

FOR THE LOVE OF CONSERVATION

by Peter Love



No Cost Energy Retrofits in the MUSH Sector



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In my column from last year entitled “Taking the Risk out of Retrofits”, I described the growing use of performance-based solutions to reduce the technical and economic risk of undertaking energy-efficiency retrofits. Performance-based solutions consist of a range of ways a private energy service company takes responsibility for funding an upgrade project, taking its remuneration based on the success of the project. In this way, the company transfers the risk from the building owner onto itself. This allows the building owner to put more of his or her time, energy, and limited financial resources into the services provided.

Over the past 25 years, public sector buildings, often referred to as MUSH (municipalities, universities, schools and hospitals), have made extensive use of performance-based solutions to finance and manage their infrastructure renewal projects.

This article summarizes eight successful MUSH projects that have used performance-based solutions from across Canada.

Starting with municipalities, the City of Toronto undertook an extensive energy-efficiency retrofit of its eight solid-waste transfer stations. The measures included lighting retrofits, building automation systems, mechanical modifications and water-conservation fixtures. The project had an eight-year payback and resulted in reduced operating costs, improved building conditions, and environmental benefits.

The federal government has upgraded about one third of its buildings, many using a form of performance-based solution called an Energy Performance Contract. The Royal Canadian Mint in Ottawa is an interesting example, where an \$8-million retrofit has resulted in annual savings of \$1 million. This multi-use building consisted of offices, laboratories, and a refinery and production area used to produce gold and precious metal products. As this was a heritage building, special attention was required to maintain the historic elements.

The University of British Columbia (UBC) is one of the many universities in Canada that's undertaken a successful energy-efficiency upgrade using a performance-based contract. In addition to UBC's \$25 million in energy-efficiency upgrades, the contract also provided \$12 million for facility renewal projects, such as building metering, training/re-commissioning, and compressor controls. This project involved 277 separate facilities. While the expected annual savings were \$2.4 million, the actual achieved savings were \$3.4 million.

Saving energy and money in schools is not only important for taxpayers, but also an excellent way to teach students of all ages to adopt and promote conservation practices. In Montreal, the Lester B. Pearson School Board undertook a major retrofit of their head office and 26 of their schools. The \$14 million project was financed by

guaranteed energy savings of \$1 million per year. Among the many measures undertaken as part of this project was commissioning to ensure four-season year-round optimal operation of all systems plus the implementation of preventative maintenance program to reduce occupant complaints and increase equipment life.

The Hastings and Prince Edward District School Board undertook an extensive retrofit that involved 60 schools and 68 portables. Lighting retrofits, building automation systems, boiler replacements, and a conversion from electric to natural gas/propane were among the many measures undertaken as part of this \$11-million project. All of the \$1.2 million in annual savings were used to retire the capital investment. In this contract, 80 per cent of the savings were guaranteed.

In the health-care sector, London Health Sciences Centre used the merging of its three sites into two as a chance to re-evaluate its energy and operational efficiencies across all buildings. Faced with rising costs, reduced government funding, and aging equipment, the hospital turned to a performance-based contract. Turnkey projects included evaluation, design, procurement, and operating and maintenance process analysis, as well as financing. The first two phases of this contract resulted in annual savings that were 164 per cent and 112 per cent of the energy savings guaranteed in the contract. A critical component of this work was that it was undertaken without disrupting the everyday operations of the hospital.

Another example of a guaranteed performance contract in the health-care sector is L'Institute Philippe-Pinel Hopital Psychiatrique in Montreal. The challenge was to upgrade infrastructure to address aging buildings systems, high energy waste, and high operating costs with limited capital funding. The solution was a seven-year energy performance contract, guaranteeing the energy savings will pay for the upgrades. Measures included improved lighting and pumping systems, an upgraded cooling tower, a reduction in steam production in the summer, and control optimization.

If you're responsible for the operation of institutional or commercial buildings and are faced with limited financial resources, consider using a performance-based Solution. Your board, CEO and CFO will love you for it -- and so will the environment. Additional details on each of these projects, as well as 28 others, are available online at www.energyservicesassociation.ca.

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