

Learning how to harness solar energy

South-side training centre gives students hands-on experience

Jeff Holubitsky

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EDMONTON - Heating water and producing electricity with sunlight aren't merely options in Harold Verburg's view.

Within a few decades, the electrician-turned-energy-teacher believes they will become as second nature as low-flow faucets and insulation in the attic.

He is so convinced of that fact that he opened a training centre in south Edmonton where homeowners, contractors, engineers and others can get hands-on experience with sustainable and clean technologies that can change the way they live.

"But I just don't know how to make photovoltaics sexy," he said Sunday in the energy classroom at Trimline Design Centre.

Since starting the training centre in June, classes of about 20 students, have crunched the numbers on energy consumption before picking up wrenches and learning what it actually takes to install different types of solar collectors that produce hot water or photovoltaic modules that create electricity on a rooftop.

Other courses taught by a variety of experts include wind power, biodiesel systems and straw bale building that actually ends with the construction of a small structure.

Usually his students have looked into the somewhat confusing world of reducing their reliance on the grid before they come to class.

"They've seen it in a book, but they don't understand what that little picture in the book is, so we explain it," he said.

Verburg is also an electronic technologist and has worked with cooling systems for industrial electrical equipment, so he has plenty of experience with the technology. He has also run training seminars throughout North America, in Europe and the Middle East.

He owns a farm south of Edmonton where he makes biodiesel for his truck with a small crushing and processing cold press.

His firm also provided solar power technology to operate cash registers at this year's



CREDIT: Walter Tychnowicz/Edmonton Journal

Harold Verburg poses with his energy efficient Flat Plate Solar Collector unit.

Edmonton Folk Music Festival.

"It worked flawlessly," he said.

One of his main messages is that homeowners must do everything else right to really gain the benefits of the new gizmos. Energy-efficient technologies are not designed for people who needlessly waste power, gas or water.

Verburg advises starting with efficient appliances and fluorescent light bulbs. He says even though they cost more, they more than pay for themselves. The same goes for grey-water systems that provide low-flush toilets with dish washing and shower water, saving about one third of the water most households consume.

But when it comes to bigger-ticket items, such as flat-plate solar collectors for hot water, he said consumers have to make the choice on how they spend their money. A photovoltaic module to produce enough power for one 100 watt bulb is about \$900. A rooftop system his company manufactures would cost about \$6,500 to produce enough domestic hot water for a family of four.

For that same money, a homeowner could put in granite countertops. However, Verburg said that after several years the new technology could likely pay for the granite.

He puts the cost of making a new home self-sufficient in energy at between \$60,000 to \$80,000 provided the homeowner does all of the other things as well.

"The payback on a photovoltaic system is 40 to 50 years," he said. "What's the payback on a granite countertop? There is none."

jholubitsky@thejournal.canwest.com

GOING SOLAR

- One 100-watt incandescent light bulb costs about 50 cents.
- Running that bulb for 10 hours costs about 10 cents.
- The cost of a 115-watt photovoltaic module to provide solar power to that bulb is about \$900.
- The photovoltaic system would only work while the sun is shining.
- A five-room house with five 100-watt bulbs would require five modules costing about \$4,500.
- A 15-watt compact fluorescent producing as much light as the incandescent bulb costs about \$3.
- Five of the fluorescents can run on one photovoltaic module.
- Spending another \$7.50 on fluorescents can save \$3,600 on the modules.
- Data from Harold Verburg of the Trimline Design Centre

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