



Community 20/20 Research Report 2019

Focusing on Energy Management For Businesses

Prepared by: Taylor Trocki, Eco-Action Program Coordinator

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Purpose: The Competitive Advantage of Sustainability

The purpose of this research report is to better understand energy consumption within the business sector and to identify solutions that will positively benefit the social, economic and environmental aspects of energy production and consumption as a whole. By introducing an effective energy management plan within any business space, especially commercial buildings, many benefits can be achieved by;

- Outwardly branding your business as energy conscious and sustainable
- Managing costs associated with operating a building with diverse tenant needs and activities
- Being a leader in energy conservation by investing resources into new and innovative technologies with increasing benefits over time
- Encouraging economic stability by supporting alternative energy initiatives
- Setting long term energy reduction goals for minimizing usage and implementing retrofits or energy performance enhancers

Background: Importance of Energy Conservation

According to the [Energy-Wise Canada Report](#) in 2011, total energy consumption **increased by 39%** in the commercial/institutional sector between 1990 and 2008. Although this was due to an increase in employment and occupying more building space, the increase is also believed to be linked to higher utility usage (for heating and cooling) and a spike in computer and auxiliary equipment implementation. For buildings that operate around the clock, energy consumption is also found to be much higher because of additional utility and energy usage during off-peak hours. Taking the necessary steps to implement an energy management plan within your building can have a positive impact in many ways;

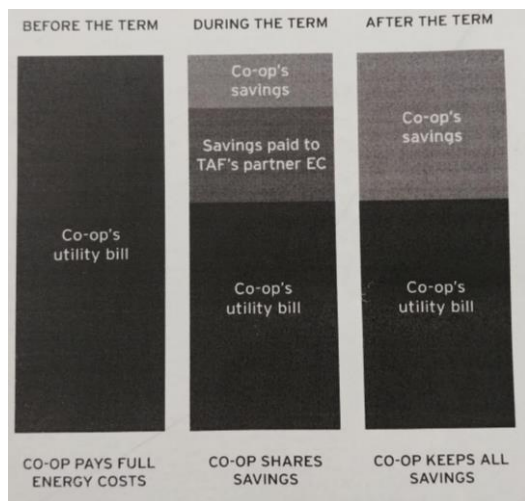
Economically: Understanding that energy can come from both renewable and non-renewable resources, it is important to recognize the effect this may be having on both the planet and your wallet over time. Much of the energy produced in Canada is non-renewable (crude oil, natural gas, coal etc.) which, as reserves decline, can become more expensive as the demand for energy increases. By staying up to date with your local utility provider's [energy tips](#) and encouraging them to supply cleaner, renewable alternatives, you can maintain affordability while investing in longer term solutions.

Environmentally: More than 70% of the world generates their electricity through the burning of fossil fuels and nuclear power. As stated in a National Geographic article titled "[Non-renewable Energy](#)", there are taxing environmental disadvantages to burning fossil fuels as an energy source such as air pollution, carbon imbalance and land and ocean contamination. By consciously reducing consumption and implementing controls within your building and office spaces, such as removing unnecessary energy users, you can do your part in reducing the overall environmental impact by decreasing the energy demand.

Socially: Due to the finite supply of fossil fuels available, many people will experience challenges should their access become limited or non-existent. If consumption of energy continues at the current rate, communities may find themselves in a vulnerable position, and therefore alternatives must be considered before we reach that state. Additionally, as communities become exposed to the negative environmental effects of retrieving and processing fossil fuels (oceanic oil spills and toxic explosions), health degradation and quality of life will be only some of the issues in question. Being fortunate enough to live within a developed country that has access to newer, renewable technology, resources and retrofits, now is the time to implement these corrective solutions that will decrease the likelihood of a future energy crisis.

Establishing an Energy Management Plan

Set up an Energy Savings Performance Agreement (ESPA)



The Atmospheric Fund (TAF) has recently developed a new program that assists building owners with the tools to mitigate rising energy costs by helping to finance an energy efficient retrofit without drawing on capital reserves. The ESPA is a mutually beneficial agreement that provides upfront cost coverage for the energy efficiency retrofit and in return, the investment is repaid through the cost savings of the retrofit until it has been repaid (see figure 1).

For more information about the step by step ESPA process, please visit: www.encycap.com or set up a meeting with a representative from Efficiency Capital.

