



## Energy Efficiency Upgrades

Honda Canada has saved money, cut emissions and reduced its energy consumption with one changeover.

- Replacing older boiler with direct-contact water heating system raises efficiency from 55–60% to 98%+ levels
- New system delivers exceptionally low emissions: 0% CO and less than 22 ppm NOx
- Cost-per-vehicle hot water wash cut in half
- Installation qualifies for \$30,000 energy efficiency grant

Honda Canada's large, state of the art complex in Alliston, Ontario produces almost 300,000 cars and vans annually.

The automaker places a high priority on its vehicles' finishes. One key to achieving this high quality is thorough cleaning of each vehicle to remove grease and other contaminants before the primer, finish, and sealer coats are applied.

The cleaning operation uses a lot of hot water. In addition to growing maintenance concerns, the hot water system's "on/off" control system meant that boilers would over-fire and waste steam, energy, and water.

Initially, Honda considered replacing the "on/off" control with a proportional valve system, but soon concluded that this option was not cost effective. So, instead of a retrofit, the company began exploring the idea of investing in a new system. Criteria included:

- Cost savings — the target was a 2–3 year simple payback from reduced energy and associated costs
- Reduced fossil fuel consumption and lower emission levels to address Honda's environmental objectives
- A proven system that could be relied upon not to disrupt production

Enbridge Gas Distribution Industrial Energy Management Consultant, George Barnier, reviewed Honda's guidelines and proposed a number of alternatives.

The one that caught everybody's attention was the Kemco Thermefficient direct-contact water heater. It offered everything Honda was looking for, including very high efficiencies and very low NOx and CO emissions.

George Barnier  
Industrial Energy Management Consultant,  
Enbridge Gas Distribution

Using two Maxon ED-7 natural gas burners, each rated at 6.5 MMBtu/hr, the Kemco direct-contact heater produces zero CO and less than 22 ppm of NOx at all firing rates. In operation, water is heated in a primary loop, and pumped to a heat exchanger where it raises the temperature of process water to the required 60 degrees Celsius before being recirculated back to the heating unit and holding tank.

At a site visit to an existing installation, the Honda team agreed that this technology would meet their needs. The project proceeded and was completed in December 1998.

The first measurements of the new system's performance showed it actually exceeding targeted benefits. The old system was rated 55-60% energy-efficient; the direct contact unit is rated at 98%+ efficiency. Water in the system requires no special treatment chemicals—both a cost savings and an environmental benefit. Water consumption itself has dropped by about one million gallons annually, due to the reduced wastage.

The project's objectives included a substantial reduction of natural gas consumption therefore it qualified for a grant of \$30,000 from the Enbridge Gas Distribution Energy Efficiency Program.