A FIELD GUIDE FROM INSIDE THE INDUSTRY

Read this book before you GO SOLAR

FIG. 1 THIRTY YEARS OF ELECTRICITY, PAID TWO WAYS

BY
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Read This Book

Before You Go Solar

A Buyer's Guide from an Industry Insider

By Dave Mills

About 12,000 Words

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Introduction

Hi Reader, thanks for giving this book some attention. We hope it helps you make a wise buying choice. The goal of the book is to guide prospective solar electric customers through the chaotic marketing, sales, installation, and compliance aspects of solar electric in today's economy. There be sharks in these waters, and we'd like to arm you with information that can protect you from them.

Whenever possible we will avoid technical terms and try to stay non-political in our message. Some of the issues are technical, and others political, but that information is for other books. We will not be discussing specific equipment, brands, methods, contractors (besides us), laws, politicians, pricing, etc. in detail here.

Most of it will be written with the residential homeowner prospective solar electric buyer in mind. There may be useful information for commercial interests, preppers, nomads, off-gridders, and general solar hobbyists too, but the residential homeowner is the most targeted portion of the solar electric demographic. This message will be tailored to them.

Our bona fides are that we are a solar contractor in the Central Florida area that has been in business for over twenty-five years. Our ratings indicate we are well-loved by the community. We are a service-based business, so we see a lot of the nightmares created by other "solar companies" and have noticed an uptick over the last few years.

Most of our customers are other commercial interests like roofers, property management firms, new construction, power companies, municipalities, sales organizations, and other solar companies with problems they can't handle. In most of these cases, ultimately, the real customer is a residential homeowner. These other companies become middlemen between us and the homeowner.

We make a comfortable living being a service-based business. Not that we would anyway, but we have no need to deceive anyone to get a new sale. It's a great position to be in, and this book is an effort to take advantage of that. We feel that even one abused customer is a black eye for the entire industry. Our selfish motivation for writing this book is to protect the reputation of our industry, and at the end of this book, we will put in our contact information for any homeowners in the Central Florida area who would like to buy solar the right way. We can afford to, and will, tell you the good, bad, and the ugly of solar.

We are not going to spend a lot of time in this book trying to sell you on solar electric. If you are reading this, we assume you are already sold and just want to know the best way to go about buying. How you got sold can be good or bad. There is a lot of misinformation out there, and we will try to combat at least some of it. As long as your home is solar feasible, and it saves you as much or more than it costs to put it in, you should go solar. That's about as salesy as we are going to get here.

Before we begin, let's clarify what we are talking about when we say solar electric. We mean solar that creates electricity from the sun. This process requires photovoltaic panels to create electricity with minerals inside them, under glass, that react to sunlight and shed electrons. We will be talking about a standard installation that incorporates the grid. There is also thermal solar, like for pool heat and domestic hot water, and we install and service those too, but as far as this being a buyer's guide, we are mainly talking about solar electric.

Part 1 – THE PROBLEM

Solar is booming. That's a great problem, mostly. Solar is a great way to produce electricity and everyone who has an eligible property should take advantage of the option immediately. Full stop. Let's resume the conversation with the "mostly" caveat. The problem with "booming" is that booms attract predators like blood in the water attracts sharks. The predators here are, mostly, of the sales and marketing variety. Sales and marketing predators, sharks, liars, thieves, the uninformed, the misinformed, and outright scammers love booms. One reason is that largely, the sale, the transference

of belief, is made by the media before the salesperson even pulls into the driveway. Unfortunately, this also makes people easier to take advantage of.

You cannot watch the television, listen to the radio, or browse the Internet for long without hearing the positives about going solar. There are many. Even if you are currently not interested, are comfortable with your current energy expense, are not concerned about the environment, etc. the constant barrage of solar propaganda eventually makes any brain consider it. For a second, then a few, then for minutes at a time, and the next thing you know, you have gone down an Internet rabbit hole filled with good and bad information. Maybe one of these rabbit holes led you to this book. Without a background on the subject, it is hard to know who or what to believe.

You can't just trust the company that shows on top of the first page of a Google search. Any company can buy their way into that spot. Many do, sometimes we do, but that does not make them a reliable, or even trustworthy, source for solar knowledge. It also doesn't mean they aren't. All it really says is that the company you are considering has enough marketing budget to buy the top spot at the particular time you searched.

Pro-Tip: A lot of the companies that buy the top spot on a search engine for solar related terms are not even solar companies. Many of them are lead generation companies. They will gather your information then sell that information to one, or many, different solar salespeople, or sales organizations, for them to market to you directly. As the consumer, you will bear the brunt of this additional marketing cost. Skip the paid for spots at the top and focus on the organic results in the middle. These are sorted by geography and relevance to your search over ad-spend.

You can't trust an article written by a supposed third-party, because those articles are typically written by an ad agency and the "Top 10 Best Solar Contractors" paid to be mentioned in that article. Guerrilla marketing firms are inundating us with branding and sales messages disguised as something else all the time. That industry has been booming for decades and the sharks are all there, and breeding.

You also can't trust your friends and family with their experiences with solar. Not because they are deceitful people, but because their experience is unique to them. If your sister was taken advantage of by one of the many sales predators swimming the solar waters, that does not make solar for you a bad idea. The opposite is true. If your sister had a great experience with solar, loves it, it doesn't mean you will. Solar electric is definitely a product that should be sized to fit each situation individually and there are a lot of variables.

Whether you watch CNN or Fox, listen to liberal or conservative radio, all are brought to you by Pfizer. Therefore, these stations must be very careful about criticizing the pharmaceutical industry. We use that example because it is a more prevalent issue lately for the pharmaceutical industry to be accused of manipulating the news we hear. Solar, like it or not, is part of a political agenda. The majority of mainstream media supports it, and therefore so do their talking heads, as do (obviously) any green energy sponsors. They will speak heavily on the positives and avoid the negatives. We have been conditioned to accept this kind of deceit as forgivable human nature.

We aren't complaining about the positive attention that solar gets anywhere. We agree with most of it. The danger is when it disarms prospective buyers against less than honest salespeople. Solar is a good idea, everyone knows this, but even a good idea can be implemented badly. These sales organizations can sell anything, and many have, but solar is booming and their focus has shifted to our industry. They seek to pick the low hanging fruit. Buyers beware.

Sales organizations land everywhere on the ethics spectrum. Some are excellent and adhere to being legal, moral, and ethical in their sales practices. Our small team strives to be that. We preach absolute customer-centricity to all our employees. We believe that if we remain focused on giving every

customer the most excellent experience possible, the rest of our business will fall into place nicely. We know we are not the only sales organization like this and mean to cast no aspersions on the good ones.

That being said, there are some sales organizations out there that are simply taking advantage of people, and there are more of them than there are of us. It might help to understand the culture of these companies a little. They are very proud of themselves for their ability to close. Close means to get their prospects to take action, by signing a contract, on their sales proposal. Mostly, these are commission only sales positions, and if the salesperson does not close you, they do not make any money, in fact, they lose money in time and gas, marketing and lead costs, and their company will hold them accountable. There is a lot of pressure to make the sale. Enough pressure that sometimes they are motivated to cut some corners on the truth or circumvent it altogether.

