the adjusted tax basis for the purposes of depreciation reduces the \$100,000 by \$26,000 down to \$74,000.

Once the adjusted tax basis of the solar array is calculated, the 100% Bonus Depreciation may be applied. Again, Bonus Depreciation allows for a depreciation deduction of 100% of the adjusted tax basis in the year the solar array is installed. For our 39.9 kilowatt AC array example, if the array is placed

⁵ [26 U.S.C. §§ 48\(a\)\(3\)\(A\)](#) and [168\(e\)\(3\)\(B\)\(vi\)](#) (2019).

⁶ 26 U.S.C. 168(k)(10) (2019). *See also* [84 Fed. Reg. 50108 \(Sept. 24, 2019\)](#).

⁷ [26 U.S.C. §168\(e\)](#) (2019); *see also* [IRS Publication 946 \(2018\)](#).



in service in 2020, the \$74,000 adjusted tax basis is depreciated by 100% or \$74,000. In other words, the entire out-of-pocket cost of the solar array is written off in tax reductions between the \$26,000 federal income tax credit and a \$74,000 depreciation tax deduction. This is pretty nifty, though few small businesses carry this much federal tax liability to use all of the tax benefits in one year.

HOW DOES MACRS DEPRECIATION WORK IF I CANNOT USE 100% BONUS DEPRECIATION?

The Modified Accelerated Cost Recovery System (MACRS) runs on a deduction schedule provided by the IRS. As mentioned above, solar arrays are grouped under the 5-year property class for IRS depreciation purposes. MACRS depreciation with a project cost of \$100,000 looks like the below chart with “Year 0” being the partial year (a.k.a. the half-year) placed in service and “Year 5” the remaining half year of the full five year time span:

Full Cost	\$ 100,000	IRS Publication 946, Appendix A, Table A-1					
Federal Income Tax Credit	26%						
Adjusted Basis	\$ 74,000						
Depreciation Year	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Depreciation Schedule	20.00%	32.00%	19.20%	11.52%	11.52%	5.76%	100.00%
Depreciation Deduction	\$ 14,800	\$ 23,680	\$ 14,208	\$ 8,525	\$ 8,525	\$ 4,262	\$ 74,000

WHAT ABOUT MINNESOTA INCOME TAXES AND DEPRECIATION?

Minnesota does not have a state income tax credit for solar. However, the state does provide 20% of federal bonus depreciation allowed on Minnesota tax returns for the year the solar array is placed in service through the end of 2019.⁸ The remaining 80% of the bonus depreciation must be added back to state taxable income. The remaining 80% is later deducted from state taxable income over the next five years in equal parts. The Minnesota Legislature has yet to pass law on state tax treatment of federal bonus depreciation for tax year 2020 and going forward.

SO WHAT WOULD THIS LOOK LIKE FOR MY BUSINESS?

It depends on a few details such as a business’ month-to-month kilowatt-hour consumption, the kilowatt-hour rate, fixed charges paid to the utility and, of course, how much sunlight a location receives. Using the 39.9 kW AC example at an out-of-pocket cost of \$100,000 and the following assumptions, the solar array would perform like the charts below.

⁸ Minn. Stat. § 290.0133 and.0144 (2019).



