



# The Role of Government in Creating Green Buildings

Fall 2010

Prepared by: Andreas Boehm

ISIS, Sauder School of Business, UBC



Opening Worlds

Many individuals and groups supported The Green Real Estate Project over the course of its design, development and implementation. We are grateful to all that believed in the vision and helped make it a reality including:

#### Project Leads

Joanna Buczkowska, ISIS Research Centre

#### Graduate Student Project Team

Andreas Boehm, ISIS Research Centre

H.J. Geoffrey Taylor, ISIS Research Centre

Amin Shahbaz, ISIS Research Centre

Nicole Goldberger, ISIS Research Centre

#### Advisors, Contributors & Supporters

James Tansey, ISIS Research Centre

Sauder School of Business, UBC

MITACS

#### Partners

Faaiza Lalji, Larco Investments Ltd.

Amin Lalji, Larco Investments Ltd.

---

## Table of Contents

<b>Executive Summary .....</b>	<b>3</b>
<b>Introduction .....</b>	<b>4</b>
<b>Why Green Real Estate? .....</b>	<b>4</b>
<b>The Federal Government.....</b>	<b>5</b>
<b>Climate Change and GHG Emissions .....</b>	<b>5</b>
<b>PWGSC and OGGO .....</b>	<b>7</b>
<b>The Provincial Government Landscape.....</b>	<b>11</b>
<b>Looking at BC .....</b>	<b>11</b>
<b>Changes in Ontario .....</b>	<b>14</b>
<b>Municipal Government .....</b>	<b>16</b>
<b>Vancouver .....</b>	<b>17</b>
<b>Municipal Leaders .....</b>	<b>19</b>
<b>Lessons from the United States .....</b>	<b>22</b>
<b>Moving Forward .....</b>	<b>25</b>
<b>Lessons Learned .....</b>	<b>25</b>
<b>Foot Notes .....</b>	<b>29</b>

## Executive Summary

While green buildings and green communities are at the centre of discussion regarding how people can reduce their carbon footprints while making a positive change for the future, legislative components that drive these ideas are often overlooked. For many, the implementation of green buildings is market defined; as consumers demand green buildings as their homes, offices, and hotels, producers provide the green alternatives they are looking for.

The problem with green buildings, however, is that there are many different methods in which developers and property managers can meet market demand. With governments focusing on reducing their environmental impacts and creating standards and practices for natural resources, energy, and development, a barrier exists between business and government despite both pursuing similar goals.

This issue is of particular concern in Canada, where the housing industry has been late to embrace new green technologies and governments, especially Federal, Provincial and Municipal governments, have not worked together or with business to create standards that address their goal of reducing energy consumption and emissions.

This paper hopes to highlight where current inefficiencies exist between business and government in addition to pinpointing what successful approaches have worked in the international community. This paper also provides an analysis and offers options for all stakeholders to explore if they wish to meet their commitments of becoming participants of the green real estate marketplace.

## Introduction

### Why Green Real Estate?

The Green Real Estate economy has seen a dramatic increase of interest from both developers and consumers. With an overall focus on greening society, Canadians are demanding an increase in all things green, including their homes, workplaces, hotels, and any building that factors in their regular day to day interactions. With a demand for Green, developers are creating buildings that vary considerably in what they offer consumers in addition to making changes to their existing stock.

While a market for Green Real Estate exists, businesses in Canada have been slower than their international competitors to become major players in the marketplace. Much of this can be attributed to an overall lack of education in the Green Real Estate Sector in addition to a lack of leadership from governments; either Federal, Provincial or Municipal.

This has resulted in Canada being behind many European nations, and the United States, in creating Green Building policies that effectively assist businesses in meeting the mutual shared goal of creating sustainable environments. Government, much like business, has been slow to adapt to a new global climate that is demanding change towards a more sustainable environment. However, the onus is not completely on governments. Green saves money in day-to-day building operations while also protecting resources and improving upon the well being of individuals in their day-to-day operations. In fact, governments in Canada are beginning to acknowledge that major problems related to climate change, energy security and the financial crisis are all inter-related and that policies, especially in a sector such as a real estate, could in fact have an impact on the larger systemic issues affecting the nation. It is, however, only through partnerships and dialogue between stakeholders that the dramatic changes required for change will occur.

While this report focuses primarily on the Canadian environment, it draws heavily from the literature and resources of other countries that have pioneered the Green Building environment; most notably the United States. As the US and Canada are so closely intertwined in both their political needs moving forward and their economies, much of this information and data can be seen as complementary and instructive in how Canada can and will move forward.

## The Federal Government

Changes that need to occur across many planes of government and business often require leadership from the highest level. By working within the parliamentary system, the Federal Government of Canada has the ability to be a major driver to instilling change across the country. While it is reliant on the cooperation of politicians in Ottawa, even when a Minority Government is not in power, it can issue wide sweeping reform that influences the decision making process of other governments and businesses within the country.

This section will analyze how the Federal Government is working to meet its international requirements while setting a standard for Canadian citizens and businesses. By analyzing the expectations on Canada internationally, especially in regards to reducing carbon emissions, coupled with the expectation of those at home who see the Federal Government as a leader and standard bearer, business can both understand and adapt to changes that will affect the Real Estate sector.

## Climate Change and GHG Emissions

Since the adoption of the Kyoto Protocol in 1997, the world's governments have acknowledged that a stabilization of greenhouse gas (GHG) concentrations in the atmosphere needs to occur to prevent further interference with the climate system.<sup>1</sup> The 2009 United Nations Climate Change Conference, or Copenhagen Summit, was held to determine the framework for climate change mitigation. While a structure was not agreed upon, the Copenhagen Accord strengthened the resolve of the global community to take action in reducing emissions.