We see the results of this sales culture and scratch our heads. In many cases, it would have been just as easy, and profitable, to do right by their customer. We are going to describe a few of the most common issues that we have seen. This is a creative bunch we are warning you about, so please do not consider this list in any way exhaustive.

Pro-Tip: "He can sell a ketchup popsicle to a woman wearing white gloves." That is what one salesperson might say about another as a compliment to his sales ability. It's a fairly old saying. It means the salesperson is persuasive enough to get people to do something counter to their best interests. A ketchup popsicle will melt and ruin her white gloves. Let's not ignore the fact that a ketchup popsicle can't taste very good either. This "compliment" is about selling a bad product that will surely be detrimental to the customer. It should be seen as an insult to that salesperson's character, not a compliment to his sales ability. Solar can be a "ketchup popsicle" for some prospects and it requires a salesperson with some character and conscience to recognize that and properly advise the prospect to go another direction.

First, not every home or property is suitable for solar electric. In order for solar to function it needs exposure to the sun. It seems like a "no duh" type bit of information, yet we see many customers who were sold solar where the panels were placed in the shade, and do little to nothing for them.

If your home is in the Northern Hemisphere, or north of the equator, to be solar eligible your home or property must have south, east, or west-facing surfaces to place panels on. Preferably south. Usually this is the roof, but for some customers who don't have roof space, a part of the yard can be used with ground mounts. (North facing panels will still produce but at an abbreviated rate of production that must be considered when sizing a system properly.)

We have software that can look at your home from space, track the sun's movement over it, account for trees and other sources of shade, and tell you what kind of sun exposure your property gets. Based on that, we can tell you if solar will work for you. This software is not exclusive to us. Any solar company can access it, many don't.

A commission hungry salesperson meeting with a solar excited homeowner will tell them whatever they want to hear and write up the contract placing thousands of dollars' worth of panels where they will not produce for the customer. Beware the salesperson that sells without coming and putting eyes on your property. Beware the salesperson that recommends you put panels on the north facing roof or under tree shade. You might be that salesperson's only shot at making a commission that day. Many will try to make it whether you get value or not.

Another issue we frown on is the one-size-fits-all solar package or the good-better-best solar packages. There is a lot to learn if you want to sell solar properly. Sales organizations will try to reduce this complex information down to the very basics in order to make it easily teachable to the majority of their recruits. These recruits, pumped up and excited, will rush out with their newfound knowledge and

enthusiasm, and ask you to make a decision on thousands of dollars with just basic, possibly false, information.

One-size-fits-all does not apply to solar, and it doesn't need to. Many sales organizations will train their reps to sell one size/brand of solar to keep it simple for them. Whether the size/brand they sell will work for the customer is secondary. By the time the homeowner finds out that their system is over-sized, under-sized, or otherwise not effective, the ink on the contract has been dry for months.

A more advanced version of one-size-fits-all is good-better-best. Good might be something like cheap equipment with a huge system. Better might be higher quality equipment with a small system. And best might be top tier equipment with a huge system. Your unscrupulous salesman will point at the "best" option with his pen a lot, because that one pays him the highest commission. Just like one-size-fits-all, it is simple to teach and easy to present, and when you pick one of the options, you own the decision to buy. You closed yourself.

None of this is necessary. Your power company will tell you exactly how many kilowatt hours you used in the previous twelve months. We can tell you exactly how many panels, brand, size, and power rating you will need to offset that exact amount of power usage. That software we described earlier will even show you what your house looks like with the panels placed on your roof and predict how much power they will create. The step above "best", is exactly right, and exactly right is easily achievable.

The Federal Tax Credit. We are not allowed to advise you on your taxes. Neither are the solar salespeople you speak to. This does not give anybody license to lie about the Federal Tax Credit for solar, but so many do. For years there was a federal tax credit — most recently thirty percent — for buying a home solar system, and a disturbingly high number of buyers were wrongly led to believe they'd simply get a check from the government for twenty-six or thirty percent of what they paid. That was never how a tax credit worked. And as of January 1, 2026, the credit for purchased residential systems has ended entirely — a system bought today does not qualify for it at all. So be doubly wary of any salesperson still dangling a thirty percent credit, or a government check, in front of you. If a tax question bears on your decision, ask a tax professional what currently applies. Moving on.

Solar is a green renewable energy source. It is clean. It burns no fossil fuels. But, is it environmentally friendly? A lot of salespeople are selling on social responsibility. They hype up global warming, melting icecaps, and sludge covered wildlife. We are not going to opine about those specific concerns here, there are too many varying and contradicting opinions and scientific reports on those matters, and solar's effect on them. The negatives of solar on the environment are things like what the mining of the minerals does to the planet, the unethical treatment of the miners, the disposal of old panels, and stressing the ecology. We don't have access to reliable data, or the motivation, to research this ourselves. This issue isn't settled and probably won't be for years. At this time, we avoid this topic as a relevant solar decision-making factor. We sell based simply on financial math.

The last tactic we are covering here, that is used by sales predators on the unsuspecting public is the massive overselling of solar panels. Remember when we talked about your home being eligible for solar? We talked mostly about its position relative to the sun and shade. Another consideration is the efficiency of your home to start with. Remember, a bigger sale means a bigger commission.

If you have an ancient low SEER HVAC system, you are still using old technology to heat your water, your attic isn't properly ventilated or insulated, you have leaky windows and doors, and your appliances and lightbulbs aren't up to date, you aren't ready to discuss solar electric for your home. A responsible salesperson, with your best interests in mind, will point this out.

It is going to cost thousands of dollars more to buy solar electric panels to compensate for these energy hogs in your home than upgrading the energy hogs would. It is to the advantage of an unscrupulous salesperson, thinking about huge commissions on a huge panel sale, to avoid discussing less expensive ways to reduce energy usage. Most sales organizations in solar today are one-trick-ponies

in that they only sell solar electric. People are excited about solar and "zeroing out" their electric bill, we get it and appreciate it, but it is counterproductive to spend more than necessary to achieve this. We believe that to properly size a solar electric system, the entire house needs to be looked at for less expensive ways to conserve energy before we talk about energy production. This leads to the next part we want to discuss: the right way to buy solar electric.

So, all of the above are descriptions of problems in the industry. What's your problem? If you are looking at solar electric, in most cases, it means you are not happy with what you are currently paying for your electricity. It could also mean you see the rates increasing and are worried about what you will be paying in the future. Solar can be a solution to these concerns. There are other reasons, but as previously stated, we focus on the financial math reasons for going solar.

