

ENERGY SAVINGS REPORT

METROPOLE BUILDING

7 KING ST. EAST

Prepared For:

MTCC 1170

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Introduction

In recent years we have experienced turbulent changes in the supply of power. From deregulating to Government controlled rates we can only suspect that the Provincial Government will eventually fully deregulate which can cause power costs to eventually escalate.

As previously experienced, when power costs increase 30% to 50% the emphasis to power reduction and power management becomes essential to compete and maintain maintenance costs.

Potential electrical energy savings as a result of reduced usage equates to lower maintenance cost, from implementation of energy efficient lighting sources, lighting controls, metering system, mechanical equipment motor replacement, and replacement of existing thermostats to programmable type, energy reductions can be achieved and/or managed.

Lighting Retrofit

Reduced energy usage through lighting retrofit programs achieve lower operating costs. Various lighting retrofit programs can be implemented as follows,

For all programs, trial mock-ups should be performed in typical suites for input from users prior to final implementation.

Lighting Retrofit 'A'

Existing incandescent lamps through-out complex, and suites are rated at 60 or 100 Watts (A19) with max. 2000 hrs. life. In many locations within suites and 5th floor Party Room existing incandescent lamps (A-19) 60 or 100 Watt can be replaced with compact fluorescent lamps c/w high efficiency reflector. Rating of new compact fluorescent lamps range from 15 to 20 Watts with 10,000 hours of life. (Refer to Appendix 'A' for reflector and Lamp)

Lighting Retrofit 'B'

Where permitting through-out complex (within suites, storage rooms, service room (elect./mech.) and common rooms by replacing existing wall mounted lighting switches with lighting sensor/switch. Thus ensuring lights to be turned off when room is not occupied. (Refer to Appendix 'B' for various options of lighting sensors/switches).

Metering System

Metropole Building (7 King St. East) is currently Bulk-Metered (1 main meter). Residential tenants who live in Bulk-metered building consume on and average of 30% more energy than those who are Sub-Metered, with the unpredictable nature of the energy market, and the certainty of future deregulation, owners are liable for paying for energy consumed by tenants, regardless of the price, with no immediate avenue for recouping these losses.

Implementation of Sub-metering (meter each unit, townhouses, retail, main switchboard) total of 319 meters removes the liability for utility bills from the building owner and gives it to the tenant, who has control over consumption.

Implementation of a Sub-Metering system comprises electronic meters installed for every unit, retail tenant(s) and townhouses. Sub-Meters are Daisy Chained to communication centres through a pulse-tracking device which is outfitted with a modem that transmits the consumption data to the billing system.

The billing system automatically contacts the metering system at pre-selected dates and times. Energy consumption information for each unit is downloaded and stored. Customer (tenant) information for each meter is collected through-out the month and an invoice is produced and sent to the tenant directly at the end of the billing cycle.

Sub-Metering also allows the ability to:

- Track power consumption (i.e. kilowatt hour consumption)
- Track demand
- Track power consumption costs and use patterns
- Negotiate lower rates with power suppliers

Sub-Metering implementation is budgeted at \$150,000.00 equating to approximately \$470.00 per tenant meter, thus having an immediate pay-back to the owners, by avoiding any liability for energy consumed by tenants.

Refer to Appendix 'C' for Budget quotation submitted by Ampere Limited, dated November 19, 2003 and preliminary metering riser diagram.

Div. 15 Motors

Miscellaneous mechanical (heating and cooling) equipment is located through-out the complex which equate to approximately 30% to 40% of the energy consumption. Through replacement of existing motors in cooling tower (1), boiler pumps (3), chiller (1), A.C. pumps (3), make up Air units (2) and miscellaneous .25HP pumps in penthouse (3). Furthermore, implementation of variable speed drives for all major equipments can also reduce and manage consumption.

Prior to any consideration, we recommend engaging the expertise of a Mechanical Consultant to properly assess and recommend possible energy reduction recommendations.

Programmable Thermostats

With conventional thermostats controlling heating and A/C units within condominium suites flexibility resulting in energy reduction (power and natural gas) is not achievable.

With the implementation of programmable thermostats at an average cost of \$80.00 each installed, within condominium suites (total of 304) will allow the tenant to be energy conscientious which results in energy conservation, through holiday scheduling, day time setting during work days and evening setting after 11:00pm.

The tenant can decrease their usage, which will result in lower energy costs through information and readings obtained from the proposed Sub-metering system.

Conclusion

Through implementation of energy lighting sources, lighting controls, metering system, mechanical equipment motor replacement and replacement of existing thermostats to programmable type thermostats, energy reductions are achievable. In many instances delivering the message to tenants/owners is of most importance. Allowing tenants/owners to see first hand their usage, applicable costs, and rewards through energy reductions is a very effective method.

Through committee decisions, voting and consideration, all energy conservation suggestions indicated herein should be considered and implemented as decided.