Connecting Stakeholders

Achieving Green

Owners * Property Managers * Operations * Tenants

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Connecting Stakeholders, Achieving Green **Energy @ Work**

ABSTRACT

If **Green** is gold, why is progress so slow?

The public understanding of Green is evolving. Standards are being developed, but there is still much work to be done.

Achieving Green is difficult. Necessary conditions include:

- A plan that is realistic and sustainable;
- Partnership that share the efforts and benefits of Green results; and
- A continuous improvement process, i.e. the flexibility to evolve with a dynamic industry and market.

A successful Green plan combines vision, initiative, and a willingness to invest in the right tools.

To implement a successful plan, leaders have recognized that, in light of the barriers that exist, real progress cannot be made alone. Because of common interest, core stakeholders are natural and necessary allies.

As the public acceptance of Green increases, core stakeholders are challenging the status quo. Consequently, stakeholders are not risking inaction, and are connecting to achieve the rewards of being Green.

1.0 THE TRIPLE BOTTOM LINE BENEFITS

1.1 Green as the new "Gold"

Developing and implementing Green solutions is becoming a necessity within the commercial sector.

The acceptance of Green across the 'broader' commercial sector is putting pressure on 'core' stakeholders to perform. (i.e.: owners, property managers, operations, and tenants).

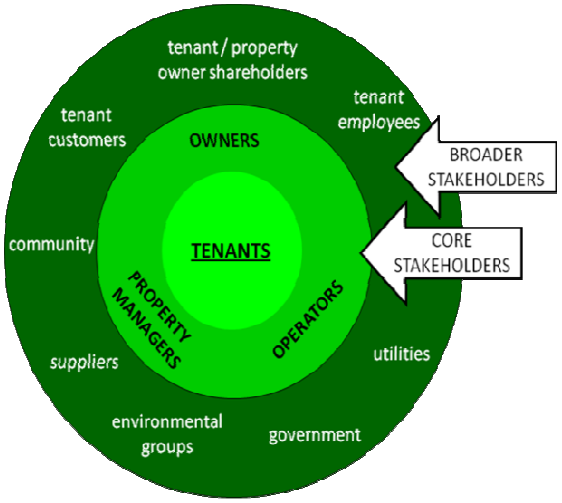
While major barriers exist,[1] most can be overcome through proactive partnerships, focused on providing tenants (who pay the bill) with the tools to accurately assess true costs against the "Triple Bottom Line":

Economic Prosperity: Increasing the Internal Rate of Return (IRR) (20% $^{+}$IRR)[2];

Environmental Performance: Going beyond compliance to improve our environment; and

Social Responsibility: 'Walking the talk' with genuine efforts that deliver legitimate results.

The flip side is the emerging risk of not taking action, and especially of creating or being accused of "Greenwash" (talking the Green talk, but not walking the Green walk). Green claims are to a greater and greater extent being monitored and checked: honest brands are being rewarded, and dishonest brands (whether guilty merely of misleading, or outright fibbing) are being punished.



Sincerity, transparency and integrity are the best means of ensuring you land on the right side of the Green ledger. Investing the money and time necessary to properly understand these issues enables owners / property managers / operators and tenants to avoid the "one offs" or "flavour of the day" programs which are seen as hollow by employees, consumers, and the public at large.

Energy efficiency is a proven 'Green' solution that capitalizes on all of the triple bottom line benefits, producing win-win-win results: tenants win, so owners, property managers and operators win, so society wins. Partnership allows barriers to be overcome and benefits to be maximized.

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This paper focuses on the following necessary conditions for commercial properties to reach their Green potential:

- A plan that is implementable and focused on sustainability;
- Partnership, recognizing shared commercial building stakeholder interest in the benefits of Green; and
- Continuous improvement, i.e. the flexibility to evolve with a dynamic industry and market.

1.2 The Triple Bottom Line

1.2.1 Economic

Utility Costs are rising rapidly. Electricity costs, in particular, are unpredictable because of increasing demand, inability to store electricity and the cost of new supply. Existing infrastructure require improvements which is also increasing the cost and security of supply.

Commercial tenants, owners, property managers / operators see rising utility costs that are consistent with other energy futures trends[3]. Annual increases are outpacing other costs.

Property managers have addressed other operating costs. Utility waste has been ignored, and as a result there is a double digit savings opportunity. .

Economic Bottom Line

Commercial properties have greater than a 30% 'economic' potential from energy efficiency measures (EEM) with comparatively little risk.

1.2.2 Environmental

Green House Gas (GHG) emission reduction solutions have become a public priority.

Canada's commercial facilities' direct and indirect GHG emissions have yet to show evidence of turning a corner and steadily been increasing. Energy intensity increased consistently over the past decade, i.e. a factor of natural gas, steam, and electricity consumption.[4]

The expected cost of becoming carbon neutral is not yet clear. Canada released "Turning the Corner," a national offset system for Greenhouse Gases, in March 2008. This report promises greater detail to follow.