Pro-tip – Don't tell your friends, family, and neighbors they "need to go solar", because solar may not be a good idea for them just because it was for you. Their home may not be situated properly for solar. Their electric bill may not justify the expense. Instead, recommend they get an energy evaluation. Most solar contractors offer them at no charge just for the opportunity to give a solar electric quote. Contractors like us, that offer a full range of energy efficiency and independence products, will do it to offer quotes on solar electric as well as the other efficiency products they may need to be ready for a solar electric quote.

Part 2 – THE FIRST STEP IN GETTING A SOLAR ELECTRIC QUOTE

The right way to buy is to take the time and carefully consider your current electric expense, the unshaded space available for panels on your east, west, and south facing roof planes, the efficiency of your home, and get estimates from more than one company.

Pro-Tip: Get a full twelve months of kilowatt usage for the home you intend to put solar on. In Florida, your usage will typically be higher in the Summer and lower in the Winter. Reputable solar companies use specialized software with algorithms that carefully calculate how much solar electric production needs to be installed to offset usage but can only do this accurately with a clear input of exact usage needed to replace. Your power company can easily provide you with this information. (If you have not been in your home a full year, that same software will take what you do have and predict the rest fairly accurately.)

We'll talk about your current energy expense first. We get calls every day from homeowners asking us to, "give them a quote on a solar system," and we try to gently steer them, instead, to allowing us to come out and do an energy evaluation. Some will allow us to steer them, some won't. We do this because most homeowners, steerable or not, are not ready to put solar electric on their home. We try to suggest this on the phone when they call, and we try again when we arrive at their home. Only the most rigid will not listen, and we believe it is to their detriment.

An energy evaluation starts with looking at the last twelve months of energy usage. This can be challenging for new homeowners who have not been in their home a full year yet. Our fancy solar computer program can take whatever usage data is available and predict the missing data, but a full twelve months is always better. Usage means the kilowatt hours used every month, not the dollar amount of the bill.

Next is a survey of your property to determine what planes of your roof or yard can be utilized for panel placement. Many times, this can be done from satellite imagery, but before a contract is signed, an expert from the contracting company should come and put bare eyes on it so there are no surprises.

The last step, which many solar contractors skip, is extremely important. We take your energy usage and then look at all the electric devices in the home and check them for efficiency. Mainly the HVAC and Water Heater, but if any other appliances are particularly old and out of date, they may make additional recommendations. They will also look at how well-sealed the envelope of their home is. This includes checking the attic and exterior windows and doors. There's more, and this book will dive into the specifics.

An energy evaluation takes a little longer than just sizing your home for solar. It often exposes more problems that a homeowner might not feel like hearing about, especially if they are ravenously interested in solar because the teevee said to be. Ultimately, the homeowner is the boss and can choose not to follow the recommendations. One of the things our customers pay for is our expertise. We think it makes sense to listen to our advice. Most energy evaluations will take less than an hour and could save a homeowner thousands of dollars. The results will fall into three categories.

1. Simple do-it-yourself projects that can make a big difference in your energy consumption.
2. Small projects that do not require a licensed contractor to accomplish but are not quite DIY.
3. Repairs and replacements that require a licensed contractor to accomplish reliably.

Pro-Tip: Everyone lands somewhere on the handy spectrum. My father built the home I was raised in, made everything from furniture to wall art, ordered electronics in parts so he could put them together, and rebuilt engines on lawn mowers and motorcycles for fun. I shamefully pay to have my oil changed by others and I hate Ikea. Before we discuss this first category of projects, it is important that we all have realistic assessments of our own level of handiness and DIY spirit. If you are on my father's end of the spectrum, all of these will be a piece of cake. If you are more like his handily challenged son … well, you might want to move some (most) of these projects to the second category.

Category 1 – Do it Yourself Projects that can reduce power consumption.

What falls into the DIY category is different for everybody. Please do not take on more than you can handle. Some of it may require a ladder, tools, close proximity to electricity, and other risks. Feel free to move anything from category one to category two. One hospital bill can erase years of savings.

1. Lightbulbs
   There are four different kinds of lightbulbs. Incandescent, Halogen, Fluorescent, and LED (Light-Emitting Diode) and the first three should be replaced by the last. LED's are typically ninety percent more efficient than other types. Replacing this old technology in your home, in most cases, is literally as easy as screwing in a lightbulb. They cost a little more upfront, but they last longer and save enough to make up for the expense and then some.
2. Seal Air Leaks
   Ever notice those small cracks around your windows? They might be more than superficial. A laser temperature gun aimed around the edges of all your windows can show you exactly how much outside temperature is leaking in, and inside temperature is leaking out, through these cracks. This can be remedied with a caulk sealant. The temperature gun and the sealant can be purchased at the same store usually.
3. Upgrade your Appliances
   That nineteen-seventies era avocado colored fridge might be a conversation starter when you have dinner parties, but it is costing you a pretty penny to do it. SEER (Seasonal Energy Efficiency Rating) stickers come on all electrical appliances and tell you what they cost to run. Take a look

at your fridge, televisions, dishwashers, etc. and compare them to the newer models. Bring a calculator and see how long it would take for a new, more efficient, appliance to pay for itself.

4. Draft guards
   Those cracks around your windows can also be around your exterior doors. Caulk works great on those too. All the sides of your exterior doors should also be snug against the door frame and floor with molding. For the gap under your doors, they make draft guards. They are inexpensive, and prevent your conditioned air from leaking out, and the outside temps from drafting in.
5. Smart Home Systems
   Like Smart Thermostats, smart home systems control everything else that is electrical in your home from lighting to music and televisions. They can be controlled from your phone with an app too. If you, or the kids, tend to rush about and forget to turn off lights and appliances, this might help.
6. Water Heater Blankets
   If you, like most people, are still using ancient water heating technology where you keep X gallons of water hot all day long with electric elements poking into a tank of water, then a water heater blanket might help you out. The elements are only off, and not drawing power, when the water in the tank is above a certain temperature. These water heaters work hard, all day and all night, to make sure you have hot water on demand. Giving them an extra wrapping of insulation will slow the cooling of the water in the tank and your elements will not have to draw power as often. Additionally, if your water gets hot enough to burn you, the temperature is probably set too high.
7. Smart Thermostats
   Have you ever left the house with your thermostat set at the comfortable setting you like to keep it at when you are home? We have. For some this is anywhere from the mid-seventies all the way down to the high-sixties, and you are burning money when you forget and keep your home at that temperature all day while nobody is there to enjoy it. If only there was a way to automate this and take remembering to adjust your thermostat off your plate. There is! Smart Thermostats let you program your HVAC to do what you want, when you want it. They pay for themselves.
8. Exterior Outlet Insulation
   Each outlet cover on your exterior walls covers a hole with thin plastic. This allows temperature exchange from inside to outside. Precut foam gaskets are sold at most hardware stores that can be installed behind your outlet covers.
9. Low Flow Shower Heads
   The less hot water you use in the shower, the less you have to pay to heat. Technology exists to give you all the satisfying pressure you want in a good shower without using the full volume of water. Install low flow shower heads.
10. Lifestyle Changes
    Ugh, we know, but some do bear mentioning even if we know nobody is going to do them. Shorten your showers. Unplug chargers when you aren't actually charging something. Turn off your computer when you aren't using it. Okay, we're done being preposterous, but they are still good ideas.

