

# **BROKERING FOR REDUCING COSTS AND INCREASING CUSTOMER SATISFACTION IN SOLAR SALES**

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## **ABSTRACT**

The concept of the brokering model for sales of solar systems can result in cost savings and increased benefits and satisfaction for both the installer and customer through significant improvements in efficiencies in the sales process. Because of the increased value added, it can result in increased income to the broker professional as well. However, there are significantly increased risks for both the customer and installer. To mitigate these risks, greater requirements on the training, knowledge, and experience of the broker are necessary.

The author has developed a unique and successful business model based on full service brokering of solar systems and believes it will significantly reduce sales costs for the PV industry, while increasing customer satisfaction.

## **1. INTRODUCTION**

The concept of brokering the sale of a PV system is borrowed from other broker type sales industries such as real estate. The broker forms relationships with potential customers and with several installers of turnkey solar systems. The broker conducts a customer site assessment and analysis, designs a suitable PV system, and solicits bids for the design from several of the installers. The broker analyzes the bids, presents the bids and the bid analysis to the customer, and assists the customer in making a determination of which bid to accept based on their expert knowledge and local experience, knowing each of the installers and their backgrounds, plus any additional factors that may be relevant. If a sale is made, the broker receives a commission from the installer.

## **2. THE BROKERING CONCEPT**

The brokering idea is borrowed from many other industries that have transitioned from sales using a dedicated seller's agent who represents only one seller and that seller's interests, to sales using a middle agent who works with several sellers and several customers simultaneously. Perhaps the closest parallel is the real estate industry. Because the value of the item is large and the valuation complex, the customer is generally not expected to become an expert in all the nuances and subtleties, so an expert agent (broker) can be very useful.

The broker is usually paid on commission by the chosen installer. However, the commission rate is the same, regardless of chosen installer, so the broker has very little financial bias between systems (only a small bias due to the minor price variations). This allows the broker to be indifferent, and therefore a good assistant and consultant in helping the customer choose the best solution. Because of this indifference, the customer may choose to confide more in the broker about concerns or true motivations they might otherwise hide from the more self-interested salespeople.

## **3. BENEFITS FROM BROKERING**

There are a number of significant benefits with brokers over traditional selling strategies. These include increases in efficiency, reductions in costs, increases in satisfaction for both customer and installer, and installer margin protection.

### **3.1 Greater Overall Selling Efficiency**

The broker brings significant gains in efficiency to the purchase of a solar system. Rather than two to five

salespeople bidding and competing for a sale, each having to do a site visit, proposal, and presentation, involving 1 to 2 trips (each) to the site, the broker can accomplish the same work with one person at far less total effort and expense (sales expenses can be significant, such as mileage, printing, communication, overhead, benefits, etc).

Further still, a skilled and experienced broker can implement customer-screening techniques that reduce time spent on “Looky Lous” and other non-serious customers.

It is important to note that in some states, the broker may not legally charge a fee for their services if they also might receive a commission, because that creates a conflict of fiduciary responsibilities – only the real estate industry appears to be allowed to engage in “dual agencies”. However, there are ways of screening customers and keeping the broker’s time investment focused on the serious purchasers. The author has developed a number of screening techniques that may be presented in a future paper. One of the reasons a broker can be more successful in screening than a salesperson is that they are bringing the customer much more value, and can request something in return, whereas a salesperson is just another bidder, and has relatively little leverage to demand any level of seriousness from the customer.

In so doing the broker’s relative time efficiency compared to the regular solar salesperson is dramatically increased. Commonly, a customer will get 3 bids, giving each salesperson only a 33% chance of closing the sale, if the customer actually purchases. However, a significant number of potential customers never purchase at all (50% or more), so in reality, a salesman’s chances of closing are often fewer than 1 in 6 or less than 17%.

On the other hand, a broker with a good screening mechanism is both bringing all the bids, as well as avoiding the non-serious customers. As a result, the broker is likely to close a very high percentage. The author’s experience has been above 75%, or about 5 times his average when he worked as a solar salesman dedicated to one company.