In its part, Canada pledged to cut carbon emissions by 20 per cent below 2006 levels by 2020. This amounts to 3 per cent below 1990 levels, which in comparison to the European Union's reduction of 20 per cent below 1990 levels, has been viewed by the international community as a poor effort.<sup>2</sup> Three provinces have set more ambitious standards with Quebec pledging a 20 per cent reduction of emissions and Ontario and British Columbia aiming for a 15 and 14 per cent reduction, respectively. These reductions complicate the position Alberta has taken in announcing it will be increasing its emissions by 56 per cent in part due to developing its tar sands.<sup>3</sup>

With Canada committing to reduce its emissions, focus has turned into what major sectors could be affected. While Canada is per capita one of the worst emitters in the world, its challenges are in many cases unique compared to those of other countries. Factors such as the geography and climate affect how Canada creates and uses energy.

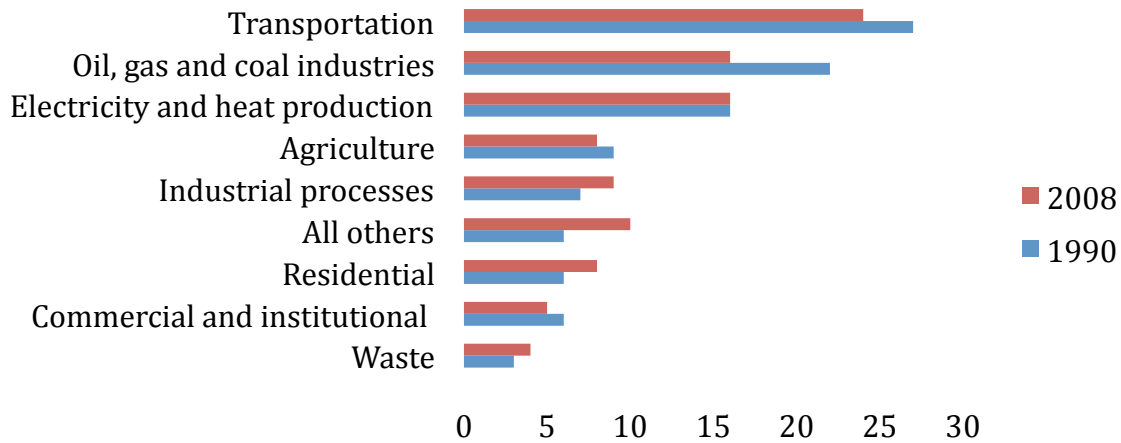


Figure 1: % of Canada's GHG emissions by sector – *Statistics Canada*

With the introduction of a Cap and Trade system, the sectors in Figure 1 will face challenges in curbing their emissions. The issuing of tradable permits to producers of emissions allows the purchase of the right to emit pollution, with the underlying belief that some level of emissions does not create pollution. The issuing of permits is a command-and-control tool that ensures all emitters must purchase the right to pollute, however, offers a market incentive in that businesses are able to trade that right to other emitters if they accumulate a surplus of permits that are not being used. In effect, Cap and Trade does not determine compliance by reference to a common standard, firms are instead required to dispense a permit for every unit of discharge.<sup>4</sup> Two key aspects that emerge from a cap and trade scheme is that regulators are not determining an emission standard but rather a cap which requires determining an acceptable level of emissions both spatially and temporally. It also determines that the rights to discharge are explicit and must be allocated for instead of being given no oversight.<sup>5</sup>

Essentially, the Federal Government's primary concern is with energy efficiency and sustainable building practices. A shift to raising the cost of inefficiencies, in addition to subsidizing sustainable

practices, will change market behavior. While the Federal Government has been unwilling to subsidize the sustainable practices of larger players in the real estate industry, a move to the cap and trade system will target those guilty of a large carbon footprint; whether they are developers, property managers, or homeowners. It should be noted most often costs that are borne by the producers will be passed on to the consumer, which will mean industries that rely heavily on transportation, energy and other highly intensive GHG producing sectors will have to adapt their consumption patterns.

With an estimated 12.5 million residential homes and 500,000 commercial and institutional buildings, Canada's buildings are estimated to account for:

- One third of Canada's energy production
- 50 per cent of extracted natural resources
- 25 per cent of landfill waste
- 10 per cent airborne particulates
- 35 per cent of GHG's<sup>6</sup>

These estimates do not factor in transportation and industrial energy in the production and movement of building products. Any system instituted, whether it is a Federal/Provincial Cap and Trade Policy or a Provincial Carbon Tax, will have dramatic effects in the resources used, the construction methods employed and efficiency of the building being created. While the Federal Government of Canada has stated that it is awaiting leadership from the US in instituting any massive reform to reduce carbon emissions, it has undertaken some changes. The eventual implementation of taxes and other coercive methods of compliance signal that businesses will be forced to adapt and that incentive driven policy, while still operating in some sectors, will most likely face a gradual repeal; this in light that most incentive based programs have targeted Residential buildings and not Commercial buildings. It is alarming that despite these facts, many companies are not aligning themselves with future energy demands.<sup>7</sup>

## **PWGSC and OGGO**

The Public Sector influences property markets in three ways; regulations of building construction and management, which is more likely to occur on the municipal level; taxation and environmental



regulation that alter market dynamics through Federal regulation; and, the occupancy and construction of their own facilities. This concept of leading by example can raise awareness and provide experience, both essential to facilitating a culture of change.<sup>8</sup>

Around the world, various governments are known to promote new technologies and ideas, especially in regards to 'green' concepts. Countries in Europe, such as Germany, who rely on nuclear and coal-fired electricity, created buildings that are energy efficient to address shortcomings of available energy.<sup>9</sup> With recent legislation focusing on sustainable energy methods, Germany has positioned itself as one of the most effective cutters in carbon emissions due to pre-existing green building regulation and forward looking energy legislation. In fact, Europe as a whole passed the Energy Performance for Buildings Directive (EPBD) in 2002 with their Kyoto declarations in mind. The EPBD required a minimum energy performance for all new developments and major renovations while also creating Energy Performance Credits (EPC's) for existing stock when sold or rented and ensured regular inspections of HVAC systems.<sup>10</sup> This coordination ensured that any company who wished to conduct business-as-usual was forced into compliance.