While global warming and GHG reduction may dominate the news, the environmental 'concern' list is also growing. Public understanding of environmental issues is becoming more sophisticated.

Environmental Bottom Line:

Helping our environment is not only the right thing to do, improvements can be used to recognize and distinguish great performers. Once again energy efficiency can deliver significant emissions reductions by ensuring that we use only what we need and using what we need wisely.

1.2.3 Social Responsibility[5]

Of the three triple bottom line criteria, social responsibility is the most difficult to tangibly define. **However, the public is intuitively alert to good and bad performance.**

Social Responsibility (SR) Bottom Line:

SR may be difficult to define, but it is intuitively recognized by stakeholders, investors, press and the public in rewarding good performers and penalizing bad performers – which side of the ledger becomes a question of choice.

1.2.4 Triple Bottom Line: + Security

"Plus Security" is emerging from the lack of confidence in supply and may ultimately become fourth criteria. Security encompasses many issues; security of utility supply is the most obvious. Utility supply has traditionally been taken for granted since supply was considered guaranteed and at a low cost. Times have changed.

The massive power failure in the North-East US and central Canada of 13 August 2003 was a wakeup call. The estimated $6 Billion in business losses demonstrated our vulnerability in a complex, aging, and massive electrical infrastructure.[6]

Commercial facilities are in a state of readiness. For example, emergency services are protected with standby generation that is routinely tested. However, requiring additional standby power is becoming the norm. Tenants are investing in further measures, such as redundant 'uninterruptible power supply' (UPS) and identifying 'critical power'. As an example, a major

bank in Toronto has installed 125% back-up power capability in case of a system outage.

Another dimension to security is internal to a commercial facility. A successful energy plan highlights opportunities and identifies risks from a better understanding the facilities energy use.

For example, reinvesting in building infrastructure and upgrading or replacing old and inefficient systems reduces the risk of failure, and thus increases business security.

2.0 BEING GREEN: A "CARBON NEUTRAL" REALITY CHECK

In the commercial sector, reducing carbon emissions is no longer just good corporate citizenship; it's becoming an imperative, i.e. lease requirements are requiring 'Green' clauses. Properly understanding the issues surrounding an organization's "carbon footprint" becomes a strategic advantage by enabling a sustainable Green strategy (economically, environmentally, social responsibility and security).

Interest in tracking carbon is changing how companies view energy use. Large emitters are required to report on Greenhouse gas (GHG) emissions. Although there are not yet such legislated requirements for commercial properties, proactive companies are voluntarily tracking energy use in order to know and record their carbon footprint. Some organizations are taking the next step, costing the impact of their emissions in order to move towards becoming "carbon neutral" (the Oxford Dictionary 2006 Word of the Year[7]).

Calculating a facility's carbon footprint requires a thorough understanding of its operation and how utility use translates to carbon emissions. Even given such understanding, calculating a building's total carbon footprint is not an exact science. Depending on the 'level of assurance' (precision) required and the "boundary conditions" – i.e. defining what should be included in the carbon footprint – the process is very resource intensive. Improperly executed assessments can be a case in point of Greenwash.

An 'exact' vocabulary has evolved to describe the various aspects of GHG emissions: On-site direct emissions (i.e. natural gas used for heating); on-site indirect energy emissions (i.e. electricity used on site but generated elsewhere); other off-site indirect emissions, for example those associated with procurement; carbon offsets and emissions credits; etc.

The level of detail used to describe a property's carbon footprint is contingent on why the carbon footprint is being assessed: I.e., if the purpose is to pursue emissions offset credits from energy savings, there are very specific requirements for each factor that must be counted or discounted. Additionally, to qualify for these credits, emissions data must meet specific standards. Thus, in the case of emission credits, the appropriate level of investment will be much higher than if, for example, emission tracking was purely for internal monitoring.

Generally, reducing a commercial building's carbon footprint is accomplished by:[8]

1. Purchasing Green power;
2. Installing renewable power sources;
3. Purchasing carbon offsets;
4. Investing in energy efficiency.

2.1 The Purchase of Green Power

Green power is generated from verifiable renewable energy resources and technologies.[9] Interest in purchasing Green power is growing in Ontario's commercial sector.[10]

Benefit: Relatively high degree of public confidence, and accountability (low risk of perceived Greenwash).[11]

Cost: According to The Ontario Clean Air Alliance, Green power carries a premium of approximately $0.03 per kWh in Ontario[12] (the effective rate charged per kWh has been $0.08-$0.12 per kWh for the past three years).

