

# WHY SOLAR HOMES SELL FASTER FOR MORE

This paper is a review of two bodies of work on the subject of solar's value to Homeowners.

**A New Market Paradigm for Zero-Energy Homes: The Comparative San Diego Case Study** – a collaborative study between the National Renewable Energy Laboratory and Abilene Christian University

*Summary: A 2010 Study of pre-incentive solar home sales comparing the values of 103 high energy efficiency homes with a subset of 39% having solar PV with 103 standard homes (none with PV).*

**Selling Into the Sun, Price Premium Analysis of a Multi-state Dataset of Solar Homes** – a study from the Lawrence Berkeley National Laboratory

*Summary: A 2015 study comparing 150,000 Solar Homes across 8 states with 200,000 non-solar homes in the same states with comparable sizes and construction values.*



## OVERVIEW

Both of these studies include more data than can be reviewed in this short article. For those desiring a more thorough, if less entertaining exploration of the topic, you may access the full studies here: [emp.lbl.gov/projects/solar](http://emp.lbl.gov/projects/solar).

The 2010 NREL study is unique in that it reviewed homes that installed solar previous to most of the current incentives and market conditions. In that – it could be deemed reflective of future markets after incentives cease and provides positive data for the value of solar apart from the artificial market sweeteners that exist today in many states.

The 2015 study is significant in its scope (number of homes and states) and in the thoroughness of the methodology used to assess the data. It represents authoritative and trustworthy information that can help homeowners become comfortable with solar ownership as a wise and profitable investment in their home.

In my review – I will simply touch on four derived conclusions.

## SOLAR HOMEOWNERS STAY IN THEIR HOMES LONGER

NREL's 2010 study indicates "Of the 103 comparison homes, 13, or 12.6% (counting the home sold twice) were resold by 2/7/05. Of the 306 Shea Homes, 15, or 4.9% were resold by 2/7/05. This more rapid turnover of comparison homes compared with that of Shea Homes was unexpected . . . it may be reasonable to speculate that the turnover rate constitutes more evidence that the comparison homeowners are somewhat less satisfied with their homes (as other data in this study indicate) than the Shea Homes owners."



The Shea Homes represented in the study were energy efficient with a significant percentage hosting a solar PV system. This study confirms anecdotal market evidence that indicates solar owners are likely to brag on and take pride in their homes and their choice to go solar. If it is true that Solar and attendant energy efficiency measures inspire increased home retention, that would also have an increased economic benefit for homeowners. According to Thursday Bram, a Moneying.com real estate professional and blogger, homeowners realize significant losses when selling their home before the five year mark.

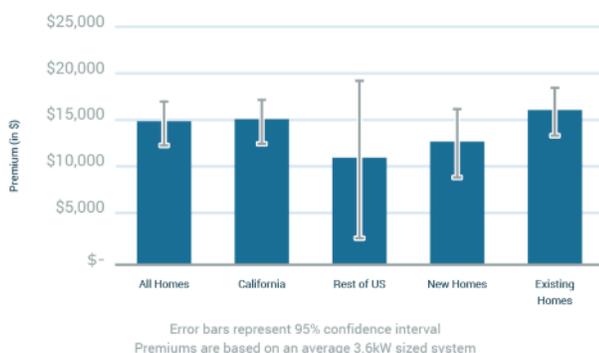
If creating a home environment that is comfortable, money saving, and sustainable helps homeowners avoid the costs and distractions of moving and inspires long-term investment, this could have far-reaching impacts on retirement savings, community stability, and even neighborhood desirability.

## SOLAR HOMES SELL FOR MORE WHEN ON THE MARKET

While the Berkeley study did not review days on market for PV homes it did review the added value solar provided across all markets concluding "Home buyers consistently have been willing to pay more for a property with PV across a variety of states, housing and PV markets, and home types. Average market premiums across the full sample of homes analyzed here are about \$4/W or \$15,000 for an average-sized 3.6-kW PV system (Figure 6)."

The study also noted that PV premium values on home sales remained consistent over the period of study (between 2002 and 2013) while PV installation costs declined drastically over that period indicating that the value of PV to a home in 2015 is even greater than it was previously (Section 4.2.4 – page 19). This supplies homeowners with the confidence that their solar investment holds more value than a passing fad.

Figure 6: Estimated Premiums Based on an Average-Sized 3.6kW System



## SOLAR HOMES SELL FASTER WHEN ON THE MARKET

In reviewing data for new homes with Solar the NREL study concludes that homes with Solar sell, on average, 17% faster than non-solar homes. When commenting on this phenomena the study notes the conclusion of one developer who experimented with PV as a sales option "... Clarum Homes reportedly sold 60% of the 257 solar homes at Vista Montana before its grand opening and sold out completely one year ahead of schedule (Hering 2005). In fact, the builder has decided to build only solar homes in the future (Hammon 2005)."

Faster sales mean less time on the market, less possibility of buyer pressure to reduce selling costs, and swifter lateral moves for home-sellers.

## SOLAR OWNERS RECAPTURE ALL OF THEIR SOLAR INVESTMENT

Some digging is required to understand this assertion, but here is the rough math. Assuming a below study (\$3.00 per Watt) PV premium and a 5 year property retention after the solar is installed, the homeowners ROI would look like this at a \$4.50 per watt installation price (above current market) for a 5 kW system. I am going to put this home in the Northeast and put minimum incentive values, and assumed electricity rates in to keep everything conservative.

### LOWBALL COST RECOVERY ESTIMATION

Solar Array Purchase Price @ \$4.50 per watt	- \$22,500
Federal Investment Tax Credit Value	+\$6,750
5 Year Electricity Savings @ \$.17 per kW (low) & annual production of 5000 kWh (low)	+\$4,500
5 years State RECs @ \$50 per REC	+\$1,250
Home Premium at Sale @ \$3.00 per watt (low)	+\$15,000
Cost Recovery Estimation	+\$5,000



You can see that the homeowner creates a net gain of \$5,000 in a worst case scenario (and this really is unrealistically low). Now take a look at an actual cost calculation based on an actual Massachusetts installation of 10 kW and let the numbers sink in.

### ACTUAL COST RECOVERY

Solar Array Purchase Price @ \$3.40 per watt	- \$34,000
State Tax Credit	+\$1,000
Federal Investment Tax Credit Value	+\$10,200
5 Year Electricity Savings @ \$.21 per kW & annual production of 12,000 kWh	+\$13,200
5 years State RECs @ \$200 per REC	+\$11,600
Home Premium at Sale @ \$2.00 per watt	+\$20,000
Cost Recovery Estimation	+\$21,500

In the actual cost recover scenario (still assuming a "below study" PV premium) the homeowner pays off his solar investment and realizes a \$21,500 premium on sale of his home. No other home improvement provides such cost recovery while paying for itself through bill savings throughout the process.

This is why SEIA research shows that there is now enough solar to power over 4,000,000 American homes, with over 195,000 installations in 2014. Currently – every 2.5 minutes another solar project is installed. That's a lot of solar!

**For more information on how to manage your energy bills, or to request a free solar evaluation of your home or business visit [www.intelligen.energy](http://www.intelligen.energy).**