While the government most likely to impact change in Europe is the Federal Government, countries within North America are most likely to impact change through Municipal Legislation<sup>11</sup>. This, however, is not to say that the Canadian Federal Government is immune from action. Other countries have introduced legislation that is adaptable to the Canadian Federal system. India, a country facing pressure from the West to adapt to climate change, has made changes to its own Government stock through the Energy Conservation Act of 2002. While Japan requires all buildings post their Comprehensive Assessment System for Built Environment Efficiency (CASBEE) rating to the general public, despite not mandating a particular level for compliance measures.

While the response has been slower, the Canadian Government has made strides in greening its federal stock through Public Works and Government Services Canada (PWGSC). This has resulted in all buildings of federal stock, owned and leased, meeting the highest of standards. With the introduction of the 'Green Plan' in 1990, the Government began to measure sustainability indicators in 1995. Many of these findings led to incentive based programs and standardizations, such as the 'Commercial Building Incentive Program' and Natural Resources Canada's (NRCAN)

‘Energide’. By establishing a Building Owners and Managers Association Building Environmental Standards (BOMA BEST) for all Federal Buildings, PWGSC has long demonstrated Canada’s desire to shift to a more sustainable environment.<sup>12</sup>

Perhaps one of the more important programs that specifically looked at energy needs for buildings was NRCAN’s Sustainable Development Strategy (SDS). The SDS served as a tool for how the Government should address the challenges associated to sustainable development. Overall, the SDS was envisioned to coordinate between NRCAN’s policies, programs, science and technologies, legislation, regulations and operations.<sup>13</sup> With strategies focused on short-term achievements, no longer than three years in the future, SDS’s highlighted NRCAN’s involvement and main concerns moving forward. With the completion of two SDS’s, independent reviews of the overall effectiveness of the Ministries policies were evaluated as poorly planned and implemented. The Auditor General’s 2002 report concluded “strategies are not meeting their potential to influence change towards development . . . strategy focus needed”<sup>14</sup> The latest SDS stretching from 2007 to 2009 focused on achieving results and placed significant importance on creating an environment of transparency and creating a public involvement policy.

The Office of Greening Government Operations (OGGO) was created by PWGSC in coordination with Environment Canada to assist in both overseeing greening operations and to noting the changes occurring within the Green Landscape. In coordination with PWGSC and the Federal Government, OGGO is determining the changes necessary to Federal Stock and whether the BOMA BEST guidelines established several years ago still represents the Government’s interest in being a global and national leader.<sup>15</sup> While the PWGSC report on ‘Green Standards for Office Buildings’ has passed its expiration date, no concrete standards have yet to be established. In all likelihood, judging from global trends elsewhere, the Government of Canada will adopt a stricter environmental code to the offices they own and lease. A switch to the LEED rating system, the current standard in North America, will most likely occur as Carbon Neutral Buildings are the end goal. With the Government taking a leadership approach, standards for the business sector will be established while green jobs will be created; a crucial investment for a greener building environment within Canada.

Businesses that own federal stock will have a significant advantage in being at the forefront of green building and retrofits as they will garner knowledge and best practices while assuming a fraction of the cost and risk due to their tenants responsibility for all building charges.<sup>16</sup>

## The Provincial Government Landscape

With the Federal Government deciding to follow the lead of the US in creating a standard to reduce carbon emissions, many of the Provincial Governments have begun to act on their own. The three most populated Provinces in Canada: Quebec, Ontario and BC, have opted to introduce measures to reduce their carbon emissions to a higher standard than the Federal Governments.<sup>17</sup> With these three provincial governments accounting for a significant proportion of Canada's emissions, it speaks volumes that progressive methods and tools are being explored without Federal leadership. With Canada's largest emitter, Alberta, stating that it will most likely increase its rate of emissions, it is important for other provinces to lead by example and demonstrate that a reduction of emissions can be accomplished without a sacrifice that will negatively affect businesses and citizens.

This section will analyze what BC has done and is doing to promote green buildings. While specific policies for green buildings are lacking, the Province has pushed through stringent regulations to curb emissions and climate change that will most likely have a dramatic effect on how developers conduct business in the future.<sup>18</sup> Additionally, this section will contrast findings from BC to those of Ontario; the provincial leader for green policies that have positively affected the housing industry. With most green building policies conducted among Federal Governments in Europe or Municipal Governments in North America, this section will primarily look at the role provinces have in creating an environment for green buildings.

### Looking at BC

British Columbia is in many ways a leader in Canada. The only province that has instituted a Carbon Tax, BC has signaled that emission reduction and energy conservation are important to its future. While the Province's pledge to have a carbon neutral public sector by 2010 was not reached, significant strides have been taken. By instituting changes to its building codes, creating the Climate Action Plan, passing legislation such as the Clean Air Act, or instituting major changes in the form of a Carbon Tax or the incoming Cap and Trade system coordinated through the Western Climate Initiative (WCI), the Province of BC has created an environment where a culture of green can succeed. While these changes have positioned BC as an aggressive agent for change, there are areas for improvement.

In reducing GHG emissions, the Province introduced a carbon tax to charge purchases of fossil fuels in BC. As a revenue-neutral tax, revenue from the tax is returned to taxpayers through reduction in other taxes. The tax, the first of its kind in North America, aims to reduce the consumption of fossil fuels with a gradual increase on the price per tonne of carbon dioxide emissions; starting at \$10 dollars per tonne in 2008 and increasing by \$5 in subsequent years.