2.2 The Installation of Renewable Alternatives

The economics of installing renewable alternatives depend on the building's operating conditions. Considerations such as available technologies, the economic lifecycle of a building's current systems, etc., all must be evaluated. The benefits over traditional gas and electricity options can be staggering. **Examples:**

- Ground source heating/cooling;

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- Deep Lake Water Cooling (DLWC);
- Passive and active solar energy;
- Wind turbines, micro generation;
- Co-generation / Bio-mass;
- Photo Voltaic;
- Energy / Heat Recovery;
- Free Cooling / daylight harvesting;
- Green roofs/ walls, etc;

2.3 Purchase of Carbon Offsets

Canada does not have an active national trade in Carbon offsets. British Columbia[13] was the first province to introduce legislation enabling carbon trading in 2008. Carbon trading (Offsets) enables companies to trade emissions to meet targets (internal or imposed).

Purchasing offsets reduces a property's carbon footprint providing the offsets meet strict principles and standards. For example, ISO-14064 uses the principles of: relevance; completeness; accuracy; consistency; transparency; and conservatism). For offsets to be real (not Greenwash) they MUST be verifiable and prove additionality. To participate in the carbon marketplace (either buying or selling) requires significant commitment, investment, and expertise.

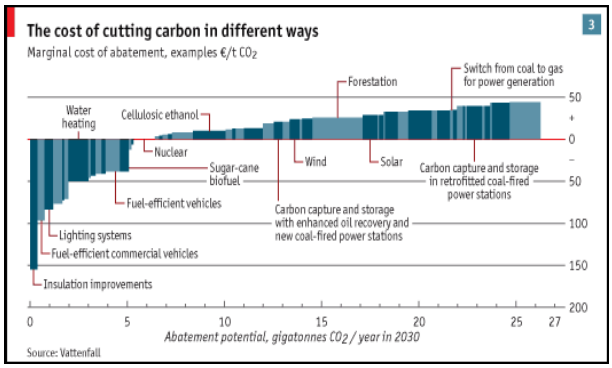
Benefit: Carbon offsets can be a cost-effective solution to reducing a building's carbon footprint. The premium to offsetting a building's emissions using offsets will vary based on a number of factors. **Energy @ Work** has estimated a premium of 5-15% on a typical commercial building's utility budget in Toronto, assuming a price of between $15 and $50 per tonne.

Cost: There is public scepticism that an offset will actually reduce carbon.[14] Commercial property stakeholders will need to be prepared to discuss and understand carbon issues before buying offsets is seriously considered. The off-set process is a monetization of environmental attributes, and investment on the part of stakeholders will be necessary to ensure transparency.

The commodity price for CO_2 has yet to be defined in Canada; but, because there will be a cost for carbon, emission trading will evolve as legislation matures.

2.4 Energy Efficiency

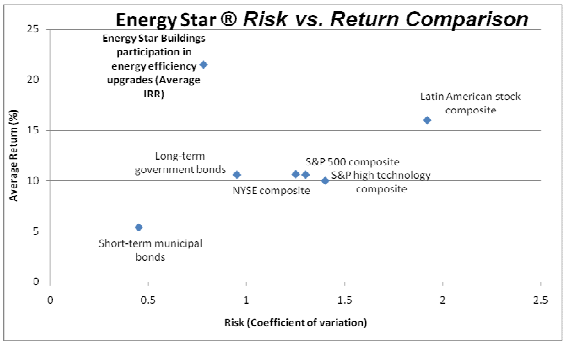
McKinsey and the Economist have found that almost 40% carbon emissions abatement can be achieved at a negative marginal cost through energy efficiency measures such as redesigned lighting systems, insulations improvements, or water heating improvements.[15]



Natural Resources Canada and the US-EPA Energy Star programs agree that the first step in controlling energy costs is developing an Energy Plan that:

(1) Enables energy use to be properly monitored and optimized, and
(2) Facilitates the implementation of energy efficiency measures (EEMs).

Energy Star compared "energy efficiency upgrades" with other investments. They found EE upgrades held a lower associated risk than that associated with long-term government bonds, and promised an internal rate of return (IRR) more than twice that of long-term government bonds (about 22% vs. about 11%).[16]



Perspective: A commercial office property of about 250,000 ft² in Toronto produces approximately 1,700 tonnes of CO_2 per year.

- Purchasing offsets: For this property to buy enough credits to achieve carbon neutrality could cost between $25,000 and $85,000 per year assuming carbon offsets cost $15 to $50 per tonne. This is a 5 to 15% premium on the property's utility budget plus being an on-going annual expense cost; however,
- Investing in energy efficiency first would reduce the cost. A 25% annual reduction in energy use / cuts the cost of being carbon neutral by a similar margin (again dependant on what is being counted as part of the "carbon footprint"). The savings are annual and accumulate to the triple bottom line benefits year over year.

Reducing a building's carbon footprint incorporates the above. Energy Efficiency becomes "The thin end of the wedge," to help accelerate support and confidence.

