

BACKGROUND

The Medavie HealthEd building is a mixed use office and educational classroom facility consisting of 3 floors with a total of 17,508 sq.ft. The building's HVAC system includes a washroom exhaust fan, central air handling unit with DX cooling, hydronic heat for heat coils and baseboard heaters, boilers, as well as an indirect hot water tank for domestic hot water. Prior to engagement with PMC, the building consumed over 157,000 kWh of electricity and 949 GJ of natural gas annually, resulting in approx. \$45,000 in annual energy expenditure.

SCOPE

PMC conducted a detailed energy audit, and determined that through the implementation of targeted retrofits, a **63% reduction** in annual energy cost could be attained. The following projects were implemented from April 2015 with no upfront capital cost requirements and has also **increased building comfort**:

- 1 Upgrade of all lighting to LED Technology
- 2 Conversion of air handling unit from constant to variable airflow system
- 3 Installation of a new exhaust fan to provide free-cooling, as well as upgrades to the fresh air dampers
- 4 Replace indirect hot water tank with heat pump hot water heater
- 5 Building Automation System upgrades and implementation of new energy efficient operating sequences
- 6 PMC's planned preventive maintenance program



BASELINE ENERGY PERFORMANCE

Building Size (sq.ft.)	17,508
Annual Electricity Consumption (kWh)	157,520
Average Electricity Demand (kW)	656
Annual Natural Gas Consumption (GJ)	949
Total Energy Utilization Index (kWh/sq.ft./yr)	24.06
Total Annual Energy Costs	\$45,440

RESULTS

⚡ ENERGY SAVINGS

98,112 kWh (62%) in annual elec. savings
338 kW (52%) in electrical demand savings
524 GJ (55%) in annual natural gas savings
58% reduction in annual energy use
 (now at **10.14 kWh/sq.ft./year**)

■ Actual Cumulative Energy Savings (\$)
 ■ Projected Cumulative Energy Savings (\$)

💰 COST SAVINGS

\$28,811 (63%) in annual energy cost savings
\$20,869 in NB Power incentive rebates
ZERO upfront costs
5.25 year payback

🌱 ENVIRONMENTAL BENEFITS

31,035 kgCO₂eq of annual emissions avoidance
 (equivalent to over **54 acres** of mature forest land)

\$180k
 \$150k
 \$120k
 \$90k
 \$60k
 \$30k
 \$0

APR '15 OCT '15 APR '16 OCT '16 APR '17 OCT '17 APR '18 OCT '18 APR '19 OCT '19 APR '20 JUL '20