In addition to the Carbon Tax, the Province has recently agreed to introduce a Cap and Trade system through the WCI. By relying on market principles, BC has established a cap on the amount of emissions that are allowed and plans to lower figures over time. The premise of the Cap and Trade system that the Province is employing is similar to the system introduced in the Federal Government section of this paper. By playing a significant role with the WCI in creating a Cap and Trade system, the Province has positioned itself as a leader in North America and a strong influence to any future emerging North American cap and trade systems. Early introduction of this system will have many people looking at the Province for leadership and assistance in the future while also creating green job opportunities.

Prior to the introduction of the Carbon Tax and Cap and Trade system, the Province committed itself to reducing GHG emissions. One of the methods in which it planned to do so was through the Climate Action Plan (CAP). The CAP outlined four ways the Province was to focus its efforts in addressing global warming; creating GHG reduction targets, specific policy measures by sector, strategies to assist adaptation to climate change, and educating and engaging the public about the effects of climate change. While significant measures have been done to address the reduction of GHG's, policies that analyze specific sectors are not nearly as definitive.

One sector outlined in the CAP that affects the creation of green buildings in BC is the building sector. Reforms were created in 2008 with changes to green the BC Building Code with a focus on new regulations that promoted energy and water efficiency. Code changes included energy performance meeting an EnerGuide 80 rating in 2011, solar hot water ready homes where practical, and high-efficiency toilets.<sup>19</sup> In addition to the focus on water and energy, other changes reflected the significance that small changes can have to create sustainability. These changes include new insulations standards and making smart metering mandatory for new buildings. The

CAP is also looking at ways to provide support and incentives for retrofitting, and encouraging the use of more efficient furnaces and appliances. While the information on any incentive program that targets developers is lacking, there are a few programs for homeowners.

In terms of specific green building legislation, the Province has done little to change how the housing market operates. As the largest tenant of office buildings, the BC provincial government has moved to have all buildings it leases and owns retrofitted to a LEED Gold standard.<sup>20</sup> While governments will often offer incentives to others wishing to follow their lead in order for the market to adopt like minded standards, there has only been a focus on educating and demonstrating the benefits of green building stock/buildings to developers. BC has enacted a comprehensive green building code for commercial buildings, and residential buildings of fewer than five stories that encompasses energy efficiency and water conservation standards. By legislating the BC Energy Efficiency Acts of 2006 and 2007, the Province has raised standards for furnaces, windows, and lights among other components. In the following year, BC introduced a \$60 million three year Efficiency Incentive Program which consisted of grants and sales tax exemptions to promote energy conservation through comprehensive energy assessments, provincial building retrofits, and promoting the use of solar energy and other renewable technologies.<sup>21</sup> These policies tend to play the role of educating the public and real estate industry rather than providing an actual incentive for developers to pursue green building standards.

It is evident that the Province, as a whole, has not offered the range of benefits and programs that are available in the United States, and, as explained later in this paper, those made available in Ontario. If the Province wants to be perceived as a leader in energy conservation, as its legislation has done, it will need to better pinpoint how to assist vulnerable sectors in meeting new green standards and methods in which to adapt. There are many industries, key to the BC economy, which will need some assistance in overcoming the burden of both a Carbon Tax and the future Cap and Trade systems. The housing industry is just one of many that will require assistance.

In addition to Provincial Legislation, consideration must be given to BC Hydro, a crown corporation which operates under the Province. With a significant focus of green buildings based on energy consumption, it would stand to reason that utility companies play a major role in shaping energy policy.<sup>22</sup> BC Hydro produces a surplus of energy and charges consumers some of the lowest prices

in Canada for energy.<sup>23</sup> As a result, energy conservation has not been as significant an issue as in Eastern Canada and has resulted in surplus energy being sold to the US. There are, however, stresses to the current system. BC Hydro estimates that within the next twenty years, demand will increase by 20 to 40 percent.<sup>24</sup> This increase in demand will come at a time when some of BC's main sources of energy are coming to the end of their life cycle. While new sites, such as Site C, and new technologies, such as wind power, are being explored, there will be an increasing need to conserve energy if BC Hydro wishes to continue a similar business model.<sup>25</sup>

BC Hydro has partnered with municipalities to create incentive based programs that will be further examined in the Municipal Government section of this paper.

Reports analyzing the Canadian energy retrofit market stress the importance of permeating all levels of the real estate market and to not be restricted to governments, corporation, users and tenants.<sup>26</sup> This is particularly true for the Province of BC, which has had difficulties in concentrating its efforts on any one individual group in particular. With the amount of new buildings being constructed for government lower than the existing stock of office buildings, it stands to reason that programs which encourage retrofitting are more important than those that look at new developments.<sup>27</sup>

## **Changes in Ontario**

With the introduction of its Green Energy Act (GEA), the Province of Ontario has positioned itself as a leader in creating a green economy. The GEA has placed the growth of clean and renewable energy as a major priority for the Government moving forward. Coupling this change in energy policy with a series of conservation methods targeted towards all buildings, the Government hopes to trigger savings and better management of energy expenditures. Finally, this legislation also hopes to create an environment for green jobs with more than 50,000 planned in the first three years of its operation. By creating an environment of clarity, through the approval process and content requirements for programs, the Government hopes to have a strong and lasting green environment in place.