There is a little more work involved as a broker – the broker must write up the bid specification and then normalize the bids, but there is less “salesmanship” involved – the customer is presented with all their options and information, rather than a crafted presentation designed to influence their decision.

### 3.2 Cost Savings

The broker bears more costs. Unlike the salesperson, whose costs are usually covered at least in part by their company, the broker absorbs all of the sales costs and probably most

of the marketing costs for the sales they bring. However, the dramatic increase in selling efficiency can result in several cost savings:

- The company no longer bears the sales expenses and marketing costs (of the broker sales), which can be an additional 3-6% of the sale price, over and above the commission costs. The broker’s sales & marketing costs per sale are dramatically lower because of the greater efficiency
- The company no longer needs to support as many inefficient sales staff with overhead, tools and benefits
- The broker may charge a slightly lower commission because they are doing a lot less work for each sale by working 4 to 5 times more efficiently. Supply and demand and competition will dictate what the brokers are able to charge for their services.

For example, a 6% commissioned sales rep having their sales expenses covered (mileage, printing, postage, phone, internet, overhead, benefits) can cost the company and additional 4% per sale (total = 10%), plus marketing expenses. A well compensated solar broker, whose total commission is 7% easily saves the company 3% or more. In competitive bidding, at least some of this savings is passed on to the customer; the balance is enjoyed as additional profit margin for the installer. And while the broker had to absorb the sales expenses, those were much less than the 4% because they make so many more sales per dollar spent. Therefore, their real sales costs were probably closer to 1%, so their net commission is the same 6% as the inside sales person, but they can close 4 to 5 times as many sales with the same amount of effort, and their income increases commensurately. See Fig. 1 for a comparative analysis of time invested and results.

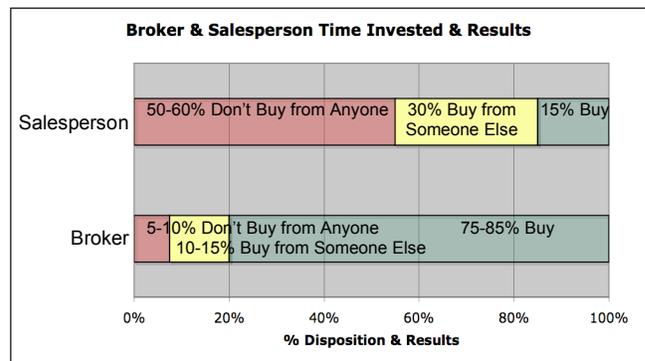


Fig. 1: Broker vs. Salesperson time invested and results.

It should be noted that the installer’s time saved might not be quite 100% because they still need to prepare a bid for the broker. And because they are going to win only 1 in 3 bids on average, they need to budget 1 to 1.5 hours per sale of time to prepare and email the bids. However, this might actually be a time savings, because they only need to prepare a simple quote (20-30 minutes each to prepare a

quote based on the detailed specification and photos the broker provides), and rely on the broker to fairly represent them, rather than preparing full-blown proposals that might take a lot more time. See Fig. 2 for an illustration of relative costs to the installer.

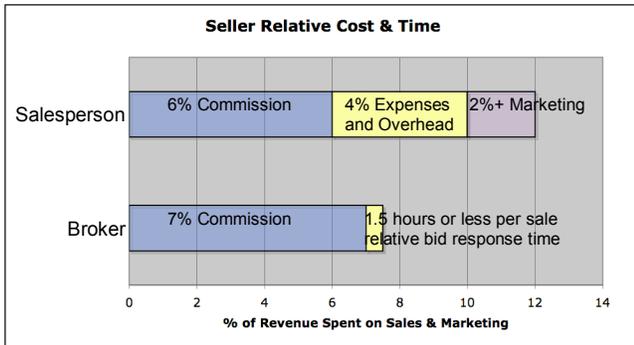


Fig. 2: Seller time and expense invested sales & marketing.

### 3.3 Purchaser Time Savings and Effort Reduction

The purchaser saves significant time by working with a broker, because they now only have to meet with one solar professional for a site survey and bid presentation. They also only have to answer one set of customer interview questions during the phone screen. See Fig. 3 for an illustration of the relative time saved for the customer.

