



Monitors cut energy usage, study finds

Instant display helps owners try to save energy

Results surprise Hydro One after 500-home test

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[TYLER HAMILTON](#)

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Homeowners tend to reduce their energy consumption by as much as 10 per cent when given an easy way to monitor their power use in real time, according to the findings of a 500-home pilot project conducted by Hydro One.

The study, the largest ever completed in Canada, captured the energy use of homes in Barrie, Brampton, Lincoln, Peterborough and Timmins that were equipped with a low-cost, indoor energy monitor. The technology wirelessly transmits data from a building's outside meter to a portable indoor display, allowing homeowners to directly see how much electricity they're consuming on a "live" basis.

The devices recorded energy use between July 2004 and September 2005, the results of which were compared to the same seasons and months in the previous year. Hydro One found that participants in the project reduced their energy use by between 7 per cent and 10 per cent.

"The proposition being tested here was, 'if you provide this real-time information to people, does it really influence their behaviour? Will it be a spur to reduce energy consumption?'," said Jatin Nathwani, manager of strategic planning at Hydro One.

"We're able to show now that, yes, it does, and it's statistically significant. I wasn't expecting it to be as high as it was."

He said the devices make it easier for homeowners to see instant results when they switch to compact fluorescent light bulbs, more energy-efficient appliances, or make greater effort to turn off lights, television sets and other appliances that are unnecessarily consuming power. The data from the project are being analyzed and documented by McMaster University's Institute of Energy Studies, and a final report is expected at the end of January. The results will also be filed with the Ontario Energy Board.

Nathwani said the findings reinforce the results of an earlier study out of Oxford University, which pegged the conservation effects of real-time energy monitors at 10 per cent.

"I'm very pleased with the results," said Peter Love, Ontario's chief energy conservation officer, adding that the numbers are in line with the conservation targets he set in his annual report.

Love said he hopes Hydro One will begin to promote use of the in-house monitors throughout its operating territory and that other utilities in the province will study the findings and take similar actions on a voluntary basis. "I strongly support them," he added.

Hydro One tested technology from Blue Line Innovations Inc., which is based in St. John's, Nfld., and is involved in other pilots with Newfoundland Power and BC Hydro.

Danny Tuff, chief executive officer and president of Blue Line, said he fears the Ontario government is pushing ahead

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with a costly smart meter program without taking a serious enough look at less costly options, such as simple in-house displays that would cost less than \$100 per home and can be self-installed.

"Instead of just arbitrarily saying one size fits all, let's have another look at this," said Tuff. "Maybe smart meters do make sense for commercial and industrial and some residential applications, but if we're getting these types of results at a fraction of the cost of smart meters, why not apply this to where it makes sense?"

Smart meters, which are installed on the outside of buildings, allow utilities to measure residential and commercial electricity consumption at any point in the day, making it possible for the province to introduce time-of-use pricing — that is, homeowners and businesses would pay more per kilowatt-hour during peak times. The idea is to encourage electricity customers to shift more of power consumption to off-peak hours, which would ease stress on Ontario's overburdened grid.

The province, backed by legislation proposed last month, plans to install 800,000 smart meters in 2007 with a goal to have all 4.5 million old electro-mechanical meters in homes and businesses replaced by 2010. The Ontario Energy Board estimates that the initiative will cost at least \$1 billion.

Tuff said shifting power use does not necessarily equate to conservation. He said indoor displays, whether used alone or as a complement to smart meters, could go a long way in helping provinces achieve their conservation goals.

Nathwani said he's seen enough evidence that in-home displays work, adding that he envisions homeowners and businesses being able to walk into a Home Depot or Canadian Tire to buy the devices.

"Let's just act, do no more studies or dithering, and get on with implementation," he said. "We have funding available to be able to provide the incentives for the real-time monitors. ... What level of incentive and all those details are not worked through yet."

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