

**RESOURCE**

Why Solar Output and Export Value Are Different Questions

A solar system answers two separate financial questions: how much electricity it produces, which is mostly physics and geography, and what that electricity is worth, which is almost entirely a function of your utility's compensation policy. Conflating the two leads to overestimating what a system will actually save you.

Production first

The [rooftop solar payback engine](#) starts from your system's expected annual production, based on size, orientation, and local sun exposure, and compares the value of that production against the system's installed cost.

Export value is a policy decision, not a physics one

What happens to electricity you produce but do not use immediately depends entirely on your utility's rules. The [solar export credit value engine](#) lets you enter your actual export compensation rate directly, rather than assuming it matches your import rate.

Net metering versus buy-all, sell-all

Under net metering, exported electricity typically offsets future consumption at or near your retail rate. Under a buy-all, sell-all arrangement, you sell everything you produce at one rate and buy everything you use at another, usually higher, rate. The [net metering versus buy-all, sell-all engine](#) shows how differently the same system performs under each structure.

Degradation is real but modest

Panels lose a small percentage of output each year. The solar degradation impact engine applies that decline to your production estimate over a full ownership horizon, which matters more for a 25-year lifetime-savings projection than for a simple payback calculation focused on the first several years.

Finding the rate at which solar breaks even

Instead of assuming your current rate is the only relevant one, the solar breakeven electricity rate engine solves for the specific rate at which the system's cost is fully offset, letting you judge how much margin exists between that breakeven point and your actual rate.

Why two identical systems can have different economics

A system on a generous net-metering utility and an identical system on a buy-all, sell-all utility with a low export rate can have meaningfully different paybacks despite producing the exact same electricity. Confirm your specific utility's export policy before trusting a generic solar payback claim from a salesperson or a national average.