Figure 1: Building Cost Savings Chart, Obtained from TAF

Conduct an Energy Audit

Conducting an energy audit is one of the most useful tools for business owners to cut costs and save on energy consumption. The goal of an energy audit is to determine how and where there are energy inefficiencies in your building and obtain resources and retrofit options to remedy the faults. Each energy auditor will follow specific criteria to assess your building and can provide you with the most comprehensive plan with associated incentives and cost savings projections over time. According to an [Inside Halton article](#), assessing air and water leaks, high energy appliances and insulation issues and addressing the problems through retrofits or energy efficient replacements can offer up to 30% savings in energy costs.

The following is a list of Energy Auditors in the Greater Toronto Hamilton Area. This list is non-exhaustive and should be considered as a starting point:

- [Burlington Hydro](#), 905-332-1851
- [Power Savings Systems Inc.](#), 905 696 8669
- [Virta Group Inc.](#), 416-410-3478
- [Trinus Engineering](#), (416) 456-0465
- [PL Energy Services](#), 1-800-936-3106
- [Impact Energy](#), 1-800-471-8978

Renteknik Group Inc. also specializes in a variety of energy, engineering and environmental solutions to help businesses improve sustainable performance and meet financial targets. They aim to help their clients maximize operational efficiency, reduce energy consumption, achieve energy savings and improve productivity. For more information about Renteknik's services, please visit: <http://www.renteknikgroup.com/index.html>.

Manage Energy Consumption in your Building (checklist)

Before, during or after an audit is complete, there are many small changes that can be made within your building that can positively offset consumption costs and improve overall sustainability. Obtained from the [Office of Energy Efficiency and Renewable Energy](#), the following comprehensive checklist outlines day to day and long term actions that can conserve energy use in an office setting and includes some additional tips outlined from [Burlington Hydro](#);

- Replace incandescent lights with compact fluorescent lights (CFLs) or light-emitting diodes (LEDs) for desk lamps and overhead lighting.
Using CFLs instead of comparable incandescent bulbs can save about 50% on your lighting costs. CFLs use only one-fourth the energy and last up to 10 times longer.
- Switch off all unnecessary lights. Use dimmers, motion sensors, or occupancy sensors to automatically turn off lighting when not in use to reduce energy use and costs.
- Turn off lights when you leave at night. Use natural lighting or daylighting. When feasible, turn off lights near windows. Consider installing motion sensed lighting for low traffic areas.
- Use task lighting; instead of brightly lighting an entire room, focus the light where you need it, to directly illuminate work areas.
- Use [ENERGY STAR products](#).
- Close or adjust window blinds to block direct sunlight to reduce cooling needs during warm months. [Overhangs or exterior window covers](#) are most effective to block sunlight on south-facing windows.
- In the winter months, open blinds on south-facing windows during the day to allow sunlight to naturally heat your workspace. At night, close the blinds to reduce heat loss.
- Unplug equipment that drains energy when not in use (i.e. cell phone chargers, fans, coffeemakers, desktop printers, radios, etc.).
- Use energy smart power bars/ strips that can sense when equipment is not in use or is on standby
- Turn off your computer and monitors at the end of the work day, if possible. If you leave your desk for an extended time, turn off your monitor.
- Turn off photocopier at night or purchase a new copier with low standby feature. Purchase printers and fax machines with power management feature and use it.
- Coordinate with vending machine vendor to turn off advertising lights.
- Have a qualified professional perform an energy audit.**
- Install programmable thermostats.
- Check furnace ducts for disconnects or leaks.
- Ensure HVAC ductwork is well insulated.
- Ensure adjustable speed drives are operating properly. Insulate water heater, hot water piping and tanks to reduce heat loss.
- Install low-flow toilets, urinals, faucets.
- Verify the energy management system switches into setback mode during unoccupied hours. Also, time clocks and computer controls may need adjustments after power outages or seasonal time changes.
- Install meters to track energy use.

Local Incentives

Burlington Hydro has a number of resources and programs to investigate when it comes to reducing energy consumption within your building. Some of their programs and incentives are outlined below, and for further information an appointment can be booked with one of the specialists at Burlington Hydro;

1. [Audit Funding Program](#): An energy auditor will work with you to identify inefficiencies and will devise an energy plan for the building. Through the incentivized projects and replacements, up to 50% of your energy audit costs could be covered!
2. [Retrofit Program](#): Identify areas where energy use can become more sustainable with the right improvements. Rebates and savings of up to 50% are available for projects that include HVAC redesign, lighting changes, windows and frames, operational equipment and controls etc.
3. [High Performance New Construction](#): Combine an energy efficiency savings plan with the building construction and architecture plan to reap the rewards of a more sustainable infrastructure.
4. [Training and Support](#): By participating in energy management training initiatives, you can develop key skills to ensure that Nuvo Network continues to operate with efficiency as it continues to grow and expand.