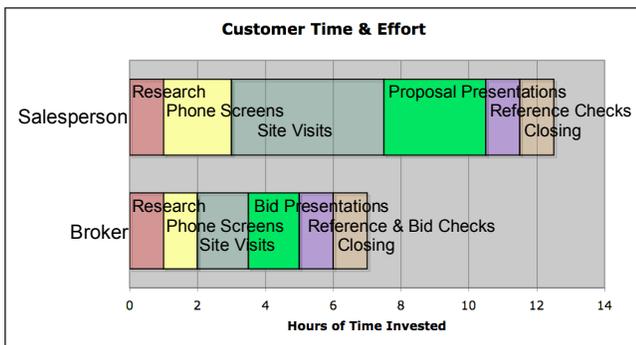


Fig. 3: Customer time and effort invested in purchase.

Because the broker is indifferent to the customer’s ultimate choice, the customer may chose to confide more in the broker about concerns and motivations they might otherwise keep hidden from more biased salespeople. This can reduce the customer’s need to spend time seeking unbiased information elsewhere.

### 3.4 Purchaser Increase In Satisfaction

The presentation of the bids is likely to be a much more pleasant situation for the customer. Rather than being presented with 3 to 5 “pitches” attempting to persuade and influence the customer towards each installer, the customer and broker can have a low stress, low-pressure

conversation, presenting all the bids side by side. The bids should be normalized, so that differences in wattage rating systems, assumptions for permit fees, sales tax, service entrance upgrades, and other costs are visible and made equal. These are often calculations the customer cannot do without learning a lot more about the industry, and even then, can result in poorly informed purchasing decisions.

Once the bids are normalized, and the customer and broker have had a full discussion about all the relevant issues, motivations and desires, the best choices become clear, and it is often just a choice between a couple of good options, rather than a nervous decision with a background fear of some unknown.

Also because the customer may be more likely to confide in the broker, the broker may have a better understanding of what the customer’s true motivations, interests and fears are, and may be better able to provide the most satisfying solution by ensuring that the installer best equipped to handle a particular concern is chosen, leading to a satisfying and happy result for all three parties.

The broker can also serve as a mediator and problem solver, ensuring good communication and solutions flow between customer and installer. When a problem occurs, the experienced broker will be able to explain to the customer what’s normal and reasonable, and what they can expect a good installer to do to remedy the situation, if it is truly the responsibility of the installer to handle the issue. If it’s not the installer’s problem, the broker can help explain the situation, and if necessary, defend and protect the installer from unreasonable customer requests.

The broker can be a powerful advocate for the customer. One can imagine an unforeseeable situation where things go poorly on a project and the cost of doing a good job may cause a financial loss to the installer. While most installers will accept the responsibility and the loss, some may take the approach that solving the problem properly just isn’t worth the cost, and it’s only one customer who isn’t likely to buy again until they move in 5 to 10 years – this is always a risk when dealing with contractors directly. However, the broker has the choice to bring more business to the contractor, or cut them off. The broker is, in effect, a repeat customer, which can motivate the contractor to ensure the job is done correctly, even if the cost is significant and might cause a loss on this particular job.

### 3.5 Installer Increase In Satisfaction and Margin Protection

A broker can be a big benefit to the installer as well. The broker is, in effect, a repeat customer, which is rare in the solar industry. The broker can understand the installer’s needs and situation and explain these to the customer

without appearing defensive. The broker can also help in pairing and installer's hidden qualities and personality or style with the appropriate customers, so that the parties get on well.

The broker can also be on the lookout for troublesome customers and help the installer avoid them. A good broker will have no trouble turning down this sort of bad business because they will usually be very busy with good customers. Even if they aren't very busy, the time and effort spent on a bad customer will far outweigh the benefit they could have gotten from looking for new good customers.