That's ten, there are probably more, but these will get you started and can have an effect on your energy consumption. Every little bit helps. Next, we will talk about some more complicated changes. These you may want to hire a handyman to help you with. We call them Chuck in a Truck, or Stan in a Van, and many of them are very competent.

Category 2 – Uncomplicated projects you can trust an unlicensed contractor to accomplish for a reasonable price.

Chuck and Stan are your local handymen or otherwise unlicensed contractors. They get a bad rep, and definitely be selective, but we have found there are some good ones out there. Many of them specialize in one discipline or another. Usually, you can find one or two that can be counted on to handle most of the projects in categories one and two.

1. Attic
   It is a largely ignored area of most homes and makes a huge difference in, not just your energy consumption, but your comfort as well. It needs the proper level of insulation on the floor of your attic to prevent the cool air from escaping. It needs a reflective (Radiant Barrier) on the underside of the roof to block radiant heat from the sun. It needs proper ventilation to keep the air moving. We do this for our customers and call it an "Attic Package" and it cools off their attic and prevents the stagnant hot air in there from fighting their AC system. It also maintains an even temperature throughout the home. As much as we want the business, the fact is there are smaller contractors, licensed or not, with no more overhead than the cost of their truck or van that can beat our price and will still do a pretty good job. (You should probably still run their estimate by us.)

   a. Insulation. Locally to us we have found that blown-in insulation works best, and the industry term is R-38 for the amount/level of insulation required.
   b. Radiant Barrier is a thin sheet of silver reflective material (looks like sturdy ventilated tin foil) that is attached to the underside of your rafters leaving a gap between the material and the underside of your roof.
   c. Naturally we recommend solar powered attic fans to keep a slight breeze going through your attic, but there are other kinds. If you want solar, go with a licensed contractor but the others work too, and Chuck in a Truck can usually handle it.
   d. Something to watch out for. We have heard reports of some homeowners in Florida using foam insulation in their attics and, due to the high humidity in most of Florida, mold becomes a problem. Go with blown in or heavily scrutinize the foam peddlers for a guarantee against mold in the future.

Pro-Tip: When the guys come to work in your attic, ours or Chucks, expect them to take breaks often and consume a lot of water. This, in many cases, is necessary for their survival. We have had complaints from customers because they found our guys laying down on the lawn or in the garage trying to cool down before going back into furnace like attics. It is an accepted part of this kind of work.

2. Window Tint
   You can spend a lot of money on windows. They have double paned, impact resistant, security, many others, and ten-plus different ways they open and close. For energy efficiency though, what we have found, is that there is a tint that Chuck in a Truck can put on the glass that reflects

the heat without dimming the light. Unless your windows need replacement anyway, for energy conservation, we recommend the tint over new windows.

3. Exterior Doors
   Exterior doors are not all made the same. Obviously, some will insulate better than others, but the difference is negligible. The weather stripping around the doors is what we are talking about here. The corners and all sides of the door, when closed, should seal tight against the frame so conditioned air can't escape and outside air can't intrude.

4. Exterior Paint
   There is a special kind of reflective exterior paint. We think you can get it in a variety of colors, but it acts like a radiant barrier for your walls. If it sounds like we don't know much about it, that's because we don't know much about it, other than it exists and have heard it is effective.

Pro-Tip: No one can tell you exactly how much any of these changes will make to your electric consumption. There are sales organizations out there that will assign static savings percentages to several, sometimes all, of the above upgrades with believable confidence. "Radiant Barrier will reduce your electric bill by an average of 12.8%!" or "Your hot water is losing 24% of its heat every day because the tank isn't sufficiently insulated!" There are just too many variables to consider and what one family will experience can differ greatly to what another will see. Consider this behavior from a salesperson to be a red flag.

5. Water Treatment

   Regular hard water that most municipal water suppliers and wells in Florida offer, causes damage in the way of hard water deposits to almost everything they touch. The fancy soap and lotion industries make billions a year combating this. So do the detergent and plumbing industries. Soft water that has had the hardness minerals removed will extend the life of your appliances, plumbing, and it costs less to heat. Compared to the time spent combating hard water and the expense of repairs and replacement of appliances and plumbing, water treatment pays for itself. We do this, but a smaller outfit might beat our price. Our system is solar powered though, so definitely check with us.

Pro-Tip: Florida has very bad water and there are hundreds of water treatment companies throughout the state; all of them offer a free water test. Just like the solar industry, these water treatment companies vary in competence, ethics, and sales practices. As no license or permit is required, because the installation is simple, the industry is fairly unregulated. The filtering media inside these water treatment systems are what does the work. Water quality has levels, and the amount and quality of the media inside determines the level. Yet, almost all water companies will make the same claims about their systems even though the type, quantity, and quality of the media varies from company to company. Check reviews, age of the company, and paying a little more to a company that will be available later for service and maintenance issues might be a good idea.

Category 3 -- Licensed Contractors Only

Licensed Contractors have to prove their competence in the industry they choose to work in. This license allows them to pull permits for the work they do. These permitted jobs require inspections by

third parties to make sure all was done correctly. When all that functions as planned, a consumer is protected. We recommend you only trust the following projects to fully licensed and insured professionals with years in the industry.

1. HVAC
   High SEER HVAC is a “no-brainer” for Florida homeowners. In our climate it typically makes up fifty percent of our entire energy consumption according to the Florida Department of Agriculture and Consumer Services. New building codes now demand higher minimum efficiency (measured since 2023 as “SEER2,” which replaced the old SEER rating), roughly equal to the old SEER of fifteen. SEER stands for Seasonal Energy Efficiency Ratio (or Rating) and the industry uses it to grade how much energy an appliance uses. You want your appliances to have a high score here. Tens, twelves, and fourteens are being phased out and people are naturally looking for the higher SEERs.

   Getting the minimum SEER available will cool your home, but your electric bill will not change much. At the time of this writing, we encourage all of our customers to go 18 SEER or higher. Yes, they will cost a little more up front but the savings, like solar electric, often dwarf the payment. It’s a net win immediately, as in you are spending the money anyway and now you are directing that same money in a wiser direction, and also like solar electric, the product will typically outlast the loan term.

   It really doesn’t make sense to think about generating your own electricity with solar panels if you have to buy so many to compensate for an inefficient HVAC system. Your energy efficiency dollar will go much farther updating your HVAC over buying panels. We know of sales organizations who only sell solar that love old rickety HVAC systems so they can inflate the solar sale.

