



# CONSERVATION CONVERSATIONS

The Newsletter of Better Buildings Partnership

Issue 5, December 2010

## Building a Better Energy Future Together



Richard's letter is on hiatus this month, but will return in the future.

## This Month's Sector Profile: Multi-Family (MEER)



### Take advantage of MEER Prescriptive Incentives before December 31

As the Better Buildings Partnership's current energy savings program approaches its December 31 deadline, we want to make sure that our customers take full advantage.

Perhaps the best opportunity in this tight time window is a lighting retrofit that can take advantage of our MEER - Prescriptive program. By replacing outdated lighting systems with new high efficiency systems you can reduce hydro consumption, improve system performance, achieve better quality of light and reduce overall operating costs. Of course, you also reduce greenhouse gas emissions that result from energy use.

Click [here](#) to read the full profile

## In This Issue

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## Case Study: 550 Front Street West Condominium



### Project Background

550 Front Street West is a residential complex in downtown Toronto that comprises of 196 suites on eight floors. The facility contains a gymnasium, a rooftop patio and a private courtyard behind the main tower.

### Desired Outcomes

The Board of Directors at 550 Front Street sought to enhance resident comfort in the facility, while substantially reducing operating costs. With the goal of maintaining current light levels, increasing resident safety, and a long term reduction in operating costs and energy consumption; 550 Front Street, their property manager and Brookfield

Residential Services Ltd. collaborated with Terra Energy Management Services Inc., Enbridge and the City of Toronto's Better Buildings Partnership (BBP) to achieve this goal.

Click [here](#) to read the full case study

## Profile: Energy Saving Technology - Pumps

By Adil Abood, P. Eng., PMP

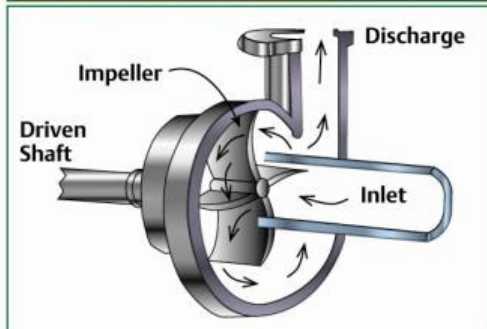


**Pumps are the #1 energy saving opportunity for motor driven equipment.**

A pump is a device used for raising, transferring or compressing fluids.

Pumps consume more than 30% of the power used by motor driven equipment; more than any other application.

The initial purchase price of a pump is a small part of its life-cycle costs. Over 80% of a pump's life cycle costs go towards energy and maintenance. Optimizing pump systems will greatly reduce both maintenance and energy costs.



Click [here](#) to read the full profile.

## Better Buildings Partnership Updates



### What's next for energy savings programs in Ontario?

We have great news to share - on November 4 the Coalition of Large Distribution Companies, the Province's largest electric and gas utilities, held an event at the Air Canada Centre to announce the energy conservation and demand management programs that will be available to the full range of building sectors from 2011 to 2014. Many details still need to be finalized but our customers will continue to be served with attractive incentives and new program enhancements. Stay tuned.

### Still important! December 31 deadline for current applications

Given the above news, we are working very hard to manage our customers through a transition period where one program ends and another begins. Your retrofit project must be completed and all required documentation must be submitted by December 31, 2010 in order to receive your incentive under the current program (new construction incentives allow building completion up to December 1, 2012 as long as applications with supporting documents are in by December 31, 2010). If your retrofit project will not be complete by December 31, 2010 please contact us as soon as possible at [applybbp@toronto.ca](mailto:applybbp@toronto.ca).

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## Continued: Sector Profile: Multi-Family (MEER)



### Take advantage of MEER Prescriptive Incentives before December 31

As the Better Buildings Partnership's current energy savings program approaches its December 31 deadline we want to make sure that our customers take full advantage.