The broker can also help protect the profit margin for the installer at the time of sale. Some customers are very aggressive on price, not realizing that the solar industry generally does not enjoy high profit margins. The broker is in a better position to explain this situation to the customer. If the customer persists, and attempts to create a price war between bidders, the broker can adopt a policy prohibiting or limiting this activity. The author has adopted such a policy, which will allow the customer to, one time only, request the broker to ask a higher priced bidder to match or beat a lower bidder. The higher bidder can re-bid or stand fast. If the higher bidder matches or beats the lower bidder, the customer must accept this new bid or lose the broker's services, and by the broker's agreement with the installers, lose access to any of these companies. If the bid doesn't come back lower, the customer must choose from the bids as they stand, or lose service. This avoids the "race to the bottom" situation that some customers attempt.

So while the bidders must be competitive, and the customer is assured of getting a fair price based on this competition, the bidders don't have to worry about having to take a dive on price or profit just to get the sale, and instead, can enjoy a reasonable margin on their work.

#### 4. RISKS IN BROKERING AND RISK MITIGATION

While there are a number of benefits to using a solar broker, there are also a number of significant risks to both the customer and installer that must be understood. The biggest of these is the risk that an inexperienced broker will make a mistake and that it won't be found until it's too late to correct easily. A group of competing sales people will each develop their own analysis and estimates of what will satisfy the customer's needs. If one of these is significantly off from the others, an adequately informed and alert customer will likely spot it and dismiss the errant bid. If only the broker is providing the analysis and determining system size and location, it is left entirely to the customer to check their work or trust their judgment.

#### 4.1 Increased Risk To The Purchaser

Broker mistakes in the analysis of a solar system can include misestimates of usage, mismeasurements of site conditions such as shading, tilt or orientation, miscalculations in production or the time-of-use value of the production, which could result in either a misestimation of the needed system size or benefit. This could result in the installation of a system that is too large or too small to meet the customer's needs or expectations.

An oversold system that is too small to provide the promised benefit will leave the customer unsatisfied and disappointed with the system's performance, and might tarnish the installer's reputation or the reputation of the solar industry. Too large a system could result in wasted investment money and un-enjoyed production value from the system due to limitations on net metering benefit.

Or in the worst case, it could result in a bad purchase decision, where the customer would or would not have purchased if they had had accurate information.

The final risk to the customer is that an unscrupulous broker could collude with the installers and inflate prices above the reasonable and customary pricing for systems or misrepresent the installers' qualifications and experience. Because the broker is bringing potentially all the bids, such price inflation or quality flaws may not be visible to the customer.

#### 4.2 Increased Risk To The Installer

An inexperienced solar broker might also expose the installer to substantial risk due to errors in the site estimation or analysis of the installation feasibility of the project. Inaccurate assessment of the sturdiness of the roof, or misreading the electrical service entrance label can result in substantial costs before the job can be completed in compliance with building or electrical codes. Mismeasurement of the roof area available, or other problems can result in an unbuildable job at any price.

#### 4.3 Broker Requirements To Minimize Risks

Experience, training, and certification can be paths to minimizing the risks a broker poses.

Before engaging in broker relationships with customers or installers, the broker can gain significant experience in all the necessary areas by working in a traditional role as a solar salesperson. During this type of work experience, they gain knowledge of site analysis, customer interviewing, shade and other tool usage, performance estimation, and many other factors that will help them avoid making rookie

mistakes as an unsupervised broker. During this time, they will learn from the mistakes that get found by those overseeing their work, or through competition with other salespeople upon presentation of the bids. The author estimates a broker should have at least one year of full time sales experience before considering starting as a broker.

The prospective broker can get on-the-job training working as a salesperson in a supervised position, but can also take some of the many courses offered by the training institutions available to the solar industry. The Institute for Sustainable Power Quality<sup>1</sup> (ISPQ) has established a list of accredited solar training schools, which is available at: <http://www.irecusa.org/index.php?id=91>

A high quality solar salesperson or broker should have a good understanding of the issues the installer needs to face, and ideally will have assisted in installing several systems to gain hands-on experience.

