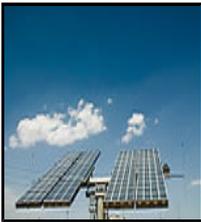


# Making Sense of Science

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Can heat from the sun actually COOL my house?



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## Welcome to the first newsletter for 2009!

Happy New Year, my friends! I predict that 2009 will be an interesting year. With that shocking revelation out of the way, may I tell you a little story?

One of my professors at Engineering School didn't have a PhD, but he did have some rather impressive alternative credentials. In his life, Professor Haycock had made several serious attempts on the land speed record at the Bonneville Salt Flats in a car he built himself. He also made a '60's vintage piece of Detroit iron get over 50 miles per gallon in a cross-country fuel economy challenge. Shortly before retiring, he told me of his other experiences during the 1970's energy crisis:

"We learned how to get methane from garbage, heat & electricity from the sun, diesel and ethanol from crops, power from wind & waves, how to passively heat and cool houses and office blocks - we did it all. But the most important thing we learned from it all was this:

**"When energy is free, efficiency doesn't matter."**

In fact, efficiency comes a distant third, after capital cost of the device and overall output capacity. And that brings us to the story I promised.

It's about a brilliant engineer, millionaire and businessman whom I worked for some years ago, and whom I regard highly. He did one rather silly thing, however, with respect to the hot water system at his Nevada ranch.

There was a large, fixed solar hot water panel at the house where he lived alone (most of the time), rather larger than a typical residential installation. One day he decided it wasn't *efficient* enough, and everyone knows energy *efficiency* is really important. A young engineer who worked at his company was assigned to design and build a tracking system so that the panel would face the sun all day, thus increasing the amount of sunlight intercepted.

In financial terms it would have given him perhaps an additional 35 cents' worth of hot water per day, which may or may not even get used depending on his romantic prospects on any given day.

The young bloke shackled with this job was an electrical engineer with most of his experience in embedded microcomputers. Any guesses as to what he came up with? He decided the only way to do this was to program a computer to calculate the precise angle of the sun based on the time and date.

The project was of course a complete disaster. Another nugget of Professor Haycock's wisdom comes to mind:

**"Never send a computer to do a machine's job."**

After all, why make something both more expensive and less reliable? The computer in this instance kept "forgetting" what it was meant to be doing, and the poor, miserable engineer got many irate phone calls from the boss at 5 in the morning demanding that he "get his sorry (anatomy) out to the ranch and fix it."

What might have been done differently? Well, I know of at least three ways to make a solar

panel track the sun without using a computer at all, and two of those ways don't even involve electricity. Also I would have unplugged the phone at night.

The other fascinating part of this story is that the sun tracker cost my former boss about 30,000 of his favourite, personal US dollars to have built. Also, it's worth mentioning that the gentleman was nearly 80 years old at the time. I calculate that he will have to live until he is 315 years old before the tracking system pays for itself. Knowing him, I'm sure he means to do just that.

The moral of this tale? Sometimes efficiency just isn't worth it. Cost per output is really the name of the game when it comes to alternative energy.

Have a fantastic and innovative 2009!

Regards,

**John**

Next time: We know the sun can heat water, but can it also cool my house? Is there a way to use heat to get cool without electricity? Don't miss the surprising answer in the next Making Sense of Science Newsletter!

Our mailing address:  
Wallingup Research  
PO Box 2208  
Carlisle North 6101  
Western Australia  
Australia

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