3.0 ENERGY EFFICIENCY

Energy efficiency is the "thin edge of the wedge". It brings stakeholders onboard with immediate 'Green' benefits from (in order of priority):

1. Low and no cost opportunities (Turning off systems not required);
2. Demand reductions (Upgrading systems to consume the energy actually required); and
3. System optimization (tweaking systems to provide occupancy requirements and not letting the systems run open).

The advantage of energy efficiency is that, in accordance with the Pareto principle,[17] it prioritizes the easy to achieve 80% over the more difficult 20%. The confidence gained by achieving results is cumulative in creating momentum for a broader plan. Success encourages more success.

3.1 Consensus on Economic Potential

In 2007, a 'Virtual Building Utility Simulation' was run on a GTA commercial property with a gross conditioned area of approximately 250,000 ft². Ten energy efficiency measures were identified and tested. The metrics examined included electricity; consumption & demand reduction, as well as natural gas. The total cost savings per year were used to determine simple payback. Available financial incentives were also factored in to estimate the savings. **Key Points:**

- Various Energy Efficiency Measures (EEM) were identified, some economic, and some technical. EEMs are defined in part by their 'simple' payback, which the Virtual building calculated to be between **3 and 40 years**.
- If the true societal value of financial incentives were included on par with new supply costs, the number of 'technical' EEM would translate to an increase in 'economic" EEM. Ontario incentives are in the range of $150/kW vs. new supply investment in the range of $2,500/kW.
- Implementing the 'economic' EEMs would **reduce annual utility costs by 23%**. The overall payback from all measures was 6 years.
- An **additional potential 5-10% is available from low and no-cost energy efficiency opportunities, as well as optimization opportunities** (e.g. scheduling based on occupancy, data centre optimization, load shifting, etc.). The overall 'economic' potential increases to approximately **30% in the short to medium term**.

This high economic potential is consistent with general research by others, including:

- **The Building Owners and Managers Association International (BOMA)** – 30% reduction target by 2012.[18]
- **Sustainable Development Technology Canada (SDTC)** – 50% reduction in end-use commercial energy demand across Canada by 2030.[19]
- **The Canadian Green Building Council (CaGBC)** – reduce energy intensity by 50% in 100,000 buildings across Canada by 2015 (against a 2005 baseline).[20]
- On a global scale, **McKinsey & Company** – estimated global potential in the commercial sector of a 20% reduction by 2020.[21]

While these substantial reductions are achievable, there needs to be corporate commitment, investment, and effort to achieve sustainable results. Achieving energy efficiency in the commercial sector is not a simple matter of remembering to "turn off the lights"; it requires recognition of the shared benefit of sustainability by core stakeholders, and a willingness to partner in order to overcome the "classic dilemma to energy efficiency at commercial properties"

Despite Canada's investment in energy efficiency over the past decade, the commercial energy intensity has increased from just over 1.8 GJ per square foot in 1990, to almost 2.0 GJ per square foot in 2006.[22]

3.3 Energy Efficiency Challenges: Lack Planning and Investment

Why has this 25+% economic opportunity not been tapped? There are many challenges that the commercial sector must overcome to achieve sustainability:

McKinsey & Company, in their report *"Reducing US Greenhouse Gas Emissions: How Much at What Cost?"* provided the following perspective:

"Unlocking the negative cost options would require overcoming persistent barriers to market efficiency, such as mismatches between who pays the cost of an option and who gains the benefit."[23]

Fundamentally, the barriers to energy efficiency stem from a failure of information to be delivered to the right person, at the right time.

In commercial facilities, utility waste and costs are divided between common and tenant consumption. Tenants ultimately pay utility costs, but property managers have the responsibility to process payment of the actual utility bill on the tenant's behalf. Property managers cannot invest in energy efficiency without tenant approval, because costs and savings accrue back to the tenants.

This becomes the classic energy efficiency dilemma for commercial property improvements. Property managers must make upfront investments to achieve energy efficiency. However, tenants are pushing to see 'up front' expenses drop and often do not respect the work required to deliver on energy efficiency. Since the tenant ultimately benefits most from energy efficiency, property managers' incentives to make the upfront investment becomes another unrewarded task.

