

THE
CONSUMER
GAME*Is solar energy the
impossible dream?*

BY ELLEN ROSEMAN

SOLAR ENERGY in Canada has always seemed like an impossible dream. Our climate is too severe and our heating requirements too great for the sun's rays to supply.

Also, solar systems are costly to install and almost always require conventional heating units for backup. So their economic value is hard to demonstrate.

But not everyone is a solar skeptic. Some people feel that harnessing the sun's energy is feasible here and now — not 10 years down the road.

If you've never seen a system in operation, you'll be fascinated by a new display at the Ontario Science Centre, where a special house has been set up to illustrate the practicalities of solar heating. The three types of collectors mounted on the south-facing roof are expected to supply 75 to 80 per cent of the house's heating needs.

Flat plate collectors (\$4,750 worth) by Amherst Renewable Energy Systems Ltd. of Kingston use water to absorb the sun's rays. The water runs through tubes in the collector and from there to a water storage tank.

Other flat plate collectors (\$4,500) by Watershed Energy Systems Ltd. of Toronto use air to absorb the sun's rays. The air, once heated, is transferred to a bin of rocks inside the house.

A domestic hot water system (\$3,000) by Solartech Ltd. of Toronto uses vacuum tubes to collect the sun's heat. This technology, called "second generation" by Solartech president David Wood, is said to be 40 per cent more efficient in cool winter weather.

The Science Centre's solar house is perched on a patio and designed for maximum sun exposure, but what if you own an older home surrounded by high-rises? You have to work harder to turn on the sun, but it is possible.

The Pollution Probe Foundation has re-

cently taken possession of an 88-year-old house at 12 Madison Ave. in downtown Toronto which it plans to transform into a solar energy showcase. It will be open to the public early next year.

Ecology House, as the project is called, will employ insulation, greenhouses, waste management and active and passive solar heating to save an estimated 2,000 gallons of oil — a reduction of almost 85 per cent in total energy consumption.

Perhaps the most interesting feature is a "trombe wall", in which a glass sheet covering the south brick surface will establish a greenhouse effect, allowing solar radiation to be stored during the day and released to heat the house at night.

"We're doing this not simply to show that it's technologically feasible," says Ecology House co-ordinator Brian Marshall, "but to give people ideas on how they can retro-fit their own houses."

So far, the solar equipment manufacturing industry in Canada is very small. Solar-tech, one of the larger companies (it has just gone public), has about 60 residential installations in Ontario. Most are in rural areas.

The high initial cost of solar heating tends to discourage potential purchasers. A solar hot water system, the most realistic project for existing homes, would cost a minimum \$2,000 to \$2,500 to install.

A solar hot water system should pay for itself within 10 to 15 years, though the savings are hard to pinpoint. Frank Thompson, who installed one several years ago in his \$250,000 architect-designed home in Greenwood (near Ajax), still can't tell whether his hydro bills are lower or not.

"I did it because I was curious and I'm ecology-minded and I could afford it, so why not throw it in," says Mr. Thompson, owner of a Scarborough plumbing supply firm. "But it's extremely difficult to meter. The weather varies and so does the consumption — there are too many variables."

Solar heating is still in its infancy, but the potential seems to be there. If you're a dreamer and would like to know more about it, the Science Centre's solar house is a good place to start. You can also volunteer to get involved with the construction of Ecology House (phone 978-7458).

Follow it up with two useful government publications: *Turn on the Sun*, available for \$1 from the Ontario Government bookstore, 880 Bay St., Toronto, Ont. M5S 1Z8; and the *Solar Heating Catalogue*, \$2, from Energy, Mines and Resources Canada, 580 Booth St., Ottawa K1A 0E4.