Certification, such as NABCEP<sup>®</sup> Solar PV Installer Certification<sup>2</sup> or CoSEIA PV Certification<sup>3</sup>, are marks of qualification that indicate an individual has met the requirements of education, training and experience, and passed an examination demonstrating knowledge of how to safely and reliably install a PV system. Such certification might normally be above and beyond what the regular salesperson might want or need when selling PV in a competitive environment. However, because of the greater risk in working with a broker, such certification offers a valuable additional measure of security.

#### 4.4 Customer Strategies To Minimize Risks

Consumers can protect themselves but using only brokers with strong word-of-mouth networks and relying on referrals from satisfied customers who have lived with their systems for at least a year. Checking the broker and installer references is always a good idea.

The consumer may also want to call a couple of other installation companies to get ballpark phone estimates to ensure the broker is in the right neighborhood on size, system estimated production, and price. Often, the phone-screener/estimator can discuss and look at satellite photos of the customer's home and get a sense if shading is a likely consideration. This plus the estimated production can indicate whether the broker has included shading in the calculations, or if they have overlooked a crucial piece of information. In the author's six-year design and competitive sales experience, shading is the most commonly un-analyzed or misanalyzed factor in system design.

It is important that the purchaser be clear that, because the broker is generally paid on commission by the installer, the

broker's legal fiduciary responsibility is usually to the installer, despite implications that might be made otherwise. One might ask, why doesn't the customer instead hire the broker directly as a "buyer's agent". While this is possible, and likely for larger commercial projects, it is unlikely to be feasible or even available for most residential projects. The main reason is that it is unlikely that the customer would be willing to spend anywhere near 5-7% on a commission to a broker even though the broker does have significant costs not directly linkable to a particular sale, and would need to charge a high hourly rate to make up the difference. So high would the rate likely be, that the customer would probably just try to do it themselves, and solicit several bids through the normal sales channel. However, this eliminates all the efficiencies and savings the broker concept brings. Even if a buyer's agent were available, it is unlikely that these direct costs would be made up for by a discount provided by the installer unless the buyer's agent had established relationships with every installer and all relationships had equal terms. The author knows of no cases where a viable "buyer's agent" business has ever been attempted. Perhaps as solar brokering gets established, this will be a natural evolution for some customers, as it is in the real estate industry.

#### 5. THE AUTHOR'S EXPERIENCE

The author has been engaged in broker sales in the San Jose, California area from March 2005 to April 2007. Because of his experience, NABCEP<sup>®</sup> Solar PV Installer Certification, and the previous 4 years of direct sales leading to a well-established reputation and good word of mouth from previous customers, he has enjoyed plenty of broker business opportunities. However, because of significant teaching activity and the development of a solar sales and design software product, while he has only engaged a relatively limited number of clients, he has enjoyed a high level of success with the broker concept. He has closed sales for more than 75% of those who sought bids. Because the idea is a new business and approach, he believes that with refinement, the results can be even better.

#### 6. CONCLUSION

While the use of brokers in the solar industry poses some risk, this can be mitigated by training and experience, and, the gains in efficiency for the industry, and reduction in costs for both the customer and industry, are likely to be significant.

The Solar Energy Industry Association's *Roadmap*<sup>4</sup> estimates that the solar industry reduces cost at least 4.5% per year (based on 35% compound annual growth in

production volume which has occurred approximately annually over the last 7 years). If the broker concept can reduce industry selling price by 3.5% it's as if the whole industry jumped ahead by 6 to 9 months in terms of development down its experience-cost curve.

## 7. REFERENCES

- (1) IREC – The Interstate Renewable Energy Council's web site listing for Institute for Sustainable Power Quality (ISPQ) <http://www.irecusa.org/index.php?id=91>, April 2007
- (2) NABCEP: The North American Board of Certified Energy Practitioners, requirements for PV certification, [http://www.nabcep.org/pv\\_installer.cfm](http://www.nabcep.org/pv_installer.cfm), April 2006
- (3) CoSEIA: Colorado Solar Energy Industries Association, requirements for certification, <http://www.coseia.org/Certification.htm>, April 2006
- (4) Solar Energy Industry Association *Roadmap: Our Solar Power Future*, p7-9, 12 <http://www.seia.org/roadmap.pdf>, September 2004