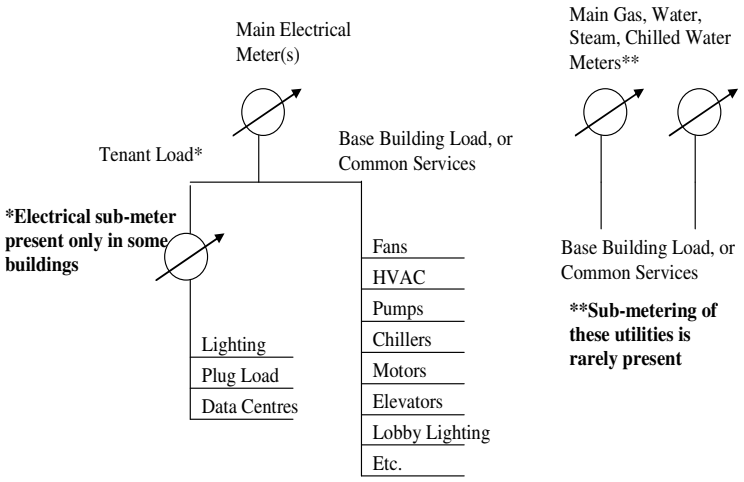
3.3.1 Relating Consumption and Reduction

Commercial properties are complex enterprises. Tenants use the energy, property managers allocate costs, operators control the use, and utilities set the price. Utilities meter and bill based on use, demand and other charges as defined by the regulator. This complexity is reflective of the complexity of allocating the benefits of energy efficiency, as well as the costs of implementing EEM.

Direct control or specific information pertaining to systems or accounts is often difficult to obtain. For example, tenant sub-metering is not pervasive, and reductions are often complicated because of who is responsible, or even allowed, to undertake upgrades of energy consuming systems (lighting systems, district heating and cooling systems, etc.).

In such a delicate balance of roles and responsibilities it takes very little to grind an energy efficiency effort or strategy to a halt. In our experience it can take as little as poor cooperation or indifference by a single person to drain the momentum out of even major energy efficiency effort or specific project.

Although energy efficiency is emerging as the preferred solution and the benefits are beyond dispute, work is still required. No one is prepared to defend the preservation of waste. The commercial sector is driven to develop partnerships that respect the need to secure common interest and win-win results. Partnerships, developed in good faith, are challenging in the beginning, but properly structured pay high dividends.



The partners that pose the most entrenched resistance to change are often external to the property. Some utilities providers and regulators are disconnected to the needs of the customers. As argued in the report submitted and published by the Ontario Power Authority (OPA), and recently cited in the submission to the Ontario Energy Board by the Green Energy Coalition[24], partnership is needed in developing a customer focused strategy to achieve Green.[25]

3.3.2 Lifecycle Costing

An additional challenge to energy efficiency is the method of economic evaluation. Typically energy efficiency measures focus on 'simple payback' (first cost divided by utility savings per year). A focus solely on utility savings fails to provide for full cost accounting. The costs and benefits associated with maintenance, operations, taxes, the cost of money, etc, can not be included with simple payback. The impact is an erosion of competitiveness across the triple bottom line. The alternative, used by Green leaders, is lifecycle costing which provides a robust evaluation method that delivers triple bottom line benefits.

"Simple payback" also encourages the installation cheaper 'first cost' options. For example, lighting solutions may use fixtures that deliver required lighting at 1 W/ft². Accounting for lifecycle costs and a proper design can deliver better light quality while reducing electricity consumption to 0.5 W/ft². Associated energy costs are halved, less maintenance is required, and emissions are reduced.

The first cost is typically the tip of the iceberg (representing, for example, 8% of the life-cycle costs associated with lighting systems.) In keeping with the metaphor, the costs accrued after installation is the submerged mass (the other 92%).

3.4 The Dynamics of Energy Efficiency Measures

Energy efficiency measures include everything from simple low and no cost opportunities (replacing incandescent with LED in exit signs) to major capital investments (replacing an HVAC, heating system, or upgrading the building automation system).

- Implementing low and no cost measures, or measures that have paybacks in the range of 3 years or less, is typically considered good maintenance. However, even in these cases there are numerous barriers, such as in the case of exit signs. Exit signs adjacent to an exit are typically 'base building' and the responsibility of the property manager. Exit signs within tenant leased space are typically a tenant responsibility. The simple task of converting to a more efficient technology suddenly becomes a challenge within a multi-tenanted building. The costs and benefits of implementation do not always divide cleanly between the stakeholders as a result of a number of factors, including the unavailability of tenant sub-metering.

- Budgeting for major capital projects requires asset managers to assess relevant variables (the age of the building, length of leases, legislation requirements, economic life, asset value, breakdown of who is paying the cost / receiving the benefit, etc.) The preparation and evaluation of business cases takes time, investment and must answer all of these questions while operating in an environment of uncertainty (accounting for unknowns such as energy prices, the rapidly changing commercial property marketplace, etc.). On top of this, projects must compete with other priorities (i.e. legislative requirements, security, tenant upgrades, etc.) for very limited resources. As a result, implementing a major energy efficiency project will often take 18 months if not more.

Commercial property owners / tenants in Canada typically use a 'net,' as opposed to a 'gross,' lease—tenants' utility costs are a 'pass through cost' from the property manager to the tenant (rather than being simply included as part of the rent.) Common utility costs (for elevators, lobby, etc.) are shared equally among the tenants on a prorated basis. Energy savings therefore benefits the tenants by reducing their utility costs. The owners and property managers do not benefit financially by implementing energy savings.

