

# Runaway Solar

## Lessons Learned from the '80s

Chuck Marken

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## SOLAR TAX CREDITS: THE NEW RULES

A SEMINAR UPDATE ON SOLAR TAX CREDITS AND THIRD PARTY FINANCING

GET THE LATEST INFORMATION FROM THE EXPERTS:

Jerry Tullison, General Partner and President of Sun Indiana, LLC  
 Training Seminars Consultant, an acknowledged expert on third party financing, and an authority on the economics of solar installations.

W. E. (Mike) Rayburn has been a leading solar consultant since 1978. A graduate, industry veteran and consumer.

IF YOU'RE IN THE SOLAR BUSINESS YOU NEED TO FIND OUT HOW THESE NEW RULES

The year 1980 was a tough one for a solar thermal installer.

I almost threw in the towel and went back to conventional electrical and heating jobs. I was working out of my house with one truck, a set of tools, a trailer, and a couple of part-time helpers I could call on.

Federal tax credits and rebates changed this almost overnight. In 1981, the existing federal tax credit for all types of solar energy systems was simplified and increased to 40 percent of total expenditures up to US\$10,000. In addition, more than half the states had or soon would have sizeable tax credits, rebates, or deductions, and most of these state incentives supplemented the federal credit.

By the end of 1981, under influence of the rebates, my company had seven trucks and twenty experienced hands. Our solar thermal installations had grown to almost a thousand systems (1981—I kept a close count back then). Our small installation company's success was a micromirror of the solar thermal industry as a whole—things were *booming!*

### *The New Gold Rush*

The growth of the solar thermal industry in the next three years was phenomenal, but not necessarily positive. It attracted lots of people who saw easy pickings and quick returns on their investments. Many were sales-types with backgrounds in home siding, vacuum cleaners, and other high-pressure sales jobs. They set up sales companies to capitalize on the tax credits. Find a manufacturer, recruit an installation contractor, set up financing, hire a sales crew, and crank up a phone room. Voilà—you're in the solar business.

Many of these sales companies were so successful and got fat bank accounts so rapidly that they started manufacturing and installing what they sold. This led to most of the abuses that you may have heard about. Overzealous sales pitches promised products and performance that couldn't be delivered, unqualified manufacturers produced substandard products, and poorly trained installers did lousy work. Not all companies and not all the time, but way too much to ensure the continuation of a healthy industry.

A couple of seasoned sales guys told me that this was a three-year deal—make the money today, because tomorrow the opportunity would be gone. I thought they were shortsighted and flat wrong. But I was the wrong one, and here are some details of why this tax credit era was so disastrous for the solar industry.

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### *Super Sales, Shoddy Products*

Take the normal marketplace and inject it with a temporary, artificial boom, and you invite untold, unintended consequences. Manufacturers who look down the road only a few years may decide to make a much different product than they would with a twenty- or thirty-year outlook. Couple this with the fact that many product defects may not show up for five years or so—this seems to have been particularly true in the budding solar industry—and an artificial boom with a known lifespan often results in inferior products from the get-go.

Here are a few examples of poorly performing products that were floated in tax credit times.

- High-temperature concentrating solar collectors that tracked the sun were installed on homes to heat domestic water. Thousands were installed across the United States, but I doubt any are still in operation. (If any readers have one of these still tracking the sun daily and producing hot water, please let us know.)
- Poorly designed, Freon-filled thermal collectors for water heating that leaked Freon within a few years and became useless, since there was no provision for refilling them.
- "Solar Magic." These tiny solar hot air collectors (only 8 to 10 square feet) were supposed to heat a whole house, but would barely heat a bathroom.
- Solar thermal hot water collectors with heat-vulnerable rubber tubing inside; a plastic transparent front; and flimsy aluminum foil—yes, foil—on the back.