<b>More Renewables</b>	<b>Culture of Conservation</b>
Creating a pricing system for renewable energy to incentivize investment	Ensure Energy Star (leading standard) for household appliance and efficient water use
Institute “right to connect” for renewables to integrate into the grid	Create mandatory home energy audits prior to sales
Create a streamlined approvals process	Integrate energy reform into Ontario Building Code
	Strengthen public sector building requirements

**Figure 2: Ontario's goals through the Green Energy Act**

Ontario is choosing to create this culture through a variety of methods, some of which are intensive in their design. The creation of a ‘feed-in-tariff’ is designed to generate specific rates from renewable energy sources and assist with the creation of a “smart” power grid which will arrange for an easy transition to new technologies such as electric cars. A feed-in-tariff system, through the FID and microFIT programs offered through the Ontario Power Authority, allows developers of renewable energy a guaranteed price for all energy produced for at least 20 years.<sup>28</sup> This is particularly effective for larger developments, including large office buildings and mixed-use developments. The creation of mandatory energy audits prior to the sale of a home or building is similar to legislation passed by the EU, however, lacks a penalty for non-compliance to an agreed upon standard. While these incentives and methods for change are in many ways the best within Canada, they fall behind international standards and could be improved upon.



## Municipal Government

While other countries have relied on their Federal Governments to produce legislation that would direct business in the best methods to reduce emissions and conserve energy, North America is reliant on Municipal Governments to provide change. The significant role of Municipal legislation, or rather the lack of, has led experts to comment that:

“. . . it is the failure of effective governance within cities that explains the poor environmental performance of so many cities rather than inherent characteristics of cities in general.” - ***Jenks and Burgess, 2000.***

The answers to effective working municipalities are not solely to increase densities and mixing uses. Sustainable cities are instead reliant on a variety of other municipal initiatives that aim to provide high quality infrastructure, effective public transportation management that ensure affordability and reliability, reduced noise and air pollution, access to public facilities and a clean and safe environment to name a few.<sup>29</sup> Characteristics of Green Buildings take into account the location of their projects; not building on fragile landscapes or contributing to urban sprawl. They aim to minimize their environmental impact by reducing surface water pollution and using holding ponds, xeriscape landscaping, and green space. The buildings themselves address exterior building concerns by integrating new technologies such as window canopies, alternative energy resources, and green roofs while addressing interior problems by using minimum and recycled materials, controllable light and heating and improved interior air quality. By addressing the ways in which these concepts are adopted, municipalities can shape the form their cities take and ensure sustainability is addressed.

The Canadian municipal landscape, much like other forms of government, has been slow to adapt to change. In fact, the only cities that have made an effective attempt to green their own stock are Calgary, Vancouver and Markham.<sup>30</sup> This section will analyze the City of Vancouver's move towards a Green Building Policy and some of the smaller communities within Canada that are demonstrating leadership in creating a sustainable building environment.

## Vancouver

For the better part of the last fifty years, real estate development in Vancouver has dealt with the challenge of supplying high demand for buildings in a geographically restricted area. Bordered by the mountains and the ocean, space is at a premium. With demand ever increasing, higher density mixed use developments are seen as an effective way to provide citizens with both the central location they desire while addressing their consumer needs. This section explores current City policies and what changes could affect how developers work in the future.

In publishing 'Vancouver 2020: A Bright Green Future' the City has comprehensively established its guidelines to become the greenest city in the world. The road map analyzes where citizens, businesses and government will need to make commitments to achieve this goal by 2020. The report centres around three tenants of creating a green society; a green economy, green communities and human health. By reaching ten specific goals in these areas, Vancouver can position itself to not only be one of the most prosperous cities in the world but also a global leader.

Green buildings have been identified as one of the main methods in which Vancouver can create green jobs, reduce emissions and provide a health environment for its citizens. It is estimated that buildings and vehicles produce more than 85 per cent of Vancouver's GHGs.<sup>31</sup> With an ambitious plan to lead the world in green building design and construction, Vancouver hopes that the changes it makes to its existing building stock and new developments will lead to a dramatic reduction in GHGs.

Vancouver has identified the significance of density and mixed-use development in a city's growth. By offering citizens a mix of housing types, jobs, schools, daycares, shopping and recreational opportunities within a ten minute walking radius, the use of cars would be reduced, public transportation to these hubs would increase, and communities would thrive. Vancouver is working through its Ecodensity program to create an environment of sustainability and points to recent legislation allowing laneway housing as a progressive move to establishing this increase in planned density. The city is currently in the planning process of analyzing the best way to permit mixed-use developments and working with public transit, employment centres and energy providers to establish this goal.

The City acknowledges that density requires appropriate planning and one of the best methods to ensure this is to integrate planning for energy needs, water use, waste, green space and food systems. An integrated energy strategy working with emitters on effective ways in which to reduce emissions is being explored with an emphasis on renewable energy. The City believes that by establishing onsite renewable energy at high profile locations, such as City Hall, Science World, schools and other public buildings, government will demonstrate to business and citizens the benefits of green energy.

In June of 2008, City Council adopted the 'Rezoning Policy for Greener Buildings' initiative to be implemented in 2010. The policy demands that all new developments that require rezoning meet the minimum requirements of LEED Silver in addition to requirements based on water conservation and storm-water.<sup>32</sup> Some of the methods in which the City hopes to change water regulations is requiring drains to connect to sanitary sewers instead of stormwater drains, adopting low flush toilets and EnergyStar laundry, and promoting landscape and ecological programs such as urban agriculture installations and sustainable landscaping such as green roofs and low-water plants. This shift in City policy is telling of Vancouver's planning moving forward. A zoning requirement demands strict compliance and varies dramatically from the practices of most Green Cities that use market based incentives to coax fulfillment of green principles. With the introduction of a Green Building Strategy<sup>33</sup> to occur in the near future, it is most likely that the current Rezoning Policy for Greener Buildings is adopted on a larger scale to all developments, including those that do not require rezoning. By including separate requirements from those stipulated in LEED, the City is adapting its requirements to shift from the checklist-based approach to a more performance-based approach. With a commitment to have all buildings carbon neutral by 2030, the City will need to adopt stringent regulations that will have a dramatic impact on developers moving forward.