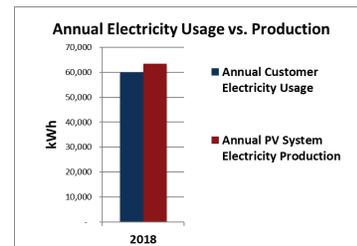
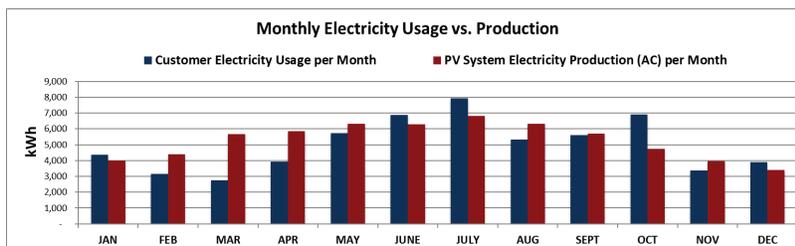
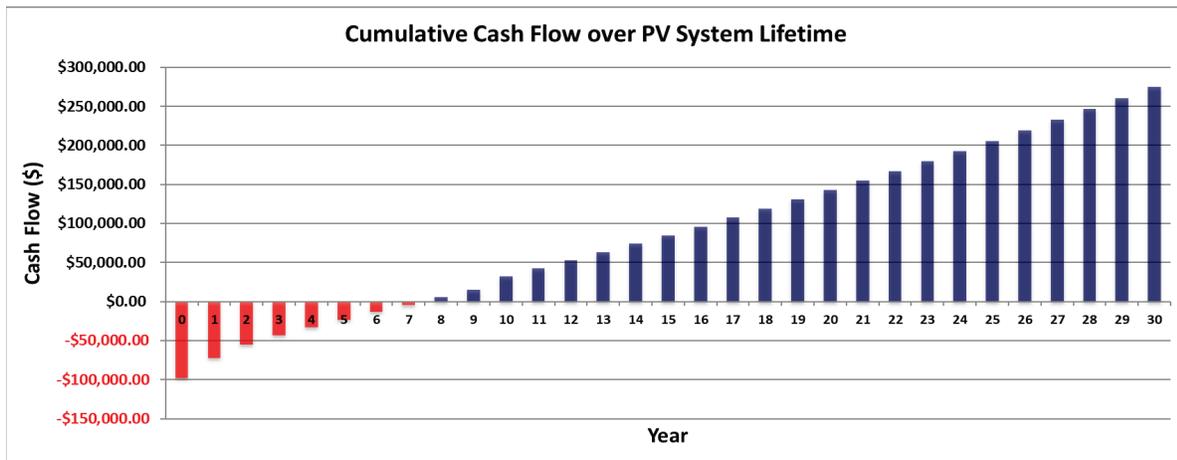
Cheat Sheet: Solar Energy for your Farm or Business (Jan. 2020)

Assumptions:

- 39.9 kW AC ground-mount array for \$100,000
- \$0.117 kilowatt-hour retail rate
- \$0.102 kilowatt-hour buyback rate (excess production)
- 2.5% annual utility inflation rate
- \$7.50 kilowatt/yr insurance
- \$10.00 kilowatt/year maintenance
- Year 10 – inverter replacement with \$7,500 replacement cost
- 26% Federal Income Tax Credit claimed
- 5-Year MACRS depreciation applied
- \$0 grants or rebates
- 100% unshaded solar resource

Outcomes:

First Year Utility Bill Savings:	\$7,628	Net Present Value:	\$95,819
Years to Cost Recovery:	8.0 Years	Internal Rate of Return:	13.33%
Simple Payback:	9.5 Years	Cumulative Cash Flow:	\$275,237





GLOSSARY

Depreciation refers to the deduction of a portion of the cost of the solar array as an asset, used in the business for the production of income over its useful life. Cost recovery for this calculation happens through income tax deductions. The above model relies on the IRS's Modified Accelerated Cost Recovery System 5-year property depreciation schedule.

Cumulative Cash Flow is calculated by adding all of the cash flows (utility bill savings and any payments from excess production) from the start of a project.

Kilowatt-hour is a measure of energy, meaning power over time. A kilowatt-hour is 1,000 watts consumed in the span of an hour. It is the typical unit of measurement utility companies use to bill consumption.

Kilowatt-hour Retail Rate is the dollar rate per kilowatt-hour an electric utility charges for consumption.

Kilowatt-hour Buy Back Rate is the dollar rate per kilowatt-hour a solar owner sells back to the electric grid. In Minnesota, this is also known as the average retail cost of energy rate (ARCER).

Net Present Value takes into account the initial investment cost of a solar array and the discounted cash flows the solar array returns in the future. A positive net present value indicates that the projected earnings (utility bill savings along with any excess energy generation sales revenues) generated by a solar array investment in present dollars exceeds the anticipated costs, also in present dollars. The net present value calculation in this example uses a 5% discount rate and 30 years' cash flow, the typical life span of a solar array.

Internal Rate of Return measures the profitability of potential investments. It is a discount rate that makes the net present value of all cash flows from a solar array equal to zero. The higher the internal rate of return, the better the investment is.

Simple Payback measures the time in years it takes to recover the cost of an investment through the investment's annual cost savings by offsetting utility bills and taxes.