
ONTARIO CENTRE FOR MUNICIPAL BEST PRACTICES

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BEST PRACTICE SUMMARY REPORT

October, 2006

Water and Wastewater

ENERGY MANAGEMENT STRATEGY

Practice Identification: Water and Wastewater

Case Study Municipality:

- Region of Peel

Municipal Profile:

Municipality	Region of Peel ¹
Population	1,080,000
Water Distribution	3,501 km of watermains with 258,776 service connections, 9 pump stations – South Peel
Wastewater Collection	2,747 km of sanitary sewers, with a total of 258,776 sewer service connections, and 41 pump stations
Water Treatment Plant	Lakeview serves a population of 650,000, with an Average Day Demand (ADD) of 324 ML/day from Lake Ontario
	Lorne Park Serves a population of 372,000, with an Average Day Demand (ADD) of 171 ML/day from Lake Ontario
	The Wells serve a population of 14,912, with an Average Day Demand (ADD) of 4.22 ML/day
Wastewater Treatment Plants	Clarkson serves a population of 300,000, with an Annual Average Flow (AAF) of 145 ML/day
	Lakeview serves a population of 700,000 with an Annual Average Flow (AAF) of 326 ML/d

¹ Municipal Profile is 2004 Data

Key Words:

- Energy, Energy Management, Corporate Energy Division, Conservation, Efficiency

Related National Benchmarking Goal(s):

- Meet Service and Performance Requirements at Sustainable Cost

Related Performance Measures:

- Pump Station Energy Consumed ('000) kWh / Total Pump Station Horsepower
- Cost of Pump Station Energy / Total HP
- Cost of Energy Purchased / ML Treated
- Energy Consumed in kWh / ML Treated

Related InfraGuide Best Practices:

- None

Description of Case Study

The Water and Wastewater Treatment Division is the largest consumer of electricity as compared to all other services provided by the Region of Peel utilizing over 60% of the Corporation's electrical energy demand. Recognizing that there are going to be changes in Ontario's energy sector and rising energy costs, the Region of Peel has taken measures to reduce the impact these changes will have on their operations. The energy market is an open and competitive market; the cost of energy is set by the market's supply and demand. Taking a proactive approach to manage these potential financial impacts the Region created the Corporate Energy Management Division.

The core mandate of the Corporate Energy Management Division is to manage energy use by the Region. Its activities are founded upon the principles of financial responsibility, social responsibility and environmental responsibility in the following areas:

- Reduce energy consumption and the cost of energy to the Region of Peel
- Create a culture of conservation within the Region through education and awareness initiatives
- Move the Region towards renewable and sustainable sources of energy and energy efficiency
- Energy advisory services to the other Regional departments
- Metering, monitoring, bill verification, energy profiling, reporting and cons analysis
- Assisting with the creation of energy efficiency standards

Located within the Finance Department, the Corporate Energy Management Division is comprised of ten full time staff members who work with individual departments and divisions to identify improvements and establish energy efficiency standards and procedures.

Corporate Energy has been successful in implementing innovative energy management practices that have reduced energy consumption and associated costs as well as contributing to the health of the environment. Corporate Energy has Professional Engineers and Certified Engineering Technologists on its staff and has a strong project management capability.

In 2005 a website was organized for the Corporate Energy Division. The website provides information to the public about the Corporate Energy Department, new energy initiatives, energy-efficiency projects and energy saving technology. The website can be found at the following location:

www.peelenergy.ca

As identified on the website, Corporate Energy Management helps all of Peel Region's facilities save energy and reduce costs by providing the following services:

Energy Procurement – Corporate Energy performs energy procurement services by obtaining contracts with utility suppliers. This process decreases financial risk by reducing the exposure to sudden fluctuations in energy prices.

Energy Services – “Real time” energy tracking technology is used to measure energy consumption at Peel's Regional facilities. The information obtained helps monitor energy use and identify opportunities to reduce consumption with energy efficiency and retrofit projects. Consumption profiles are also generated. These profiles will indicate any adverse changes in energy use that should be investigated.

Advisory Services – Energy efficient practices, renewable energy technology, and leading energy and environmental standards are communicated to Regional departments.

Utility Bill Validation and Payment for Peel's Regional Facilities – A database of Regional energy accounts, containing historical and current energy bills, is kept for validation and verification, ensuring that the Region and its taxpayers have been charged correctly for energy consumption.

Research and Development – New technologies and developments are continuously investigated to help Peel Region find more ways to reduce energy costs and build sustainable communities. Some examples of new technologies that are investigated include renewable energy sources such as solar power, wind energy and bio-mass systems.

Public Outreach – A great deal of time and effort is put into community involvement, creating public awareness about smart energy use, and ensuring that Region of Peel residents have the tools to conserve energy at home, at work and on the road. Energy reduction tips and techniques are offered to get the public involved.

Consuming over 60% of the total electricity in Peel Region's government, Corporate Energy has spent a significant amount of time and effort collaborating with members of the Water and Wastewater Treatment Division over the past two years.

Specifically, Corporate Energy has worked closely with the Water and Wastewater Treatment Division on the following initiatives (some on-going and/or in early stages):

- Energy optimization pumping strategy project for the water distribution system
- Installation of interval meters and bill validation
- Energy consumption and cost reporting
- Development of an energy budget forecasting tool
- IESO Operating Reserve Market study for backup power generators
- Site visits for possible renewable energy projects
- Communication networks and technologies review
- Development of an energy management plan for Public Works
- Water and Wastewater Treatment long term backup emergency power and reservoir storage plan
- Energy Audit of South Peel Water and Wastewater facilities

Benefits

- Positive public relations
- Reduced energy consumption
- Environmental benefits through reduced energy consumption
- Energy cost savings

Efficiency

By implementing this practice, Peel Region is standardizing the way energy management strategies are implemented. There are clear and defined roles dedicated to energy management. In the past two years Peel Region has decreased its energy costs through procurement, bill validation, cost avoidance, and conservation measures and has realized a savings of \$8 million. The Region's Water and Wastewater Treatment Divisions have been major beneficiaries of the Corporate Energy Program.

Effectiveness

The Corporate Energy Management Division's strategy provides a positive and proactive approach to energy management. The Division has been successful in implementing innovative energy management practices, saving energy, reducing energy costs, and contributing to the health of the environment.

Community or Environmental Outcomes

The Region of Peel's Corporate Energy Division and related website information have increased customer awareness for Peel Region's positive initiatives. The Region of Peel is leading by example, achieving reduced energy consumption and related costs, with additional benefits to the environment.

Statutory Requirements

None

Replication of the Case Study

All municipalities can benefit from a similar energy management strategy. It is an effective method of rolling out energy management initiatives across a Region or Municipality. This standardized approach to energy management increases awareness within the organization as well as within the community. With a central location for housing energy-related information, departments have easy access to the information and can work together to increase energy efficiency.

Supporting Documentation – Region of Peel’s Corporate Energy Management

Division Website:

www.peelenergy.ca

Other OMBI Members that have implemented this practice:

London is currently in the early stages of developing a Corporate Energy Department; a new position was recently created and filled for an Energy Manager. Related Practice: Toronto’s Energy Management Program was approved by Council in 2003.

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