- Draindown water heating systems that relied on a valve to drain the collector in freezing weather and used tap water to fill the collector. These valves were notorious for clogging after a few years. Here's a hint: A clogged draindown valve and freezing temperatures equals frozen and burst tubes in the collector.
- SolarCones were maybe the worst-performing liquid solar collectors ever certified. The SolarCone was a cone-shaped collector with plastic glazing all the way around it. This poor design resulted in the cone losing up to half of its heat gain through the glazing, but the cone still found its way to hundreds of rooftops.

Virtually none of these products were truly viable then, and none or very few are still in service today. In a normal marketplace, they would never have seen the light of day.

## Rubber-Stamping

In response to this inferior product mess, the government told the industry to clean up their act, so the industry formed an organization—the Solar Rating and Certification Corporation (SRCC). They collected fees from manufacturers based on how many square feet of collectors the manufacturer produced.

The SRCC certified the collectors based on independent test-lab results. The tests required setting the collector in the sun for 30 days, after which the collector was performance-tested. Essentially, if the collector didn't fall apart during the test, it was certified.

The SRCC eventually changed their protocol to certify collectors by performance numbers, but they still certified plastic-glazed collectors with rubber tubing on the inside. Results varied widely from these independent labs and the standards weren't very strict. For example, the SolarCone is listed in the Fall 1985 SRCC Directory of Certified Collectors as being able to produce 494 Btu per day per square foot of collector area in a category of heating domestic hot water on a bright sunny day. In that same category, a well-respected liquid collector manufacturer (Novan) is listed as producing 1,082 Btu per day per square foot.

SRCC ratings were only meaningful for the performance tests; their rating was worthless for durability. Because of this, some poorly manufactured products dogged the industry until well after the federal tax credit expired in late 1985.

## The Solar Sell

My first experience in competing with the real sales pros came shortly after my company started manufacturing. We were selling a 66-gallon (250 l) solar water heater,

## Solar Thermal, Today

The solar hot water and heating industry has matured a great deal in the past twenty years since the previous federal tax credits expired. The people who survived—manufacturers, dealers, and installers—did so because they offered superior products, workmanship, and business ethics. Most of the survivors of the tax credit era stayed in business for reasons other than making a buck—and for years after the credits expired, there were little or no bucks to be made.

With very few exceptions, all of the solar thermal products built in the United States today are designed to last for many decades. You can count on years of excellent performance from a collector built out of aluminum or steel, glass, and copper. And also with very few exceptions, you can count on the installers, dealers, and service people—old hands and newbies alike—for their top-notch professionalism and service.

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## Tax Credit Lingo

**“Spike the job.”** Installers initiate work on a job immediately after a high-pressure sale is closed, delivering the equipment, and maybe installing something small, like a collector mount or control. Consumers have a 72-hour right of rescission, but “spiking the job” helps to stave off any buyer’s remorse.

**Round-table seminar sales.** High-pressure sales outfits used round tables in their so-called seminars, which allowed the salesperson to slide around the table and align themselves with the customer when “negotiating a better deal” with the company “manager.” Don’t laugh—it works when pros use it; so well that some companies used this technique exclusively.

**Sales rebates.** Manufacturers and sales companies offered these rebates to spice up the federal tax credits. The company marked up their product, giving customers an increased tax break, and then refunded them the markup difference in cash. Although there was no increase in their per-product profits, the company got increased sales volumes (compared to other companies who weren’t offering rebates); plus, they got free advertising, because the rebates required customers to post the company’s signage in their yards.

**Backdating.** January sales were terrible during the tax credit era. The reason? It would be at least thirteen or fourteen months before a homeowner would see the tax benefits. If they hadn’t filed their April tax return yet, a little paperwork shuffle could make it appear that they had installed the system in December, during the previous tax year. The tax benefits were then just around the corner.

**“No payment till tax refund time.”** This high-interest financing program gave a customer the option to put nothing down on a solar installation (or something nominal, like US\$50), with the first payment due when they received their tax refund.

installed, for US\$1,800. A company across town was selling the same size water heater for US\$6,000. I was perplexed. My company was a vertically integrated, local company (manufacturing, sales, and installation—all in-house). How could an out-of-state company possibly stay in business selling essentially the same product for more than three times as much? I made it my business to find out.