Developing partnerships between the core stakeholders – owners, tenants, property managers and operations – is imperative in the successful pursuit of energy efficiency measures. Where partnerships are in place, EEMs are implemented.

3.5 The Importance of the Right Tools: Real Time Monitoring

Useful consumption information is absolutely necessary to make informed energy management decisions. For electricity in particular, operations need to see their consumption in "real-time", not day delayed or worse, when the bill arrives 45 days later.

"We manage what we measure."

Large commercial facilities in Ontario are billed using an interval meter that emits pulse outputs which provide actual hourly consumption.

For electricity use in particular, accessing real-time data directly from the utility meter (i.e. the same pulse outputs used by the utility for billing) allows operators to manage electricity proactively, especially when analyzed in conjunction with the real time price information ($ / kWh). The problem is that the utility controls the locked meter box and some make it difficult for property owners / managers / operators to gain ready access.[26]

The usefulness of real time monitoring (RTM) cannot be overstated (Note: examples courtesy of www.UGSProfiler.com RTM system):

- RTM enables profiling to understand what can be shut off or allow better scheduling.
- RTM serves as a diagnostic tool to identify system problems.
- RTM allows operations the choice to adjust consumption and soften the impact of hourly price spikes as a result of the Hourly Ontario Energy Price (HOEP).
- RTM enables the monitoring and verification of EEMs, bill verification, budgeting, etc.

Data made available by the electricity utilities is day delayed (preventing alarming of demand spikes). Gaining access to meter data is often impeded by awkward interfaces, slow refresh times and frequent system interruptions. On top of this, additional steps are necessary to convert consumption data into actual cost. As such, utility systems tend not to be used by building operators.

As one energy manager put it, "typical utility management budget for a month is 51 cents; the cost of stamp to send payment and avoid late payment charge."

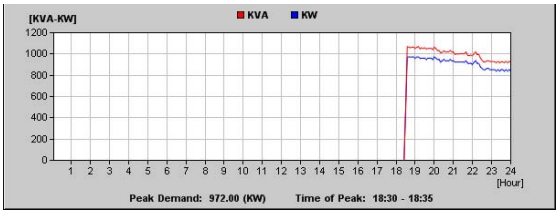
Even the utility bill (which, in the case of electricity, typically arrives 45 days after the billing period) contains impediments to energy management: Key information is often difficult to understand or not directly available (e.g. power factor or load factor.)

Perspective: It is not uncommon for interval meter customers to be unaware of changes in their use (kWh), demand (kW) apparent power (kVa), rate changes or even rebates rewarding energy reductions that they didn't even know they had achieved. If a customer doesn't know what they are being incented to do, they are not being incented at all.

Case Study: The Value of Real Time Monitoring

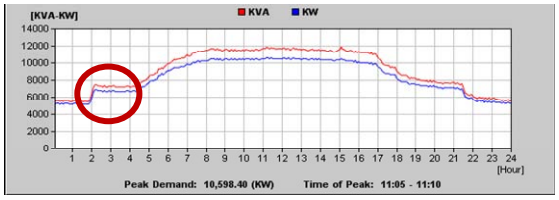
5 steps achieving an $80,000 annual savings in 2 weeks:

STEP 1: A real time monitoring (RTM) system was installed March 10. For the first time, operations could see electrical consumption (kWh) in real time.



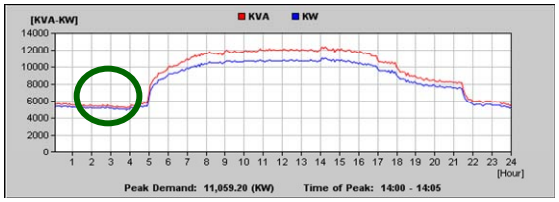
STEP 2: The energy team monitored the electricity consumption profile for the next 12 days to determine the building's load profile. The load profiles appeared normal, but with an unusually early start.

STEP 3: The Energy Team, noted a daily increase in consumption starting between hour 2 & 3 and alerted operations on March 23.



STEP 4: The Technical Director and Operations Supervisor met to devise a strategy.

STEP 5: Operations discussed alternatives that would ensure tenant comfort, protect operational concerns, and save energy. Operational changes resulted in a new electricity consumption profile that was completely flat in the early morning.



Result: *For the 2-3AM period there was a 26.5% reduction of electricity consumption against the previous average. This accounts for a reduction of 3,692 kWh against the average day.*

4.0 THE DANGER OF GREENWASHING

4.1 The "Sins of Greenwashing"

"In December 2007, environmental marketing company TerraChoice gained national press coverage for releasing a study called "The Six Sins of Greenwashing,"" [27] which provides valuable lessons equally applicable to the commercial sector.