2. Water Heating
   Solar or Hybrid Water Heaters are extremely energy efficient. We will describe each type of water heating technology first.

   a. Solar Water Heating uses a solar “collector” that is mounted on your roof. This is not a solar electricity generating panel. It is using solar thermal energy to heat your water by pumping the water in the tank up into the collector then running through copper tubing. This heats the water as it passes through and circulates back to the tank. Because the water is heated by the sun, your element inside the tank doesn’t have to turn on as often, if ever. Some solar water heater owners unplug their water heater completely, so it never draws from the grid.
   b. Hybrid Water Heaters work on the same principles as your AC system. They remove heat from the air using compressed gas. Inside a Hybrid Water Heater tank there are coils of copper tubing, and this hot compressed gas is run through it to heat the water. These work best in a hot garage and a byproduct is that they offer a cooling effect to the area around them. Another benefit is that they require no panel on the roof. This leaves more room for electric panels if needed.

   Either is a modern and energy efficient option over the old technology of heating up an electric element inside the tank to keep eighty gallons of water hot twenty-four hours a day. Water heating expense is different from household to household depending on family size. Obviously,

bigger families use more hot water than smaller families, but typically it's around fifteen to twenty percent of your bill.

We love both options. Solar or Hybrid Water Heaters, should be in place before you size your home for solar electric. It really doesn't make sense to needlessly buy expensive solar electric panels to heat your water.

Pro-Tip: What about tankless water heaters? They heat the water and are about twenty percent more efficient than a regular water heater. I don't like them for a couple reasons. The first is that they are only about twenty percent more efficient than the old technology and a hundred percent more efficient is possible. The second reason is that, while they are only on while you are drawing hot water, they draw a huge amount of electricity during that time. This becomes a problem during a power outage. You may want to run a generator, solar or otherwise. Tankless, or instant, water heaters draw so much power that most generators can't handle them and will fail.

3. Pool Heat (If applicable)
   Solar Pool Heat works by running your pool water up onto your roof and through thermal panels. The sun's thermal energy heats that water then sends heated water back down to your pool. Obviously, this is much more efficient than heating your water with electricity. The size of your pool (L x W) and your desired swim season determine the number of panels you will need. Generally, the square footage of your pool will need to be matched with panel square footage on your roof.

4. Windows and Doors
   If you want to upgrade your windows and not just tint them, as previously discussed, there are a lot of options. There is double and triple pane, a variety of "U-factors", gas filled, and different ways to mount, open, close, and slide them. Much of it will be a decision of style and personal preference, but as long as you are getting new windows, go for efficiency too. U-factor measures how well it keeps inside temperature from escaping outside. You want a low number here. Typically, windows run from .20 on the low end to 1.20 on the high end. The more you spend on this U-factor, the sooner these windows will pay for themselves in energy savings.

5. Solar Attic Fans
   This is part of our attic package. Other kinds of attic fans work fine, but solar attic fans are powered to keep the air in your attic circulating. Your AC ducts are running through your attic, in most cases, and if your attic is a furnace full of hot stagnant air, the air you paid to cool that is running through those ducts will be warmer by the time it reaches your vents. The advantage to solar attic fans is that they are not reliant on the wind to move the air in your attic like a turbine or Whirlybirds and have a much lower profile.

   They *are* reliant on the sun and will stop spinning at night. Coincidentally, the sun will stop heating up your attic at night too, so there is no need for your fan to spin. In the morning, when the sun starts heating up your attic again, the fan will go back to work.

Okay, so now you have your home tightened up and as energy efficient as possible. Your AC and Water Heater sip electricity instead of gulping it. Your well-insulated and ventilated attic has evened out the temperature throughout the house. You upgraded from vintage avocado to cool stainless-steel

fridge, and you won't have to change a lightbulb for fifteen years. Your power bill has changed dramatically because all these changes are busily paying for themselves. For some of you your power bill may have dropped to an amount you now consider "reasonable" and your thirst for a power plant on your roof has been sated. Thanks for reading, glad we could help. Keep in mind, your power company is going to raise your rates about five percent a year, so keep this book handy. The rest of it may soon become relevant to you again.

Part 3 – THE RIGHT QUOTE

For the rest of us, now we can find out what size solar electric system we need to get our electric expense down to zero. Zero? No, not quite zero. Your power company is going to charge you a fee to stay connected to the grid. Each power company seems to charge a different amount, but it's typically around twenty to thirty dollars. What's that? You don't want to be connected to the grid? You kind of do. The sun is only up half the day, and some of those days are cloudy, and unless you are ready to dip your toes into the world of batteries and generators, the grid is the most cost effective back up power source available for when the sun doesn't shine. Let's do some housekeeping on definitions so you understand how this typically works.

The Grid.

The "Grid" takes a lot of flack in the solar electric industry. There is an "Off-Grid" movement and the word "solar" is often associated with it. There are solar customers out there erroneously claiming that they are "off-grid", not because they are liars, but because they don't really understand what that means, and/or because the solar salesperson who sold them told them they would be "off-grid", and he or she *was* lying.

"The Grid" refers to the electrical grid and most solar customers get one hundred percent of their power from the electrical grid, AKA their power company, even with a perfectly functioning solar array on their roof. It is important to understand this in order to understand why solar is installed the way it is, the red tape navigation required, and the hoops that will have to be jumped through.

On a typical solar installation on a residential property in Florida (And in most other states as well.), one hundred percent of the electricity that solar system generates is fed directly into the grid for kilowatt credits that are applied to the homeowner's electricity bill. If their solar system is sized correctly, it will generate all the electricity a household uses in twenty-four hours in the roughly twelve hours that the sun is up.

Going truly off-grid means disconnecting completely from the power company and using the electricity that solar creates directly. It can be done but, as previously stated, requires supporting technology like batteries and generators for when the sun is not shining. There are different rules and laws regarding this throughout the country. Some municipalities will not issue licenses unless grid power is connected to a property. Once you are connected, we have heard horror stories on what it takes to disconnect.

To make a solar installation financially feasible we recommend staying connected to the grid. Look at it as using the power company as your battery. They will store the power you generate and give it back to you as needed. Realize also, that this invites the power company into your solar installation. Like whole home generators that can also feed power into the grid, they need to know that you have solar and that electricity is moving in both directions. Not knowing puts their employees at risk of harm and possibly death. They will want to know your equipment is sound, functional, up to code, and properly installed by licensed professionals.

For those of you for whom independence is the goal and want to go truly and completely off-grid, expect to pay extra for that. Independence has value and for many people the extra is worth it. It means that if the grid goes down, you still have power. There are many reasons people want this independence, and those systems can be designed, we just aren't focusing on those situations in this book.

Payment Terms

Financing or Cash? To us, it makes sense to finance a solar electric system. It makes sense to finance anything that is going to pay for itself. You are going to pay for electricity. Everybody accepts that. The price of electricity is going to go up. This is also accepted. Let's say your power bill is $250 per month after all your energy efficiency improvements. In five years, the same amount of electricity will cost you over $300, and that's if the rates only increase the five percent. If your loan payment for your solar electric system is anywhere close to $250 per month, then you can have your own power plant on your roof and never take a dime out of your pocket, that you weren't spending anyway, to pay for it. The term of the loan does not matter. The interest rate does not matter. It was money you were going to spend anyway, and the loan payment is not going to increase at all, much less by five percent every year. By going solar, you are effectively freezing your electric expense at today's rates. (If you want to experiment with the math and see how it applies to you, check out www.costtodonothing.com.)