In addition to creating a comprehensive strategy that addresses green buildings specifically, cities in the Lower Mainland are exploring Environmental Pricing Reform (EPR) as a means to reduce environmental impacts and create revenue. By establishing a price for a good or service, municipalities can encourage responsible environmental practices while improving tax payer equity and creating a larger tax base for environmental projects. EPR can be developed to address any number of environmental issues including; land use, transportation, waste management, air quality,

electricity consumption, sustainable buildings, social equity and local government financing.<sup>34</sup> While EPR tools are meant to create a fairer and more sustainable method to fund local services, there are various methods in which cities can implement compliance that vary in coercion. From tax rate reductions and exemptions to metering and unit-cost pricing, measures vary in flexibility so that cities can determine the best method moving forward. In promoting the development of green buildings, cities have used EPR tools such as density bonuses, DCC reduction, and other financial incentives for buildings that meet performance standards.<sup>35</sup> Governments also look providing mechanisms such as revolving loan funds and financing to incremental costs that factor into green buildings.

While the City of Vancouver is beginning to establish how it will house an ever-increasing population, developers need to be wary of what changes to the building bylaws could mean. Embracing sustainable building concepts such as mixed-use development seem to address some of the Cities concerns regarding housing, emissions and traffic congestion. While these methods may excel in Vancouver, their use in smaller communities outside of Vancouver should be further analyzed. Consumer housing demands in communities such as Surrey and North Vancouver differ considerably as a premium is placed on space and property size. While the needs of smaller communities in the Lower Mainland differ from those of Vancouver, some of the most progressive of ideas related to green buildings are occurring on the municipal level.

### **Municipal Leaders**

While Vancouver has yet to establish a comprehensive Green Building Strategy, not all communities in the region have been slow to act. Through leadership of the Province of BC, local governments are required to include GHG reduction targets and supporting policy proposals in official community plans by May 31, 2010. The goal is to reduce emissions by 33 per cent by 2020 and 80 per cent by 2050 in relation to a 2007 baseline.

Perhaps one of the most progressive cities in the BC region, in terms of providing the groundwork necessary for green houses, is the District of Saanich in Victoria, BC. While the BC landscape has focused primarily on incentives that would assist homeowners in greening their homes, Saanich,

with assistance from other key players, has provided energy efficiency grants and Green Building Rebates in both the retrofitting and new construction of single family homes and small businesses.

In addition to reducing permit fees for new single family homes that meet third party green building rating system standards, Saanich has focused on creating a culture of dialogue and education with all major players involved. The incentives offered through the Green Building Rebate Program have been so well communicated that some new single family homes have been granted a reduction of 50 per cent off building permit fees.

Saanich also does not rely on a single standard for developers and home owners. Entry into the rebate program can be achieved through four different energy measuring standards, including; EnerGuide 80, Power Smart for New Homes, R-2000 and Built Green. The Green Building Rebate Program was created to consolidate the resources of the municipality and the non-profit enterprise City Green Solutions. City Green Solutions is contracted by the District to provide consultations to builders who apply for a building permit. An estimated fifty-eight 'GreenStart' consultations were

offered to builders and renovators offering a review of retrofit options.<sup>36</sup>

Rebate Level	EnerGuide Level
<b>30%</b>	Built Green Platinum 82
	Power Smart Gold 80
	Energuide 80 80
	R-2000 80
	Gold Renovations 80
<b>20%</b>	Built Green Gold 77
	Power Smart Silver 77
	Silver Renovations 77
<b>10%</b>	Built Green Silver 75
	Bronze Renovations 75

\*some conditions may apply

In addition to its Green Building Rebate Program, Saanich in partnership with BC Hydro and City Green Solutions, continues to offer a pilot program that specifically attempts to reduce energy consumption rates. In its initial year of operations, 1,557 homeowners completed ecoENERGY /LiveSmart BC home energy assessments and forty-three small businesses received free BC Hydro Product Incentive Program lighting assessments. Savings were estimated at almost one million kilowatt hours and ninety thousand gigajoules, or, enough power to meet the electrical needs of over 500 BC homes for one year.<sup>37</sup> In

Figure 3: The District of Saanich's Rebate Program

fact, the success of the pilot program in Saanich has resulted in the ecoENERGY Retrofit Grants and Incentives program expanding across the province to include all single family homes and multi-unit residential buildings until March 31, 2011 when the program goes under review. Currently, the maximum amount one can receive through the grant is \$5,000.<sup>38</sup>

While the City has done more than most to change behavior and practices, there is considerable room for improvement. First, the focus continues to be on home owners and single family residences while the incentives for businesses are lacking considerably. Municipalities in other countries, such as the United States, continue to offer varying forms of construction programs and benefits to both home owners and developers.

In fact, the Lower Mainland is severely lacking in programs to assist with a transition to green. The few that do exist are focused towards home owners and provide only a small pittance of financial or credit related assistance. Examples include the Vancity Cashback program where the Vancity credit union provides \$170 for energy-efficient home renovations that will meet an EnerGuide house rating. The sum covers the cost for an evaluation with the provision that the renovations total \$3,500 or more. The Northern Saving Credit Union offers a Smart Home Loan where clients in Northern BC enlisted in the program are eligible for \$300 cash back and low-interest loans if their renovations are financed through the credit union. Additionally, the City of Victoria offers a WaterWise Fixture Replacement Rebate where residents who replace their old toilet and showerheads can receive a \$75 rebate.<sup>39</sup> Currently, there is a lack of programs in the Lower Mainland to address commercial developments.