The study highlighted the prevalence of Greenwashing as manifested by sins such as hidden tradeoffs to alleged Green activities, vagueness, irrelevance or unproven / un-provable environmental claims, fibs or equivocations.

4.2 The Consequences

- Green investment (in whatever form) is growing and expected to continue to do so.
- Tenants are starting to include a 'Green prerequisite' in their lease requests.
- Many property managers are rising to the challenge by developing 'Green leases' and other proactive measures to attract and retain tenants.
- Carbon has a cost that promises to rise.

In light of these new realities, avoiding obvious energy efficiency opportunities is recognized as irresponsible. Although 'Green' remains hazily defined, it's well enough understood to provide a means to distinguish great performers. More importantly, it also provides a means to distinguish poor performers. The consequences of failing to meet Green standards are significant, and include:

- **Attracting attention from a scandal obsessed media:** "The reputation of Japan's top paper companies collapsed faster than the proverbial house of cards in January when bogus labelling of products as recycled was uncovered.... Paper firms accounting for four-fifths of the industry confessed to exaggerating or entirely fabricating the recycled content of greetings cards, copier and printing paper in a bid to lure Green-minded customers. It was an industry-wide deception that had gone on for ten years."[28]
- **Reducing companies' attractiveness to skilled workers:** "A surprising percentage of young workers want employment with a Green company: 80 percent of those surveyed said they are interested in a job that has a positive impact on the environment and a whopping 92 percent would choose working for an environmentally friendly company."[29]
- **Alienating consumers (tenants):** 53% of global consumers prefer to buy from a company with a Green reputation.[30]

5.0 CONCLUSION

Green results are in demand. Thus, Green is becoming our new Gold.

Carbon neutrality is a recognized indicator of Green performance. An emission reduction strategy can and should incorporate various solutions such as Green power, carbon offsets, renewable energy, etc. The proponents for each of these options support energy-efficiency as the obvious first step.

Energy efficiency is seen as the 'thin edge of the wedge' in achieving Green, delivering early results.

- Low and no cost opportunities;
- Demand reduction; and
- System optimization.

Right now cutting energy waste by 20 to 30% is 'economically' achievable for commercial properties. Economic viability will only increase as energy prices rise, environmental issues are monetized (such as carbon offsets) and stakeholders refuse to support wasteful practices and instead reward results.

Green is hard work. Energy plans often get started with a whirlwind of excitement that quickly fades or becomes sidetracked as stakeholders are faced with challenges in obtaining data, investment, and understanding of the issues. Too often a proposed energy plan is produced and, starting from having nothing in place, escalates to a multi prong program with aggressive sub-requirements that quickly overwhelms operations. Inherent barriers become oppressive and since 'everyone' is involved there is often 'no one' responsible to deliver results. Hence, the status quo remains, despite the economic potential.

Success cannot be achieved in isolation. Successful Energy Plans resulted because of partnerships between

core stakeholders (owners, property managers, operations, and tenants).

Bottom Line:

The first step to becoming 'Green': Start!

Energy efficiency delivers early results

Defending the status quo by idling or 'pretending' with maintenance type activities disguised as Green measures is 'Greenwash' and comes with a high risk.

Building the right partnerships, making the correct investments, and taking action is a solid, sustainable and powerful path to moving forward in becoming Green.

APPENDIX A – ONTARIO HYDRO ENERGY PLAN CASE STUDY

Ontario Hydro created an 'in-house' partnership that spearheaded an energy efficiency initiative that received Ontario, Canada and US EPA awards for energy efficiency and Green house gas reduction. This partnership incorporated seven business units that had over 25,000 employees working within facilities across Ontario.

Despite 33 identified barriers, an Energy Plan was developed, proper investment put in place with foresight towards continuous improvement based on building on triple bottom line benefits.

The rewards were provided to all stakeholders and reported annually with energy reductions based on monitored, and verified procedures that were audited by a third party. Transparency was assured and allowed for additional investment to maintain the required resources; funding, staff and time to do a proper job.

APPENDIX B – A-B-C OF ENERGY PLANNING

A: Action Plan

Thoroughly review what has been done by others and start by asking hard questions; identify a proven approach which can be integrated into the organization vs. expecting the organization to change. Change is difficult, takes time, and requires investment. A successful **energy plan** will emerge that uses the vision of the organization, existing strengths and does not expect the organization to re-invent itself around energy management.

B: Benchmark

Achieving Green takes money, and work – hard work. "We get what we pay for" is another truism. Unfortunately, energy efficiency is often expected to be delivered for free. The lack of investment, tools and structure penalizes the achievement of sustainable results. Expecting 'something for nothing' typically achieves nothing.

Green is important and justifies the investment to acquire the necessary tools, such as real time monitoring, to implement the plan properly, which includes:

- Accurate assessment and self benchmarking,
- Strategies and solutions suited to the needs,
- Comparison with others.