Financing

That means any form of payment that breaks the total to go solar into small manageable monthly payments. Yes, there is interest and dealer fees, and you will wind up paying more for your equipment in the long run, but if your payment is less than your electric bill, then going solar is putting money back in your pocket from day one. There are tons of financing options. We work with the PACE program, several lenders, and we handle all the paperwork for you. You can also arrange your own financing through your bank or credit union.

Pro-Tip: I just said the term and interest rates don't matter. What? Of course they matter and you should negotiate the best your credit history will allow. What I mean is that even with a long term and a high interest rate, you will still wind up paying more for longer to your electric provider if you do nothing. Your power company's "interest rate" is five percent compounding per year, and their term is forever. By "doesn't matter", I simply mean that high interest rates and fees with a twenty-five to thirty year term is still financially smarter than continuing to pay the power company's increasing rate perpetually.

Cash

Cash, check, money order, any form of payment where the total for your solar electric system comes out of your pocket in one lump sum. You will save more if you pay this way. You will save whatever interest and fees a lending institution was going to charge on top of the cost for the solar equipment and installation. If you are in a financial position to comfortably pay this up front, then it makes sense, unless that lump sum can make you more than the lender is charging by being invested. Ask your representative to compare your current electric bills, account for increases, and give you a ballpark estimate for when you will see a return on your investment. Most contractors will require half down to get started. (As of the time of this writing, an average solar system ROI is six to nine years.)

Components of a Solar Electric System

These are the parts and equipment required in order to produce electricity using the sun's energy. Without getting overly technical we will try to explain each component, so you know what it does. Some of this will be important to know later so you understand how it all fits together, the regulatory bodies, and the hoops that need to be jumped through. Like financing, most contractors handle most of this for you, but there will be some instances where you, as the customer, will have to be involved.

The Sun

Arguably the most important component and seemingly elementary but there are aspects of the sun that bear mentioning for those who have not thought it out. The sun does not always shine. We don't say this to depress anyone, but there are cloudy days, and some where it outright storms, and your system will not produce, or produce significantly less. Here in Florida, the nice days typically outnumber the bad ones, but your electricity production will be affected.

Your system should be designed to meet your needs on a yearly basis. Some days may produce less than others, but over the whole year it will even out. This is why it is important to have your system sized by a professional who insists on looking at the previous twelve months of energy usage. If you are new in your home and do not have a full twelve months of energy usage, there are programs that will estimate based on what data is available, but a margin of error will have to be accepted.

Solar Panels

Solar panels are minerals under glass. When the light from the sun reaches these minerals, they activate and create electricity. Panels come in many different sizes and power ratings. The amount of electricity a panel produces is measured in Watts. Every year the technology seems to improve and today, a panel the same size as a panel that used to produce 250 watts, can produce 400 or more. The size and rating become important when determining how much of your south, east, and west facing unshaded roof will need to be covered in panels to produce the needed amount of electricity.

A competent solar system designer will measure your roof and determine how many panels will fit on the available unshaded roof planes. They will try to hit the goal considering many factors. They may be able to get a higher amount of output by using a higher number of smaller, easier to fit, panels. They may need to use the most powerful panels available and every bit of roof space. Ideally, their design will be aesthetically pleasing, produce the correct amount of power, and leave some roof space for expansion should it become necessary in the future.

Like most things, quality will vary, and higher quality comes with a higher expense. Most of the established solar contractors, us included, only work with top-tier manufacturers that stand behind their products. Not doing that is an expensive lesson that newer or smaller solar contractors will soon learn if their business survives. There is very little difference in quality and manufacturer warranty between top-tier manufacturers. Their prices fluctuate and that is usually the dominant deciding factor on which brand to choose. After price, the issue is availability, and this can occasionally trump price. Supply chain issues are a thing, and some manufacturers are sometimes six months to a year out on delivery.

Inverters

Inverters convert Direct Current (DC), which is what is produced by solar panels, to Alternating Current (AC), which is what your power company provides, and all your lights and appliances need. The difference is irrelevant to laymen and gets technical very quickly. If you want a deeper dive on the subject than is provided here, you can search the internet and scroll past all the results regarding the legendary Australian (British) rock band. On inverters for solar there are three options.

String Inverters – These are strung (hence the name) panel to panel and then to an inverter where the Direct Current (DC) produced by the panels is converted to Alternating Current (AC) which can then be used in the home. This is the least expensive way to make this conversion with solar electric panels. The downside to string inverters is that if something happens to one panel, it affects the production of the entire string. Also, if one panel has a problem, there is no way to identify which panel is faulty except by checking each panel individually. Having one inverter risks a single point of failure that shuts down the entire system. Experience has taught us that the money saved initially can be easily spent on more labor-intensive service calls later.

Microinverters – These are a little pricier, but as you are redirecting the money you are already spending on electricity to pay for this, we think it is worth it to splurge. The conversion from DC to AC happens in an inverter on the bottom of each panel. If one panel stops producing, the rest of the system produces normally. It is also easy to identify which panel needs repair or replacement. The entire system is monitored by the customer, the solar contractor, and the manufacturer. These systems are typically brand specific in that the micros and the battery and supporting technology all have to be from the same manufacturer.

Hybrid/Power Optimizers – This method tries to combine both technologies above in a hybrid system at a price tag somewhere between the two. These power optimizers "condition" the DC energy through a device under each panel then send it to an inverter like a string inverter uses to do the actual conversion to AC. This allows for the rest of the system to continue functioning if a panel(s) has an issue, and also makes it easier to locate the problem. They are also monitored and can combine equipment from different manufacturers. These systems also have the single point of failure issue as string inverters.

Pro-Tip: In the conversion process from DC to AC there is some power loss no matter how you do it. A panel array that produces 11.7 kW DC will drop, or derate, to about 10 kW AC after line loss and going through the inverter(s). This becomes significant in the next Pro-Tip when Tier 2 insurance is discussed. Tier 2 insurance is required for the AC output, not what the array produces before the power produced is inverted.

<u>Your Electrical Panel</u>

If you have newer construction, you probably already have a 200 Amp panel. The amperage your panel is rated for becomes an issue depending on how much your solar system produces. If you have an older home, you may have a 100 Amp, or 150 Amp main panel. If so, adding the amperage a solar system produces may exceed your main panel's capabilities. If your main panel will present a problem, this will be determined by the technician during the pre-site. Upgrading your panel will be an additional investment requiring an additional permit and a licensed electrical contractor.

