

Payback Comparison

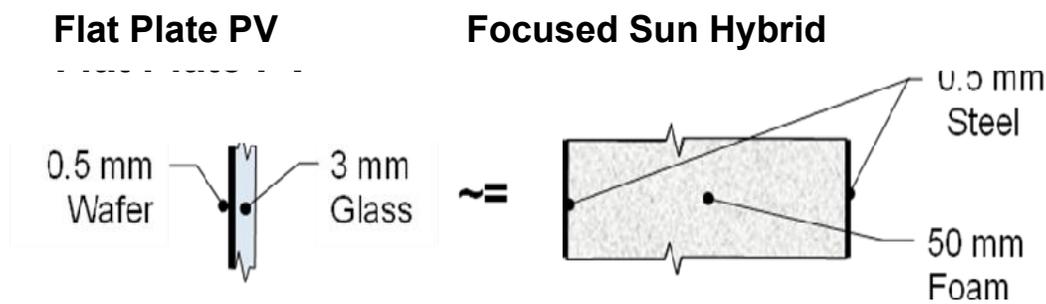
The payback of flat plate PV panels can be compared to the payback of the Focused Sun hybrid by comparing their Bill of Materials or BOM costs. For products where the cost of materials dominates, the higher the BOM costs, the higher the price of a product. Comparing Bills of Materials is a way to compare the cost portion of the payback.

In flat plate PV the primary sunlight gathering is done by the silicon wafers bonded onto a sheet of glass. In a hybrid solar panel, the mirrors are the primary sunlight gatherers. How does the BOM cost of a PV panel compare to the BOM costs of a hybrid panel mirror?

The primary materials in flat plate PV are an eighth inch (3 mm) of sheet glass and .020" (0.5 mm) of silicon wafers. The glass is relatively cheap but the wafers are relatively expensive. Together they cost about the same as the Focused Sun sandwich structure. It has two face sheets of .020" (0.5 mm) sheet steel separated by 2" (50 mm) of foam core.

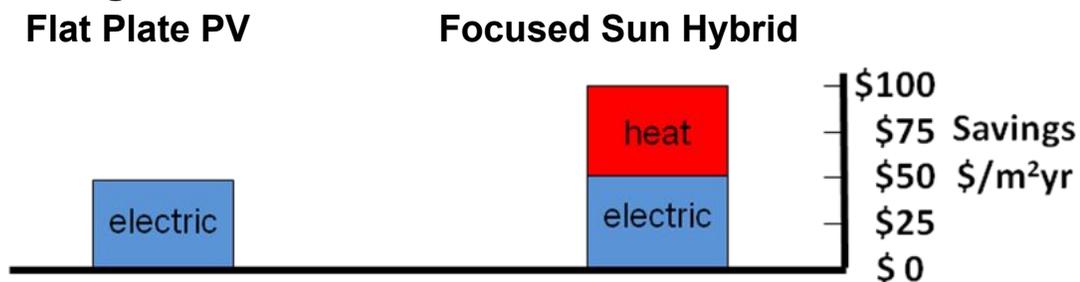
These two have approximately the same BOM cost: the flat plate PV BOM cost is approximately equal to the BOM cost of the hybrid mirror.

BOM Costs



However, the annual savings of a hybrid is twice that of a flat plate PV panel because it captures both electricity and heat. The electricity captured for both is about the same. But the heat captured by the hybrid doubles the savings of the hybrid – even when compared to fracked natural gas, the lowest priced heating fuel.

Annual Savings



Recall that the payback is the cost divided by the annual savings. With the same costs and twice the annual savings, the hybrid has a payback twice that of flat plate PV. As we've shown, flat plate PV has a typical payback of 10 years. The Focused Sun panel has a payback of half that – 5 years. It fulfills the hybrid promise of a low payback solar panel.

Payback