Perhaps the best opportunity in this tight time window is a lighting retrofit that can take advantage of our MEER - Prescriptive program. By replacing outdated lighting systems with new high efficiency systems you can reduce hydro consumption, improve system performance, achieve

better quality of light and reduce overall operating costs. Of course, you also reduce greenhouse gas emissions that result from energy use.

**Several kinds of high efficiency lamps are currently available:**

**Standard T8 lamps:** Standard T8 lamps offer improved efficiency, colour quality, fixture optics and life cycle costs as compared to T12 lamps. However, better options are also available on the market.

**High Performance T8 lamps:** These are also called Super T8s. A high performance T8 lamp and ballast combination can improve system performance by up to 81 per cent as compared to a T12 lamp. [1]

**Reduced Wattage T8 lamps:** Reduced wattage T8 lamps are more efficient as compared to high performance lamps as they use less energy and last longer, resulting in lower utility bills and reduced maintenance costs. They also have better colour rendering properties and hold their rated lighting levels longer. [1]

**T5 lamps:** These are an excellent choice for new construction or major renovations. T5 lamps are available in Standard and High Output (HO) versions. They have various lengths and wattage (14W to 80W) and are also available in circular versions (22W, 40W and 55W). [2]

**Compact Fluorescent Lamps:** Compact Fluorescent Lamps are more popularly known as CFLs. CFLs are about four times more efficient as compared to standard incandescent lamps. [2]The BBP provides incentives for non-dimmable self ballasted CFLs, pin socket CFLs (dimmable and non dimmable) and dimmable CFLs.

If necessary, BBP can help you find an energy management firm who can assess your situation, recommend the optimum solution and facilitate your BBP incentive application.

**Here's how the MEER - Prescriptive program helps finance your retrofit**

MEER helps building owners reduce the payback period for all types of energy retrofits in Multi-family buildings with rebates up to 40% of the total cost of a project (payable upon project completion). Building owners are allowed to get funding from other sources, provided that the total combined grant or incentive amount is not greater than the total cost of the project. To be eligible the building must have six or more units and a minimum floor area of 600 m2. The project can be one you complete between now and the end of the year or it can be one that you have already completed as far back as January 1, 2008.

The term 'prescriptive' means a fixed dollar amount is allocated for designated items on a per unit basis. See our website [www.bbptoronto.ca](http://www.bbptoronto.ca) for the full list of MEER prescriptive incentives covering a comprehensive range of energy retrofits.

**Specifically for lighting retrofits, the following prescriptive incentives are available for T5 and T8 fixtures:**

Type of lamp/fixture	Incentive
Standard Performance T8	\$12 - \$18 per fixture (depending on the number

	of lamps)
Reduced wattage T8	\$15 - \$21 per fixture (depending on the number of lamps)
High performance T8	\$15 - \$21 per fixture (depending on the number of lamps)
T5 lamp	\$105 per fixture

**Incentives available for CFL projects are as follows:**

Type of CFL	Incentive
Non Dimmable self ballasted CFL	\$1 - \$4 per lamp (depending on wattage)
Pin socket CFL (dimmable and non dimmable)	\$25 per fixture
Dimmable CFL - all styles	\$6 per lamp

Don't delay if you have a project that can be completed by December 31. Send us an email at [applybbp@toronto.ca](mailto:applybbp@toronto.ca) or visit our website at [www.bbptoronto.ca](http://www.bbptoronto.ca).

1. [http://www.bchydro.com/powersmart/technology\\_tips/buying\\_guides/lighting/full\\_size\\_fluorescent\\_lamps.html](http://www.bchydro.com/powersmart/technology_tips/buying_guides/lighting/full_size_fluorescent_lamps.html)
2. <http://www.oeenrcan.gc.ca/publications/equipment/lighting/section7.cfm?attr=0#Fluorescent>

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## Continued: 550 Front Street West Condominium



### Project Background

550 Front Street West is a residential complex in downtown Toronto that comprises of 196 suites on eight floors. The facility contains a gymnasium, a rooftop patio and a private courtyard behind the main tower.

