

## Partners for Climate Protection

Greenhouse-Gas Reduction Initiative of the Month



Thompson's Energy-Efficient Furnace-Replacement Rebate

### Municipal Profile

Population: 13,446

PCP Member since 2009

Thompson, nicknamed "the Hub of the North" is Manitoba's third largest city. Historically, the city was known for its mining industries, but in recent years its economy has diversified to include hydro-electric projects, Aboriginal economic development, and the city's emergence as a regional service centre, delivering education, health, government, retail, and transportation goods and services.

### Background

Thompson lacks the infrastructure for natural gas, so most homes and businesses heat with propane or hydro-generated electricity. In 2010, as part of its Climate Change Action Plan, the city completed a baseline inventory of energy use and GHG emissions, and found that the propane combusted in propane furnaces contributed 82% of residential-sector emissions, but only 18% of total energy usage.

It was obvious from the inventory that propane combustion contributed a disproportionate amount of GHG emissions to the community. "It stuck out like a sore thumb," said Andrea Hatley, Thompson's Community-Led Emissions Reduction (CLER) Program Coordinator.

About 900 homes in Thompson heat their homes using propane furnaces, and the city estimated that at least one-quarter to one-third of them were more than ten years old and operating at 70% efficiency or lower. To combat this, Thompson initiated a furnace-replacement program that would run for five months between June and November 2011 (the program has since been extended). The objective was to remove as many older, inefficient propane furnaces as possible, replacing them with high-efficiency propane or electric furnaces, or geothermal heat pumps.

*Pictured at right: A 42-year-old inefficient propane furnace about to be replaced. Photo courtesy of the City of Thompson.*



## Implementation and Approach

In the spring of 2011, Thompson secured funding of \$70,000 from the Province of Manitoba's CLER Competitive Fund, which supports projects that achieve high emission reductions. This funding, along with additional top-up funds of roughly \$27,500 provided by the city, was used to provide rebates for homeowners who wished to replace a furnace. Complementing Thompson's program were two programs offered by Manitoba Hydro. The first was a \$245 rebate to install high-efficiency electric furnaces through its Residential Propane and Oil Furnace/Boiler Replacement Program. The second was a financial assistance program (through refundable tax credits) for homeowners who wished to replace their furnace with a geothermal heat pump.

"The first thing we did, once we had the program funding in place, was to send out a flyer and an application form with all residential water bills, and advertise the program in the local paper," reported Hatley.

She also discussed the program with local furnace installers. "There are only about three or four of them in the city, but they gave me a lot of information on how they usually replace furnaces, and we ran the program by them before finalizing it," she said. "We made sure that they had copies of the application forms, and that they knew about the program, so they became partners in promoting it."



Homeowners were given a choice of rebates: \$1,500 was offered to convert to either a high-efficiency electric furnace or a geothermal heat pump; \$500 was offered to convert to a high-efficiency propane furnace. Low-income households were offered rebates of up to \$3,000 to convert to high-efficiency electric or geothermal heat, and \$500 to convert to high-efficiency propane.

*Pictured at left: A new high-efficiency electric furnace with upgraded electrical panel. Photo courtesy of the City of Thompson.*

The application process was simple. Residents contacted the CLER coordinator to express their interest and, if they asked, were given the names of local installers. Residents had to complete the one-page application form and have it approved by the CLER coordinator in order to participate in the program. "Once the applicant was approved, the rebate money was held for them," Hatley explained. "Once the furnace was installed, residents had to submit photos (before and after) and the installer's invoice. As soon as I received these, the rebate cheque was

issued."

Replacing propane furnaces was relatively straightforward. However, if the homeowner chose an electric furnace, the home's electrical panel was also upgraded to 200-amp service at the same time, and Manitoba Hydro conducted the final inspection.

Thompson resident Tony Hellrung replaced his inefficient propane furnace with a high-efficiency propane model in September 2011. "Our furnace had started to fail in May 2011, and we learned that the heat exchanger was cracked," he recalled. "My wife found out about the furnace-replacement program, so we went online to learn more about it, and we then contacted Andrea."

Hellrung has now received his \$500 rebate. His local propane supplier also knocked a few hundred dollars off the labour costs to install the new furnace, bringing his total replacement cost to about \$2,000. Asked if he is saving money on his heating bills, Hellrung said that he is, but noted that, due to an exceptionally warm winter, it will take more than a year to see a real return.

## Results

To date, 37 inefficient propane furnaces have been replaced (18 high-efficiency propane, 19 high-efficiency electric). Hatley reported that no homeowners were able to take advantage of the geothermal heat-pump rebate, simply because there were no qualified installers in the region, and to have contractors travel to Thompson would have been prohibitive in cost. GHG-emission reductions from these 37 replacements are estimated at almost 100 tonnes. On average, each high-efficiency electric furnace replacement reduces GHG emissions by 4.4 tonnes/year, and each high-efficiency propane furnace replacement reduces GHG emissions by 1.25 tonnes/year.

Hatley noted that precise energy savings per home are difficult to determine, depending on the furnace replacement. “If they switched to an electric furnace, they usually also switched their hot water heater to electric, so when they got their first electricity bill after the replacement their electricity use may have seemed to have increased, because hot-water consumption was now rolled into their electricity bill,” she said, “so the amount attributable to each [furnace and hot-water tank] was difficult to determine initially.” That being said, Manitoba Hydro estimates that replacing an inefficient furnace with a high-efficiency electric model will pay for itself within as little as three years.

## Lessons Learned

Hatley said that an initial concern was that local propane distributors might feel that the program was cutting into their market. “Distributors told us, however, that they make most of their revenue from commercial and industrial clients, so the residential program would have little impact on them.”

Hatley says that residents have been very pleased with the program. “We’re showing leadership, so that reflects positively on the city, and residents are always happy to get money back.” The only negative feedback she received—and this is common with most rebate programs—is that there were some homeowners who had replaced their furnaces before the program began and who, therefore, didn’t qualify for the rebate.

For other municipalities that might be considering a similar initiative, Hatley said that securing funding is a key issue. “We wouldn’t have been able to do the program without it.” She also noted that most residents prefer rebate programs to any type of regulatory or enforcement program. “We made sure that the application form was simple, and that people didn’t have to do too much.”

## Future Directions

Program funding allowed for up to 53 rebates of \$1,500 each to switch to a high-efficiency electric furnace or a geothermal heat pump, and up to 25 rebates of \$500 each to switch to a high-efficiency propane furnace. Since the funding was not exhausted during the first round, the city has extended the furnace replacement program until December 31, 2012.

## Further Information

Andrea Hatley  
Climate Change (CLER) Coordinator  
Thompson, MB  
204-677-7766  
[clercoordinator@city.thompson.mb.ca](mailto:clercoordinator@city.thompson.mb.ca)

The Partners for Climate Protection (PCP) program is a network of Canadian municipal governments that have committed to reducing greenhouse gases and acting on climate change. PCP is the Canadian component of ICLEI's Cities for Climate Protection (CCP) network, which involves close to 1200 communities worldwide. PCP is a partnership between the Federation of Canadian Municipalities (FCM) and ICLEI—Local Governments for Sustainability. PCP receives financial support from FCM's Green Municipal Fund.