<u>The Electric Meter</u>

That's the glass bulb on the side of your home with the spinning disc in it. Pre-solar, it spins in one direction as you consume electricity and tells your power company how much you consumed so they can charge you. After your system passes final inspection by your local building department, your power company needs to be notified and brought into the arrangement. This process is called interconnection, and an Interconnection Agreement will be filled out by your contractor with the information your power company requires, you will need to sign it, then it is sent to your power company. Once your power company has reviewed this information, they will come install a Bidirectional Meter. (Yes, we know modern meters are digital and don't have the spinning disc. You get it though, right?)

This is how your power company is going to track how much electricity your solar system is producing. When you are consuming energy your meter will turn the normal direction, when your solar system is producing, the meter will spin in the opposite direction and count credits. (One caveat worth knowing: how your power company values those credits can change. Florida's net-metering rules have been challenged and revised in recent years, so confirm the current arrangement with your utility before you buy.)

Pro-Tip: Systems that produce over 10kW AC require an additional umbrella insurance policy called Tier 2 insurance. This is a Personal Liability Policy (PLP) that provides at least one million dollars in coverage and protects your power company from any liability should there be an injury or death caused by your solar system above and beyond what your homeowner's insurance covers. This is a highly contested rule and even those insisting on it have trouble verbalizing an eventuality where a properly installed solar system hurt or injured anyone. Nonetheless, it is currently a rule. The good news is that $1 Million in PLP to satisfy your utility company only runs around $14/month. Obviously, this can fluctuate from provider to provider and is only accurate at the time of this writing.

Rapid Shut Down

This is a switch that immediately deenergizes your entire system. We hope you never need to use it. It is in place, mainly, in case your home ever catches fire and firefighters, or other first responders, need to get on your roof. Water, electricity, you get it. First responders know to look for this switch before they put their lives at further risk than merely getting on the roof of a burning building.

Batteries

We know we said earlier that we were going to be talking mainly about grid-tied systems, and we feel we have, but since we are discussing components, the owner of our company pointed out that batteries could be part of even a grid-tied system. Let's explain what he is talking about. Some people, in addition to not having an electric bill, would like the additional benefit of having electricity even when the grid goes down. This can be accomplished with a battery and a sub-panel. Due to the volatile nature of energy dependability in general in the world today, this might not be a bad idea.

Batteries store energy for use when the grid is down and so is the sun. The technology has advanced significantly over the last few years. Only recently have we been able to realistically recommend them as, finally, the capability of batteries has increased, and the prices decreased to a point where it makes sense. Keep in mind that while a solar electric system may pay for itself and then offer a return and is therefore an investment, adding batteries to a system will be an added expense that buys you a very desirable, sometimes life-saving, benefit. Avoiding five percent increases, in perpetuity, like your power company charges will eventually pay for everything though.

Pro-Tip: When deciding between microinverters or a hybrid system with optimizers a battery now, or in the future, should be a consideration. If you go with microinverters, that is like an iPhone in that it will only work with other Apple products. If you have XYZ microinverters, you will need to use XYZ batteries. Look at a hybrid system as an Android system that allows you to mix and match. You can have an ABC hybrid and use DEF Batteries, or GHI batteries, or a combination.

The Solution

Okay, so we told you all that, so we could tell you this. In a perfect world, this is how it should go from beginning to end.

1. <u>You decide you would like to go solar.</u>
   However you got there, great, we are glad you are here. Maybe a salesman talked you into it by presenting the benefits to you in a legal, moral, and ethical manner. Maybe one filled your head full of pretty misinformation. Maybe you saw a commercial and have decided this is the only way to save the planet. Good or bad information, you are at a point where you want to go solar and that's good. If you got here in one of the many wrong ways, step 2 should sort you out.
2. <u>Manage your expectations or have a reputable expert manage them for you.</u>
   You will not retire by putting so many panels on your roof that you earn passive millions by selling power back to your power company. Solar may reduce carbon emissions, but what kind of moral, ecological, and environmental damage was caused in manufacturing the components? Without batteries, you will not have power during a power outage. Shaded panels do not produce as much as those in the sunlight. The list of misrepresentations about solar electric goes on and it's depressing, so we'll stop here.
   Salespeople are supposed to be experts in the industry they represent. Our salespeople are instructed to be educators first. Lying to a prospect to get them to buy is a recipe for a grumpy customer, bad reviews, and unemployment. Solar is good enough without the lies. Financial math makes solar make sense, or not make sense.
   You make the initial contact to your solar contractor, not the other way around. Contact them after you have researched them extensively. Check their reviews, check their BBB rating, check their articles of incorporation, verify their license and insurance. How long they have been in business? Search the names of the owners of the company. What have they been in the news for? Do this for three different companies, at least, pick the best ones and call them.
3. <u>Verify your research.</u>
   When you call them, do they ask you for a full twelve months of electric consumption? Do they insist on coming out to your property before giving you a final quote? Do they look at the rest of your home to make sure it is as efficient as possible before sizing your solar electric system? Are they using a lot of "save the world" propaganda buzzwords to manipulate you? Are they promoting a one size fits all or a good, better, best? Are they placing panels in the shade or north facing roof sections? Are they promising you a check from the government for going green? If you read along this far, by now, all of these dropped balls should be red flags.
4. <u>Make a buying decision based on all the pertinent information.</u>
   If it saves you more than it costs you, it makes sense to buy. Try not to let other factors muddy your thinking. The most important consideration is do you go solar immediately, or do you tighten up your home's efficiency first then revisit sizing your home for solar electric in six to twelve months, after your efficiency upgrades have lowered your consumption?
5. <u>You've picked a winner, now trust them through the process.</u>
   Part of what you are paying for, in addition to material and labor, is the expertise to handle all the complicated stuff for you. There will be the previously described frustrations, delays, and frustrating delays. Your contractor is as frustrated as you are, maybe more. We did say perfect world though, right? Here's the perfect world scenario:
      1. You sign all the paperwork.
      2. Financing is arranged and agreed to. (Check, Cash, CC, PACE, Traditional Lender.) Approvals can sometimes take time and cause delays.
      3. Interconnection paperwork is started.
      4. If Tier 2 insurance is needed, now is the time to start shopping.
      5. Super-smart solar technician pre-sites and verifies that initial design is viable.
      6. Super-smart solar technician makes any changes needed (if any).

    a. If needed changes are significant and affect price, then your sales representative needs to amend your contract and return to explain the changes and get the amended contract signed.
    b. If, or when, no changes are needed, super-smart solar technician submits his drawings to engineering.
7. If your main panel requires an upgrade a licensed electrician needs to be hired.
    a. Electricians will have to pull a permit too, so prepare for possible delays.
    b. Delays are typically in the building department. Some are just faster than others.
    c. You can hire your own electrician, or your contractor can arrange one.
    d. The electrician will be an additional expense to your solar electric contract.
8. Engineer drawings are requested.
9. Engineer drawings are completed.
10. Permits are requested. (This is the hurry up and wait phase and can be frustrating.)
11. Permits are granted.
12. Install Day! (Typically takes a day, bigger systems can take multiple days.)
13. Building Department Inspects and signs off that your install was done properly.