### Desired Outcomes

The Board of Directors at 550 Front Street sought to enhance resident comfort in the facility, while substantially reducing operating costs. With the goal of maintaining current light levels, increasing resident safety, and a long term reduction in operating costs and energy consumption; 550

Front Street, their property manager and Brookfield Residential Services Ltd. collaborated with Terra Energy Management Services Inc., Enbridge and the City of Toronto's Better Buildings Partnership (BBP) to achieve this goal.

### Solution and Results

Corridor and stairwell lights were de-lamped based upon foot candle lighting measures taken and garage lighting was retrofitted with new, energy efficient T8 lamps and ballasts for maximized savings. The existing garage exhaust system was operating 24/7 and the installation of a carbon monoxide sensor system now allows the fans to run much less frequently.

"Overall, the residents will realize a substantial reduction in common element costs through annual utility consumption reductions, along with reduced operational costs on the operating equipment," said Dean Brigham, Terra Energy Management Services Inc. "With new lamps and ballasts in the garage and removal of excessive lamps in corridors and stairwells, the property management company will realize substantial reduction in operating costs, allowing the savings to be passed along to the residents."

Both BBP and Enbridge were consulted to access the energy savings incentives that their programs offer, enabling the Condominium to do more with its budget. The retrofit of the garage lighting and the de-lamping of the corridors and stairwells resulted in a 59.7% reduction in electricity consumption, or 166,114kWh per year. The installation of the variable speed drive on the make-up air unit resulted in a reduction in annual gas consumption for the building by 29.6%, or 20,936 M3 per year.

### Project Snapshot

**Project Cost:** \$37,163.50  
**Annual electricity savings:** 166,114 kWh  
**Annual CO2 savings:** 204 tonnes  
**BBP incentives received:** \$13,493.93

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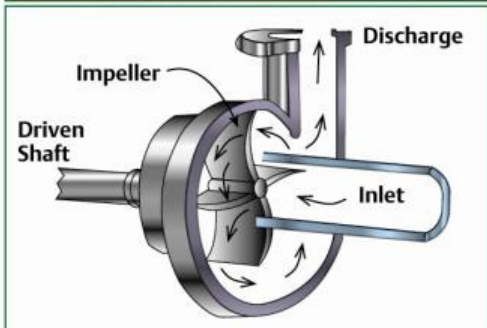
## Continued: Profile: Energy Saving Technology - Pumps

By Adil Abood, P. Eng, PMP

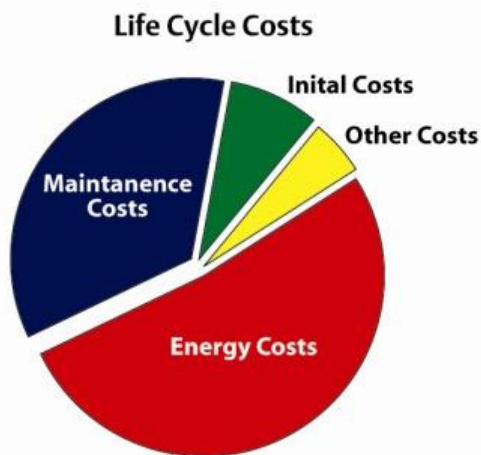


A pump is a device used for raising, transferring or compressing fluids.

Pumps may be divided into centrifugal and positive displacement categories. Over 80% of pumps use centrifugal design because it provides high flow rates, uniform pressure, and is easily driven by electric motors. They use centrifugal and axial forces to create pressure that moves the fluid from inlet to discharge.



Centrifugal pumps serve in applications such as chemical / process, irrigation, booster, cooling tower, condensed water, hot water, chilled water, municipal water & wastewater pump applications.



**\* Pumps are the #1 energy saving opportunity for motor driven equipment.**

Pumps consume more than 30% of the power used by motor driven equipment; more than any other application.