Round-table seminars, creative financing, and having the installers “spike the job” were part of the reason (see “Tax Credit Lingo” sidebar). These companies also had great sales commissions, regular conventions with sales awards, and trips to Hawaii to reward the top salespeople—everything to keep the morale of the sales crew pumped to the max.

Take this highly charged sales atmosphere, add a poorly informed public, and you have the makings for sales based on performance hype that would never be reality. In a normal marketplace, false claims eventually come back to bite you. But in this short-term, get-rich-quick business model, they had few consequences.

### Solar Shortcuts

Installation fieldwork is where the rubber meets the road in the solar industry. It’s where good products can be made to look bad and bad products can be made acceptable—at least for a while. With home products like solar energy equipment, installers depend on manufacturers for much of their training. When manufacturers’ specific requirements are well understood and an installer incorporates the materials and techniques of the respective trade, good workmanship usually results in a good installation.

The artificial boom of solar tax credits broke down this whole infrastructure. With almost an overnight growth in the industry, there weren’t enough trained installers in the

field, not to mention qualified installers who wanted to be inspectors. And current inspectors needed training on solar energy systems, but they didn’t get any. Manufacturers who were new to the industry had their hands full just producing a decent product to fit their three-year business plan. Training installers was last on their list.

With the lure of quick cash, even some installers with good manufacturers’ training and instructions took shortcuts that sacrificed performance and safety, and got away with it because inspectors didn’t know what to look for.

## retro solar

### *Going for Broke*

The consequences of tax credits that were clocked to expire in a relatively short time caused much more harm in the long term than the four-year boost in sales the incentives provided. The 40 percent federal credit expired as the original legislation provided—on December 31, 1985—and the solar industry went down hard. Estimates are that more than 95 percent of solar businesses went broke or closed their doors. By 1987, the solar thermal industry was a complete bust—leaving a mountain of solar collectors and balance-of-system parts behind.

Maybe the worst thing about the industry's crash was the so-called "orphan" systems, in which the distribution chain had disappeared—no manufacturer, no dealer, no service. My company survived on servicing orphan systems, and buying and selling the mountain of inventory. In five short years, we had gone from a handful of people with a few trucks, to more than a hundred people, with warehouses in three states and dealers in thirty, then back to a handful of people and a couple of trucks. And once more, we micromirrored the solar industry.

### *Moving Forward*

Instead of tax credits for consumers, perhaps the solar industry would benefit most from significant government subsidies to U.S. manufacturers of solar equipment. In reality, nothing would change in the industry except that the price to the consumer would come down. The manufacturers wouldn't pocket the money in a competitive environment—they would drop their prices to gain market share. The industry would stay essentially the same, except for more sales because of reduced prices. And the scammers wouldn't have the tools to scam.

Significant subsidies for solar manufacturers would simply lower consumer costs, at a proportion equal to the manufacturers' savings. This could make U.S. manufacturers more competitive in world markets and keep jobs in the States. After all, it's U.S. tax dollars that pay for the subsidies—why finance Chinese- or German-made solar equipment when we can support jobs here?

A 30 percent federal tax credit for solar water heaters is slated to start in January 2006. I think the incentives will bring another temporary boom to the industry—and the credits will also spawn some of the solar scams of the past. You can help prevent the abuse. Spend some time researching the systems you're interested in. Surf the Internet and publications like this one. Use your common sense for product evaluations and make sure to buy from dealers, contractors, and installers who have a solid track record in the solar industry. The best solar financing package from Johnny-Come-Lately Solar ("no interest or payments till hell freezes over") isn't worth a dime if you're buying junk. Fast-buck dealers are usually hard-closing sales outfits with slick sales pitches. Avoid them and spend more time shopping. If it looks too good to be true—it probably is. Forewarned is forearmed, I hope.

### *Access*

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