Pro-Tip: Building Departments … pfffft! Amirite? Most of them are great, but when they are not great, they have the power to be awful. We work hard to cater to them and keep them on our side, but probably every contractor has caught an inspector on a bad day and that inspector has wrought havoc on a project. Each municipality seems to have its own rules. We have passed a thousand times doing it one way then failed an inspection because this particular inspector liked it done a different way. We once failed an inspection because a ladder was not placed for an inspector. The pro-tip here is to not let a failed inspection stress you out. It's usually something minor and easily remedied.

14. Permit is closed out.
15. Finance company releases funds or remainder of cash payment is made to contractor.
16. **P**ermission **T**o **O**perate (PTO) is requested from your power company.
17. Interconnect is connected.
18. System goes live.
19. You, the manufacturer, and contractor arrange for system monitoring.
20. From the day you signed the paperwork, two to six weeks have passed. (In a perfect world.)

Pro-Tip: As your job progresses through these steps, the tasks will be handed off from expert to expert within the company you chose. At least one person in that company should be assigned to keeping you up to date on the progress. Please don't lose faith in your contractor due to delays. For our part, the majority of delays we deal with are related to third parties or weather.

Happily Ever After

For the most part, it will be smooth sailing at this point. Be careful walking barefoot around your yard. Your contractor should have cleaned up after themselves, but even the best crews can miss a nail or screw. Your landscaping may have taken a few nicks or bruises here and there. If you think it won't

eventually grow back on its own, your contractor probably has a landscaper that will come make you whole.

By now, someone has shown you what application to download so you can monitor your system's production. You should not be the only one monitoring this. If anything goes wrong, this monitoring done by you, your contractor, and the manufacturer, will be caught before your electrical expense is dramatically affected by a non-functioning panel.

Panels can be affected by misfired golf-balls, hail, wildlife, high winds and the debris it blows about, and schmutz. When a panel fails for workmanship or defects in manufacture, it is under warranty. How long? Depends on the manufacturer. Does it cover labor? Also, depends on the manufacturer. Many of the top-tier manufacturers are guaranteeing your panels will produce at over 90% even after twenty-five years. That's pretty strong, and in our experience these panels live up to the hype.

But let's talk about schmutz. It's the one incidental that you have some control over. Schmutz happens, and if it builds up on your panels it will block the sun from reaching the minerals within and creating electricity. Once or twice a year, depending on the schmutz levels in your vicinity, you should have your panels professionally cleaned. We try to stay in touch with our customers and reach out at least twice a year and offer this service. With solar growing as fast as it is, panel cleaning has become an industry on its own.

If you are frustrated by some of the contractors you have spoken to in the solar industry, good contractors are enraged by the same. It's our selfish motivation for writing this book. Following the advice in this book can help you avoid some of the more treacherous sales organizations and contractors in the industry. Know that even an excellent solar contractor with a solid reputation, sterling reviews, and decades of experience can make a mistake. This is where accurately gauging intent is important. A good contractor knows things will go wrong, owns their mistakes when they make them, and makes things right with a minimum of inconvenience to the customer. As good as we are at this, we have fumbled the ball a time or two, and because we started the project with the correct intent, to do what is best for our customer, we scrambled, rallied, skipped making excuses or pointing fingers, and made sure we went above and beyond to correct our blunder.

Batteries! When this book was started, we did very little to promote batteries. We told people that we didn't think the technology was there yet for the money that was being asked for by manufacturers. We said this because we believed it, and it was true. Here, at the end of this book, months have gone by, and the winds of change are blowing. Batteries are technologically growing and financially shrinking. There are a couple of brands we are now willing to promote.

This does not mean that we are fully endorsing disconnection from the grid, but we are now considering the possibility of using batteries with a sub-panel to light your home back up when the grid goes down. Emergency back-up power is currently dominated by diesel and natural gas generators, but batteries powerful, efficient, and affordable enough to run your entire home, or just the parts you deem most crucial during an outage, are creeping onto the scene. Diesel and gas can run out, and in an emergency situation, getting a refill can be challenging. The sun can recharge batteries every sunny day.

We think our company, AllSolar Energy, Inc. in Central Florida, checks all the boxes required to qualify as a legitimate, legal, moral, ethical, and competent choice for your solar electric and energy efficiency needs. As previously stated, we start with the correct intent. We put customer satisfaction above all

other considerations. This means we will stick to the process we described. We will tell you the good, bad, and the ugly of solar as it applies to your home and situation, even if it costs us the sale. We will treat you the way we would want a company to treat our sisters and mothers.

We hope this helped. If you have any questions, or have a topic we missed, please feel free to reach out. Also, if you are in the Central Florida area and would like to know about Solar Electric for your home, or any of the other products discussed, you should definitely reach out. We can't promise that solar electric will work for your home, but we can promise that if it won't, we will let you know. We can also promise that we will charge you nothing to find out either way.

2026 Revision/Update

A lot has changed since this book was originally completed. We have gone through and made changes to the text where we thought it was necessary. The tax credit being gone was a big one. The market correction is another. Batteries, at this point, should really have their own extensive section, or maybe their own book.

The tax credit being gone is a good thing, as far as we are concerned. We think it was used to manipulate so many people who didn't even qualify for it to buy solar, that it cost the general public a lot more than it saved those that could take full advantage. Where the tax credit might save the average household $10,000 on their federal tax burden, just going solar can save them over $100,000 in avoided electrical expense. We think those that do not go solar because there is no longer a tax credit associated are stepping over quarters to pick up nickels.

The long overdue solar market correction. A lot of the tactics we warn about in the beginning of this book have resulted in many solar bankruptcies, lawsuits, and even criminal investigations. This has shaken the solar industry and no one part of it was left out. Many solar contractors, big and small, are no more. Several lenders and leasing companies are facing class action lawsuits against them. Law firms are starting whole divisions dedicated to cashing in on the push for many solar victims to get out of their contracts. Many solar buyers who were left with incorrectly or partially installed systems are scrambling to find contractors to help them.

Real quick, solar leases, just don't. They are awful and we have run about three of them out of our offices when they stopped by to get us to offer their garbage to our prospects.

Batteries are changing the game in many ways. Now, the possibility of having power when the grid fails is in reach for most. If you are the customer of one of the smaller solar companies or cooperatives that has done away with giving you full credit for the kWh's you produce compared to what they charge, batteries can be part of getting your bill to zero. Again, this maybe requires its own section or book, until that is written, just call us.

In the meantime, if you know of a solar buyer who is in a bad spot due to this market correction, help them find us. We have set up sites to help them. www.abandonedsolarcustomers.com and www.allsolarcares.com are resources.

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Final Pro-Tip: All the technology I have discussed is rapidly advancing. While the quality of components is getting better all the time, the basics will (should) stay the same. This was completed in January of 2024 and last revised in July of 2026. Please forgive the author if some details change by the time you read this.