



## **How to get the Best Solar Electric Investment money can buy!**

Interest in solar electricity has been growing in Nevada County for many years now. Last year was my company's busiest year yet, despite the economic recession, and this year is shaping up to be even better than last year. Competition, and a recent drop in solar module prices, make today a better time than ever to invest in solar!

What concerns me is that, while following up with potential customers that have received multiple proposals (bids), a variety of concerns keep surfacing that deserve attention. Many customers are getting three or four bids, which is good. I recommend it! But the problem is two-fold – first, interpreting the individual bids and, secondly, comparing them to one another. The process involves several pitfalls for the potential investor, so I'll divide them into categories below and address each one.

### **Comparing Apples to Apples**

What do you do when you get at least three or four different system size proposals? Choosing the lowest cost proposal isn't necessarily in your best interest. The first step in comparing different system sizes is to figure out the cost per watt. Some companies will give you two prices, one for the basic equipment and one for the installation, and you contract with each separately for what they provide. So be sure that each company's cost includes everything, including any special sales or discounts, and that the cost you use is the cost before the rebate and tax credit are accounted for. Once you have an accurate cost from everyone, figure out how many watts of power each system is rated for. The simplest way to do this is to multiply the number of modules (solar electric panels) by the DC (Direct Current) rating of each module. Let's look at a simple example –

Bid #1 - \$33,000 for a system with 24 modules at 235 watts;  $\$33000/(24 \times 235w) = \$5.85/\text{watt}$

Bid #2 - \$30,900 for a system with 22 modules at 205 watts;  $\$30900/(22 \times 205w) = \$6.85/\text{watt}$

Comparing these bids on price alone might lead one to think bid #2 is the better deal but, after accounting for the system size, bid #1 is the better deal – it's a full \$1 per watt less! This example also illustrates the fact that smaller systems often cost more per watt due to economies of scale. There are other factors too, such as where the modules are made (Chinese made are generally cheaper than U.S. made), the amount of AC (Alternating Current) power the system will produce, the location of the array, the quality of the hardware used, the installation quality, etc. So what's a consumer to do?

Ideally you want to compare "apples to apples". The best way to proceed is to go back to your bidders, after you think you have a good feeling for your best location and system size, and ask them all to provide a bid for the same size system at the same location. Don't be afraid to ask one person why the location they picked is better than the location someone else picked. Don't be pressured by "special sale – this month only", or other such sales tactics. You're making a big, long-term investment here, so

take your time!

### **Location, location, location**

Like the rule in Real Estate for how much your home is worth, the location of your solar system can have a major impact on its worth too. The amount of energy your system can produce in a year, as well as the rebate you'll receive, is a function of many things, including how much sun your solar array will receive at different times of the year. The tilt (or slope) of your array, the direction it faces (ie, south, east, west) and the shading it receives at different locations will all have an effect on your investment. Some companies will be more interested in selling you a system than spending an extra few minutes – or hours, depending on the property – finding your best location and, as a result, optimizing your investment! These are tough issues for a building owner to deal with because they can get very technical and can involve a number of shading measurements followed by calculations to find the best location. About all you can do is spend time with each company while they're evaluating possible locations, ask them each to give you a report showing the percentage of sunlight available each month for the location(s) they're recommending, and don't let anyone rush you into a decision!

### **Separate the Wheat from the Chaff**

I've seen many proposal formats from many different companies over the years. Most of them are little more than what I refer to as "computer spit-up"; tables and graphs of confusing information lacking any written explanation, with few specifics on equipment or "bottom line" cost-benefit information. Consumers deserve better if they're to make a sound investment decision. Sure, they all say solar will save you money, but do they tell you what the return on your investment will be? Do they tell you how much you'll save in future years relative to how much your loan costs will be? I deal with complex engineering calculations and spreadsheets every day, but even I get a headache trying to sift through the muddled morass of confusion that is so common in solar proposals these days. It reminds me of the old quote "if you can't dazzle them with brilliance, baffle them with B.S.!" So if they don't give you a clear idea of the investment value in their proposal, just ask them to – you deserve to know!

Ray Darby is President of Sustainable Energy Group Inc., a Grass Valley company offering energy efficiency and solar services for residential and commercial buildings, from comparing the alternatives through installation and servicing of energy systems of all types. You can reach him at 530-273-4422, via email [RayDarby@SustainableEnergyGroup.com](mailto:RayDarby@SustainableEnergyGroup.com), or visit their web site at [www.SustainableEnergyGroup.com](http://www.SustainableEnergyGroup.com).