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Dr. Peter Glynn
Former CEO, Kingston General Hospital

KINGSTON GENERAL HOSPITAL REMEDIES HIGH ENERGY COSTS

Energy Audit Identifies Numerous Savings Opportunities

It is never easy to reduce operating costs at institutional facilities, particularly health care facilities. By taking a hard look at what are considered "uncontrollable" expenses, managers can find substantial savings opportunities. Energy costs, for example, which typically represent up to three percent of a hospital's operating budget, can be reduced easily by 20 to 25 percent.

The 150-year-old Kingston General Hospital (KGH) in Kingston, Ontario, has about 450 beds and 13 buildings with a total floor area of more than 93 000 m² (1 million sq. ft.). In 1998, the KGH undertook a detailed energy audit that proved to be a real eye-opener for management and building operation staff – it revealed many savings opportunities that simply could not be ignored.

The audit identified at least 35 areas in which improvements to building operations could be made, most of them very cost-effectively. The KGH was spending about \$2.6 million on energy – \$1.5 million on electricity, \$925,000 on steam and \$135,000 on water. The energy audit identified potential savings of about \$200,000 per year, for an initial capital cost of just over \$1 million. The

investment would thus pay for itself in only five years.

Energy Savings Mean Cost Savings

One of the most attractive features of an energy-management program is how it frees up financial resources. Almost all health care organizations treat energy costs as ongoing, uncontrollable costs extracted from core funding. By reducing energy costs, hospitals can keep more money for core funding and increase their discretionary spending.

Savings Last Forever

Once an energy-management program is implemented, savings will continue long after the initial investment has been paid. In addition, by continually upgrading the technology of building systems, managers can create new savings opportunities. In fact, substantial savings can often be generated through awareness and low-cost measures, with no capital investment required.

Here is what Dr. Peter Glynn, former KGH Chief Executive Officer, says about the success of the hospital's energy-management program: "With limited resources available for direct patient care, it's vital that hospitals investigate all possible opportunities to find operating savings. We're pleased that this initiative has found efficiencies that will help us spend less on energy. The bottom line is that more money is available for patient care and clinical programs. We see this as a win-win situation for the environment and the patients we serve."

Kingston General
Hospital



Savings Opportunities at the KGH

The energy-saving opportunities identified at KGH are listed below. They are common to most health care institutions.

Payback Period of Less Than Three Years	Payback Period of Three to Five Years	Long-Term Investments
scheduling of air-handling system	maintenance and reinstatement of heat recovery systems	replacement of chillers with high-efficiency units
air-system insulation and sealing	upgrade to T-8 lighting and electronic ballasts	modifications to chilled-water distribution system
steam-trap maintenance and replacement program	installation of variable speed air-conditioning motor drives for pumps and fans	replacement of window air conditioners with central air-conditioning
installation of occupancy sensors for lighting	replacement of water cooling with air cooling for air-conditioning systems	
correction of power factor		
installation of faucet, and toilet flow and volume restrictors		

The KGH also has a significant potential for energy savings through upgrades to its building control systems. This kind of energy-saving measure typically has a payback period of less than four years.

Savings Are Easy to Find

Opportunities for energy savings are usually not too difficult to find. Building managers and maintenance workers often know exactly where and how to reduce energy costs. The missing link is often nothing more than detailed advice from a qualified energy expert. For example, the 1998 KGH energy audit was carried out by Ontario Hydro Custom Solutions. The hospital commissioned them to conduct a detailed energy study of the hospital's mechanical, electrical, lighting and building envelope systems. The audit identified 36 measures, 19 of which were strongly recommended.

This project can also be considered a positive step forward in helping Canada address its greenhouse gas (GHG) reduction goals as established in Kyoto, Japan, in 1997. The KGH is a registered member

of Natural Resources Canada's Energy Innovators Initiative, a federal program that helps organizations reduce energy consumption and GHG. The KGH is contributing to its own economic health and the health of our environment, as well as Canada's international commitments.

Any health care institution can find ways to reduce its energy consumption, costs and GHG emissions immediately and cost-effectively. An energy-management project can be led by in-house staff, a general contractor or energy performance contractor – and can be compensated entirely through the energy savings generated. The KGH chose to use an energy performance contractor because this approach requires no capital funds. The hospital's energy-management project forecasts annual savings of approximately \$95,000, while its GHG emissions will be reduced by about 500 tonnes per year.

For more information, please contact:

Kingston General Hospital
76 Stuart Street
Kingston ON K7L 2V7
Tel.: (613) 548-6001
Fax: (613) 548-1319
Web site: <http://www.kgh.on.ca>

Energy Innovators Initiative
Natural Resources Canada
Office of Energy Efficiency
580 Booth St., 18th Floor
Ottawa ON K1A 0E4
Tel.: (613) 995-6950
Fax: (613) 947-4121
Web site: <http://oe.e.nrcan.gc.ca>
Email: info.services@nrcan.gc.ca



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The Office of Energy Efficiency of Natural Resources Canada is a dynamic organization with a mandate to renew, strengthen and expand Canada's commitment to energy efficiency in order to help address the challenges of climate change.