LEED (Leadership in Energy and Environmental Design) Certification

The [Canada Green Building Council](#) is a not-for-profit, national organization that has been working since 2002 to advance green building and sustainable community development practices in Canada. They are considered a “one stop resource” for a variety of green building related services including [LEED](#). While obtaining LEED certification for your building is one way to showcase your sustainability initiatives within, it is also the “practice of designing, constructing and operating buildings to maximize occupant health and productivity, use fewer resources, reduce waste and negative environmental impacts, and decrease life cycle costs”. These are some of LEED’s top reasons to consider obtaining the well-known certification;

- Instant building recognition
- Faster lease up rates
- Higher resale value
- Healthier indoor space
- Lower use of energy and other resources
- Better for building occupants, the community and the environment
- Enhances your brand and establishes you as a leader in green building

The [certification](#) can be obtained for both new construction and major renovation projects, where the building can then be categorized under one of the four certifications - certified, silver, gold and platinum. In Burlington, there are a number of properties that highlight and showcase their LEED certification proudly. Below are some of the properties and associated web page links to see how they are representing their sustainability initiatives!

- Gold Certification: [McMaster University DeGroote School of Business, Ron Joyce Centre](#)
- Gold Certification: [Burlington Performing Arts Centre](#)
- Gold Certification: [Burlington Fire Station #8](#)
- Gold Certification: [Mountain Equipment Co-op \(MEC\) Burlington](#)

WELL Building Standard

WELL is a performance-based system for measuring, certifying and monitoring features of the built environment that impact human health and well-being through air, water, nourishment, light, fitness, comfort and mind. It marries best practices in design and construction with evidence-based medical and scientific research – harnessing the built environment as a vehicle to support human health and wellbeing.

WELL is grounded in a body of medical research that explores the connection between the buildings where we spend more than 90 percent of our time and the health and wellness impacts on us as occupants. Certification allows building owners and employers to know that their space is performing as intended to support human health and wellness.

WELL is designed to work harmoniously with LEED and other international leading green building systems. In addition, third-party certification for WELL is provided through the International WELL Building Institute's (IWBI) collaboration with Green Business Certification Inc. (GBCI), the same organization that administers LEED certification.” [\(International WELL Building Institute-Canada\)](#)

Conclusion

Based on the outlined social, economic and environmental advantages above, it can be concluded that measures small and large taken to reduce energy consumption in the workplace can lead to a higher degree of operational efficiency and sustainability over time (see figure 2). Trying to find a starting point is the most challenging part of building an energy management plan suited for your space, but by highlighting a few key areas on the checklist, you can make big changes in the building to attract like-minded, forward thinking employees or tenants, while saving money.

For more information, the City of Burlington has also produced a number of [energy related resources](#) tailored to manage energy consumption and limit negative fossil fuel output and greenhouse gas emissions.

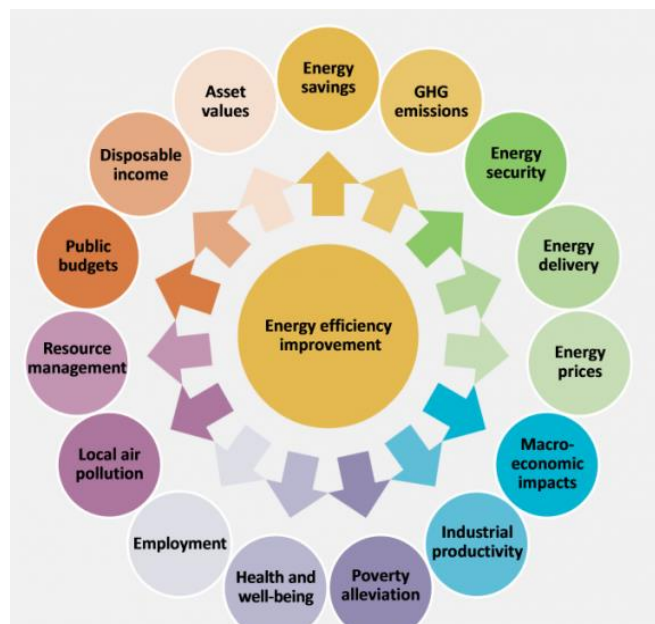


Figure 2: Connectivity chart for energy efficiency improvements, obtained from [Clean Energy Wire](#)