If municipalities in the Lower Mainland are seeking to address change in current building practices, there is a need to administer market based incentive programs to provide developers with a reason to change their business practices. While many believe the command and control tactics of Cap and Trade and Carbon Tax implemented by the Federal and Provincial Government will provide change, they will require developers to analyze that best methods moving forward and will only hurt municipalities in creating longer, cost prohibited projects. Incentives that strictly dictate best practices will assist business in adjusting to how municipalities see fit.

## Lessons from the United States

The United States is a global leader in creating an environment for Green Buildings to be built and succeed. While the US is a distinct nation with a different form of government, the similarities in building design, construction practices and settlement patterns make it an effective comparable. When we factor in how closely intertwined the economies of Canada and the US are, especially in regards to the construction firms operating in both nations and the producers and goods used, there appears to be more that bridges the two nations than separates their concerns regarding changes to real estate industry.

An emerging trend in the US has utility companies providing subsidies for buildings renovated for energy efficiency while local governments provide incentives that target developers who usually require permits and approvals for their construction.<sup>40</sup> By offering attractive incentives to home owners and developers in all areas of commercial real estate, many American municipalities have been at the forefront of creating standards that other cities across the world are examining to determine whether they are successful and can be used elsewhere. With the mayors of over 600 US Cities agreeing to reduce their GHGs by 7 per cent compared to 1990 levels, many have adopted market based incentives to promote change. These municipalities were driven by the lack of federal and state level leadership.

A 2007 NAIOP Research Foundation Report found that forty-six large American municipalities had adopted a LEED standard or equivalent into their building code. An additional four American cities were cited as having policies in place that encouraged building towards a LEED standard. These fifty cities were found to employ a wide variety of different market based incentive programs to both enforce and encourage Green Buildings.

<b>Policy in Place</b>	<b># of US cities</b>	<b>All cities in State</b>
Priority Building Process	8	
Expedited D'vlpmt Plan Review	10	
Solar Energy Fee/Credit	2	
Tax Refund/Credit	4	Arizona, Nevada, Oregon
Bond Funds	1	
Loan Funds	2	
Rebates from Utilities	3	Massachusetts
Energy-efficient rebates	2	
Marketing Materials/Publicity	4	
LEED Certification Refund	2	
Development Fund Contribution	1	
Direct Grants	6	
Reduced D'vlpmt Fees	6	
Incentive by Request	1	
Density Bonuses	4	

**Figure 4: Total number of Cities and States using incentive based measures**

Many of these policies have not been adopted in Canadian cities. While some are rooted in the geography of the cities seeking to promote a type of sustainable building; such as the introduction of solar panels in Phoenix, others are seen as effective tools that could be employed in any city willing to promote a sustainable building culture. A recent trend also sees action occurring on the state level. Where once it was strictly up to municipalities to encourage change, States are taking notice to the implications of building green and how it may impact their emissions and power consumption in addition to providing jobs.

Of the policies listed, the tax refund option seems to have traction with a significant proportion of municipalities and states. Tax incentives, and other market based incentives that affect company bottom lines, have proven to be both the most successful methods of creating compliance in that businesses will respond actively and less education is required.<sup>41</sup> Incentives vary considerably but some of the most effective are priority building permits that expedite the process saving time and money for developers; bond funds which collect fees from all developers and redistribute them to sustainable projects; and a variety of different forms of refunds and rebates for energy efficiencies.



Findings in the NAIOP Research Paper also revealed that not all policies in place have been market based incentives. In some cases, cities have decided to integrate more coercive methods of compliance. One method being used in Gainesville, FL, Arlington, VA, and Washington D.C. is performance monitoring and reporting. This requires that developers provide the cities with post-commissioning reporting on their performance to date. The City of Frisco, TX has gone as far as fining developers who do not build sustainably and do not meet certain compliance related issues.

## Moving Forward

From a policy perspective, Canada lags behind many other nations in creating a culture conducive for developers to adopt green technologies and concepts in their day-to-day operations. While many incentive based programs launched have targeted home owners to retrofit their homes, with a primary focus on energy reducing measures, much more needs to be done by all levels of government to assist businesses in changing their methods.

Policies that could affect the demand for Green Buildings vary. Programs that look to make single family, multi-unit and commercial buildings more efficient have begun to take shape in Canada while improved national standards for equipment and appliances used in commercial and residential buildings have yet to be explored. Priority tax treatments and expedited building permits have effectively transformed the American green building sector into a North American leader, while market based incentives, despite a few exceptions, have not been introduced.

Onus, however, cannot solely be on governments to meet the requirements of business. The overall failure of property markets to provide green buildings is indicative of widespread ignorance regarding market demand, which has been significantly underestimated, and actual green costs, which have been overstated. Coupled with the markets risk aversion, due primarily to a lack of leadership and a difficult economic environment, developers within Canada are not meeting their full potential despite the leadership vacuum that exists.

While businesses may admonish an overall lack of incentives to assist in facilitating change, they must realize that current trends are increasingly moving away from inactive based instruments to penalties. With reduced GHG emissions an expected international contribution, businesses must plan for the eventuality of a Cap and Trade system to the market place. While the primary focus of this system is on large emitters, the building sector will not go by unnoticed and an extension of caps will occur.

## Lessons Learned

It is evident that governments have not explored the variety of methods in which to propel green buildings into the real estate industry. While targeting existing single family units enhances the

message that Canadians need to change the manner in which they heat their homes, use their appliances, and use their water; it only partly addresses the problem of reducing the carbon footprints of buildings. Very little has been done to target larger buildings, and in many regards, the governments are relying on the Corporate Social Responsibility programs of developers and management companies to make changes based on how they affect their companies bottom line. All three levels of government, Federal, Provincial and Municipal, have not fully explored the benefits of incentive market based programs. These programs could effectively assist building management companies and large developers change their current practices into sustainable practices. With the current command and control tactics of taxes and emissions trading systems emerging, businesses that have adapted to green standards have a competitive advantage over those who continue to follow business-as-usual methods. While many governments have expressed their desire to be green leaders, the lack of support they have provided businesses in complying with their goals has only ensured that any large-scale transition will come with time and most likely affect bottom lines.