C: Continuous Improvement

North America has had the luxury of abundant resources at low cost for a long time. This is changing as our energy demand increases, supply grows increasingly limited, and environmental issues become more acute. Business is expected to contribute and become part of the solution; not part of the problem.

Barriers to achieving Green may not be easy to identify, resolve or remove, but partnerships will work.

Change will take time, particularly in achieving sustainable change. A commitment to continuous improvement and long term perspective that assigns priorities and builds on early success will deliver lasting results.

[1] Energy @ Work: "Energy Efficiency Barriers in Ontario: Listening to the 'Interval Meter Customer' View". Published by OPA (Fall 2007).

[2] See Section 2.1.

[3] http://www.nytimes.com/2008/03/03/business/worldbusiness/03cnd-oil.html?scp=5&sq=energy+prices&st=nyt

[4] SDTC, "Commercial Buildings — Eco-Efficiency: SD Business Case," (2007), pp. 22.

[5] Cartoon reference: http://tmgcanada.wordpress.com/2007/04/11/managing-corporate-social-responsibility/

[6] Wikipedia on the blackout: http://en.wikipedia.org/wiki/2003_North_America_blackout

[7] Oxford University Press USA blog: http://blog.oup.com/2006/11/carbon_neutral_/

[8]Graphic at right drawn from National Research Council Canada: http://irc.nrc-cnrc.gc.ca/pubs/bsi/92-1_e.html

[9] United States Environmental Protection Agency (US-EPA), "Green Energy Defined": http://www.epa.gov/grnpower/gpmarket/index.htm

[10] Including Wal-Mart, BMO, the NHLPA, and Green Peace: http://www.bullfrogpower.com/powered/Greenindex.cfm

[11] Bullfrog Power on Environmental Benefits & Brand Benefits for Business: http://www.bullfrogpower.com/business/business.cfm

[12]Electricity Choices "Green Power Suppliers"(Nov 2007): http://www.electricitychoices.org/Greenpower.html

[13] BC Government Ministry of Small Business and Revenue report "British Columbia Carbon Tax".

[14] New York Times Magazine Article, "Act: A Clear Sense of Emission", (20-04-08): http://www.nytimes.com/2008/04/20/magazine/20Act-t.html

[15] McKinsey & Company, "Reducing US Greenhouse Gas Emissions: How Much at What Cost?", December 2007, pp. xiii.: http://www.mckinsey.com/clientservice/ccsi/pdf/US_ghg_final_report.pdf; and The Economist, "Irrational Incandescence", 31 May 2007: http://economist.co.uk/surveys/displaystory.cfm?story_id=9217972&CFID=8584114&CFTOKEN=21690652http://economist.co.uk/displaystory.cfm?story_id=9249262

[16] Energy Star, "Building Upgrade Manual", (Dec 2004): http://www.energystar.gov/ia/business/BUM.pdf

[17] The 80-20 Rule: http://www.aafp.org/fpm/20000900/76the8.html

[18] Building Owners and Managers Association Website: www.boma.org.
[19] SDTC, "Commercial Buildings — Eco-Efficiency: SD Business Case," (2007), pp. 36.

[20] CaGBC LEED Canada Initiative Overview: http://www.cagbc.org/database/rte/080204%20CaGBC%20LEED%20Canada%20Initiative_overview.pdf

[21] McKinsey and Company, (May 2007), pp. 106. http://www.mckinsey.com/mgi/publications/Curbing_Global_Energy/index.asp

[22] SDTC, Ibid.

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[23] McKinsey & Company, "Reducing US Greenhouse Gas Emissions: How Much at What Cost?", December 2007, pp. xii.: http://www.mckinsey.com/clientservice/ccsi/pdf/US_ghg_final_report.pdf

[24] Scudder H. Parker, "Optimizing the CDM Resources in Ontario", Green Energy Coalition, August 1 2008: pp. 86.

[25] "Energy Efficiency Barriers in Ontario: Listening to the 'Interval Meter Customer' View."

[26] Information on this topic is available online. The article at the following link is of particular note: http://www.energypulse.net/centers/article/article_display.cfm?a_id=430

[27] Wikipedia entry on "Greenwash": http://en.wikipedia.org/wiki/Greenwash

[28] Ethical Corporation, "Japan: Pulp Fiction": http://www.ethicalcorp.com/content.asp?ContentID=5766

[29] Greenbiz.com article on Green as an employee priority (published 2008): http://www.Greenbiz.com/news/news_third.cfm?NewsID=36111&CFID=13426096&CFTOKEN=94475733

[30]Environmental Leader "53% of Consumers Prefer to Buy From Company With Green Rep" (published Oct 2 2007): http://www.environmentalleader.com/2007/10/02/53-of-consumers-prefer-to-buy-from-companies-with-Green-rep/

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