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Conserving electrical energy: Which measures are feasible for condominiums?

The August 2003 blackout highlighted our dependency. Without its electricity, our city suddenly relapsed to its 18th Century origins — with no time for preparation.

Within months, conservation-related advice was abundant. Mostly, its providers had good intentions. However, abundance of information creates its own problems. Is all conservation-related information equally appropriate for all individuals and/or households? Certainly, it is not

Individual households are different from condominium corporations. Individual households can choose all aspects of lighting, appliances, and/or machinery. Additionally, individual households can control electricity-usage and/or lifestyle.

Condominium corporations can control lighting and machinery in the condominium's common elements. Condominium corporations can also try to influence suite-owners' choices of lighting and/or appliances. However, electricity-usage and lifestyle are, and should be, outside any condominium corporation's control.

What should condominium corporations consider before trying to conserve electricity? The answer is the "3-P criteria": passivity, predictability, and payback. "Passivity" implies that suite-owners will not have to change lifestyles and/or routines. Thus, no one is asking suite-owners to sacrifice quantity of lighting, use of appliances, *etc*. Nor is anyone asking them to intervene daily in the conservation process. "Predictability" entails stable, quantifiable outcomes with controllable variables. "Payback" is the time necessary for energy-savings to recoup the investment in conservation. With "3-P", condo-managements need not fear failure.

Consider, for example, the case **for** using compact fluorescent lights (CFLs) **rather than** incandescent and/or halogen lights. The following table exemplifies three principles: (a) savings attainable by using CFLs rather than incandescent bulbs, (b) implementation of the "3-P criteria", **and** (c) cost-comparisons that **can** be easily applicable to any home or building.

	Assumptions				Consumption Outcomes			Cost Calculation	
Type of Lighting	Watts per Light	Average Lights per Suite	Hours per Day	Number of Suites	Watts per Day	KWh per Day	KWh per Year	Electricity per KWh	Electricity Cost per Year
Incandescent	60	5.00	10.00	320	960 000.00	960	350 400.00	$ 0.06	$ 21 024.00
Compact Fluorescent (CFL)	13	5.00	10.00	320	208 000.00	208	75 920.00	$ 0.06	$ 4 555.20
Savings					752 000.00	752	274 480.00		$ 16 468.80

The model has four obvious assumptions or variables. There is also an implied variable — that the average suite needs 4,000 lumens of light for 10 hours per day. (*Either a 13-Watt CFL or a 60-Watt incandescent will supply 800 lumens. With five lights operating, at 800 lumens each, total light is 4,000 lumens.*)

The cost of electricity per kilowatt-hour is outside the assumptions because it is not controllable; nor is it a lifestyle issue. The model's value rests in its universality or applicability. Anyone can

use the model simply by plugging in the appropriate numbers. This means that anyone can readily determine whether the model suits her or his needs.

On the "Savings" line, the important number is the annual 274,480 kilowatt-hour reduction in consumption. By using kilowatts saved, rather than dollars saved, we can make comparisons independently of inflation and/or changes in electricity-rates.

Could the model contain anything else? It is silent about payback. For this model, the investment in conservation is small. In late October 2006, brand-name 13-Watt CFLs were available for about $3 each — for a notional total of $15 per suite.

Within the previous page's model and assumptions, **each** of those CFLs would **save 171.55 kilowatt-hours per year**. Unlike some other conservation-measures, CFLs have a predictable outcome. Also, deployment of CFLs is cheap and easy. (*In this example, pricing electricity at $0.06 per kilowatt-hour, payback would occur within fewer than five months.*)

The same predictability is also possible for "major machinery", **within** condominiums' individual suites and **among** the common elements. Thus, individuals and condominium corporations have additional **eventual** opportunities to conserve electricity…

- Within suites, MTCC 1170's original washing machines, clothes-dryers, dishwashers, refrigerators, and stoves have been in service since 1997. When replacements are necessary, suite-owners should carefully consider Energy Star ratings and "EnerGuide" calculations.
- When MTCC 1170's machinery (*eg*, central AC units and elevator motors) reaches the end of its useful life, MTCC 1170 should be diligent in seeking energy-efficient replacements.

When these replacements occur, will the previous page's model be relevant? Yes, it will. No one is asking for changes in routines and/or lifestyle — and this follows the principle of passivity. Will outcomes be predicable? With lower wattage and higher efficiency, and with no changes in users' lifestyles, fewer kilowatt-hours per year are inevitable. Payback will follow. However, its pace will reflect technical innovations within each type of machine's industry.

Details aside, the operant word for this type of conservation is "eventual". No one expects suite-owners or condominium corporations to discard major equipment before its useful life ends. As replacements become necessary, electrical efficiency should then be the principal concern.

Do all conservation measures comply with the "3-P criteria"? When conservation measures rely on lifestyle changes and/or individuals' intervention, there is a risk of failure. Optimists might reply that success depends only on additional education and/or exhortation.

Pessimists might reply that, if education and exhortation worked, we would already be rid of smoking, drunken driving, and various other social ills. By their very nature, condominiums' boards must be at least somewhat pessimistic. A favourable outcome must be highly probable before a board can spend a current year's money on the possibility of a future year's savings.