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The Next Normal

Developers turn to geothermal energy systems

Lisa Van De Ven, **National Post** Published: Saturday, July 12, 2008

Consider, for a moment, your household refrigerator. The outside of the fridge might feel hot, but its interior remains cold.

Increase the scale of that and take it underground. The result is geothermal heating and cooling technology, which works on a similar principal as the household fridge, taking advantage of the fact that the temperature underground -- once you've dug deeper than 10 feet or so -- remains constant no matter the time of year. In the wintertime, geothermal grabs the heat that's underground and brings it to the surface to warm up your house. It then pushes the heat out to cool your home come summer.

Geothermal -- or geo-exchange -- has been around in Europe for years. Lately, it has also become popular in British Columbia's residential market. But until recently, it seemed as though geothermal would remain out in the cold for Ontario homebuyers.

Some Ontario residential developers have decided to change that. Despite high upfront drilling costs that have made geothermal prohibitive in the past, its perceived environmental and energy-saving benefits have both low-and high-rise developers viewing the technology as a sustainable alternative, an option expected to save homeowners money as the cost of more traditional energy sources continues to rise. These developers predict it will become the preferred heating and cooling source of the future. A greener source, to boot.

"We call this a deeper shade of green," says Suzanne Wiltshire, president of geothermal-provider Select Energy Solutions Inc.

Ms. Wiltshire and her team have been working with several developers in the greater Toronto area, and she says homebuyers will be seeing a wide selection of "deeper green" geothermal options in the residential market in the coming years. One such project underway is Ironston -- Davies Smith Developments's Burlington condominium site.

"We had explored geothermal in previous buildings, but when it came time to do Ironstone, looking at energy prices, looking at consumer awareness and interest in the green realm, it made a lot of sense," says Renee Bourgon, Davies Smith's marketing and communications manager.

Approximately 60% of a residence's energy costs go toward heating and cooling, she says, traditionally relying on non-sustainable sources such as natural gas. She estimates the environmental impact of using geothermal at Ironstone, a 16-storey building, will be the equivalent of permanently removing 312 cars from the road. Financially, she adds, it will cut the building's annual heating and cooling bill by 60% to 70%.

"By using the warmth in the earth, we're substantially reducing [the building's] reliance on natural gas," Ms. Bourgon says. "The reason we have not witnessed so much geothermal in the past in North America is because natural gas has been so cheap, so the cost to build a geothermal system has not been warranted."

After all, geothermal can add high upfront costs to a project, as developers drill the holes necessary to install loops that carry the energy in and out of a home or condominium building. For developers looking to keep site prices competitive, those upfront costs have traditionally been a problem. Though at Ironstone, Davies Smith has found a way around that issue in its partnership with Select Energy, which will take on the upfront costs in exchange for a 30-year energy contract that will earn the company revenue back bit by bit.

"To be price competitively in the marketplace, the numbers have to work," Ms. Bourgon says. "We need to make sure there's a balance."

Marshall Homes has chosen a different financial model at its Oshawa low-rise sites Copperfield and Kingsfield. There, homebuyers have the option of choosing to have geothermal installed as an upgrade,

adding approximately \$25,000 to the home's price. About one in 10 homebuyers at those sites take the geothermal option, president Craig Marshall says. "There's quite a bit of interest in it. One in 10 is pretty good considering the cost of the system."

Once those upfront costs are paid -- whether they're incorporated into a mortgage or swallowed by an energy provider -- homeowners no longer have to concern themselves with the rising prices of more traditional forms of energy, at least when it comes to heating their homes.

"People are thinking longer term," says Jane Kearns, vice-president of business development for Clean Energy Developments, another geo-exchange provider. Clean Energy's clients include Reid's Heritage Homes, which has introduced geothermal as a standard option at its Inverlyn Lake Estates low-rise site in Kincardine.

"It essentially becomes an insurance policy against rising energy prices," Ms. Kearns adds.

That "insurance policy" can be a comfort for potential homebuyers. At least that's what developer Jack Pong found in the focus group studies he did of potential buyers at his condominium retirement project Harmony Village-Sheppard in Scarborough, another geothermal site. More than half of those surveyed were willing to pay on average about 10% more for a renewable or green energy source, listing energy cost savings as one of their main reasons. Mr. Pong predicts geothermal technology will save Harmony Village approximately \$27-million in energy costs over the next 30 years. "For residential buildings, it's the way everybody should be going now," he says.

But will that happen across Ontario? Possibly. While the few developers who are offering geothermal now may seem like guinea pigs, the companies that provide it say there are many more in the wings that have plans to introduce the technology at upcoming sites. And that means that while -- in Ontario at least -- geothermal may not be quite as common as the household fridge, it's certainly taking some steps toward it.

Or, as Ms. Kearns puts it: "We believe geo-exchange is going to be the next normal."