The initial purchase price of a pump is a small part of its life-cycle costs, as can be seen to the left, which details the principal components of the life-cycle costs.

Over 80% of a pump's life cycle costs go towards energy and maintenance. Optimizing pump systems will greatly reduce both maintenance and energy costs.

**Identify if your pumping system is experiencing any of these key symptoms:**

- 1- High energy costs
- 2- Throttle valves (partially or mostly closed)
- 3- Open bypass valves or recirculation lines
- 4- Frequent failures or repair requirements
- 5- High operating noise levels
- 6- High level of vibration

To avoid the above symptoms, there are several control solutions to consider that would optimize pump performance:

**Pumping Control Solutions:**

Centrifugal pumps generally operate as a variable torque load, a load that increases as the speed increases. A pump driven at a constant speed is most efficient when it operates within a single set of conditions for pressure head and flow for a particular application. If the flow rate or head are different than what is required for the application, measures must be taken to adjust the flow and head to match the requirements. Depending on how these adjustments are made, the efficiency of the pumping operation and the amount of power required can significantly change.

Pressure and flow of gases and liquids has traditionally been regulated using bypass, balancing, or throttling valves, and mechanical clutches to meet specific operating conditions. These mechanisms waste energy, require frequent maintenance and provide inaccurate control.

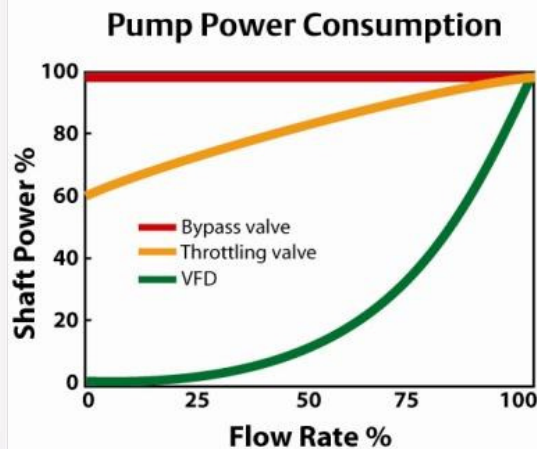
**In purchasing a pump, consider the following:**

- 1 - Select the optimum pump size: There is a tendency to oversize pumping units to meet anticipated future requirements. This can result in the need to throttle or operate the equipment at a higher capacity than necessary. Instead of selecting an oversized pump, you may select a pump with room for a larger impeller to handle possible future increases in capacity.
- 2 - Consider parallel operation: In several applications, the use of two smaller pumps instead of one large pump is proved to be an effective energy saving option, as excess capacity could be turned off. Two pumps can operate in parallel during peak demand, and one pump can operate during low

demand. An alternative strategy is to combine a variable speed pump with one that runs at constant speed so that pump on duty will only consume the needed energy for the actual load.

3 - Use a variable speed drive: In the past 10 years, variable speed control for fans, pumps, chillers and HVAC systems have become an affordable way to save energy, thanks to advances in microelectronics and control technology. Initially, utility companies introduced incentives to make it practical to switch from fixed speed and flow-throttling controls to variable frequency drives (VFDs).

Since then, more building designs have been specifying VFDs, and many building HVAC retrofits can become more cost-effective by replacing flow controls with VFDs at relatively low costs. Prior to making the switch to VFDs, the process must be carefully studied to ensure that the application is suitable for your buildings needs.



In addition to the energy savings advantage, pumps controlled by VFD drivers provide standard communication options which enable remote monitoring and proactive preventive maintenance triggered by pump load changes such as a clogged pump or a pump approaching bearing failure, run time, etc.

More information on pumps is available at Natural Resources Canada:  
<http://oee.nrcan.gc.ca/industrial/equipment/vfd/purchasing.cfm?attr=24>

Your BBP team is available to provide support including incentives for pump control systems. Please visit: [www.bbptoronto.ca](http://www.bbptoronto.ca) for more information.

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