While there has been a lack of government leadership, especially in regards to assisting larger businesses green their operation, this should not fully excuse business for not changing their methods. There has been a continued demand for green in the real estate market and businesses cannot deflect the blame for not meeting this demand. While market incentives may be lacking, business should see what they are doing as an investment in the future of their properties and their business plans. By adapting to a new environment of stricter legislation, these companies could be well poised to succeed in a new green building landscape. Business investments in green real estate should work within timelines; what changes can be made now, in the future, and which should avoided until further leadership and research is done.

In the present, companies could provide a favourable return to their bottom lines by making changes where benefits outweigh the costs in the short term. Changes, especially in the retrofits market; from faucets and windows to furnaces, could lead to significant long-term savings. This would require examining what technologies currently exist in the market and at how far into the future businesses would begin to see a positive return. With green technologies improving at an

increasing rate, businesses should keep looking forward at what changes could reduce their carbon footprint, while increasing their revenues.

In addition to planning for the current market, businesses should anticipate how they will be affected by more coercive methods of compliance such as the Carbon Tax and the Cap and Trade system. While it may not make economic sense to currently invest in large-scale energy or water reduction projects, companies need to acknowledge that business-as-usual tactics will no longer apply in a climate change world. If many of these changes are unavoidable, it is in business's best interest to absorb the cost of any projects sooner rather than later. With a learning curve usually associated with large-scale new technologies, many companies can position themselves to be leaders in the green marketplace.

Businesses need to keep in mind that while they are under great pressure to embrace green technologies, there are some investments that do not necessarily make economic sense. While governments may propose ambitious targets to reduce their emissions, the likelihood that they are all reached is slim. Some technologies, especially those in their infancy, may require frequent monitoring and repairs in order to operate to their full potential. In many cases, these technologies could prove to be more costly in the long run and not meet the standards a company wishes to meet in the future.

While there is risk associated with changing business culture, companies need to acknowledge that change will be occurring on many levels. An effective way to mitigate the extent to which change needs to occur is by creating dialogue between companies and governments. As this paper concluded, green building policy is being driven by municipalities. Developers and building management firms would be wise to communicate their strategies with municipal governments to see where they overlap and if possible synergies exist. With no comprehensive strategy in place, companies may be able to work with government in creating standards that keep their interests in mind. As the global real estate industry wrestles with how to make large-scale modifications to their current operations, governments need to work with each other and business to create an environment that welcomes change. Not all stakeholders will be completely satisfied with any future resolutions in a comprehensive Canadian green building strategy and variation will occur

from region to region due to particular needs, however, there is little doubt that action needs to take place. The sooner government creates legislation, and the sooner businesses adapt their CSR strategies, Canada can position itself as a leader in green.

## Foot Notes

- <sup>1</sup> UN website, 'Article 2' "*The United Nations Framework Convention on Climate Change*" June 1992
- <sup>2</sup> *The Toronto Star* "Canada Inactive on Climate Front" December 7, 2009
- <sup>3</sup> Pembina Institute "Canadian Oil Sands and Greenhouse Gases: the Facts in Perspective" August 2010
- <sup>4</sup> Carolyn Fischer "Combing Rate-Based and Cap and Trade Emissions Policies" May 2003
- <sup>5</sup> Bonnie G. Colby "Cap and Trade Policy Challenges: A Tale of Three Markets" November 2000
- <sup>6</sup> Morrison Hershfield "A Business Case for Green Buildings in Canada" March 31, 2005.
- <sup>7</sup> IFMA Foundation "The Economics of Sustainability in Commercial Real Estate" Kristian Peterson & Ross Gammill 2010
- <sup>8</sup> RREEF Research "Globalization and Global Trends in Green Real Estate Investment" September 2008
- <sup>9</sup> EuroACE "Towards Energy Efficient Buildings in Europe" June 2004
- <sup>10</sup> Ibid
- <sup>11</sup> RREEF Research
- <sup>12</sup> PWGSC "Sustainable Development Targets" 2006
- <sup>13</sup> Public Works and Government Services "Sustainable Development Strategy 2007 – 2009" 2006
- <sup>14</sup> Office of the Auditor General of Canada "Sustainable Development Strategies" October 2002
- <sup>15</sup> Planning for a Sustainable Future: A Federal Sustainable Development Strategy for Canada
- <sup>16</sup> Informetrica Limited "Sale and Leaseback of Government Buildings" August 2007
- <sup>17</sup> *The Toronto Star* "Ontario and Quebec fear chill over climate pact" December 2009
- <sup>18</sup> Alan Durning "Cap and Trade or Carbon Tax? Both!" May 2008
- <sup>19</sup> British Columbia Building Code 2006
- <sup>20</sup> BC Energy Efficient Buildings Strategy
- <sup>21</sup> Ibid
- <sup>22</sup> NRC Institute for Research in Construction "Do LEED certified buildings save energy? Yes, but. . ." August 2009
- <sup>23</sup> BC Hydro Service Plan 2010-2012
- <sup>24</sup> BC Hydro website 'Meeting Demand Growth' accessed July 2010
- <sup>25</sup> Ibid
- <sup>26</sup> IFMA Foundation Report
- <sup>27</sup> RREEF Research
- <sup>28</sup> Ontario Power Authority "OPA Feed in Tariff Program" 2009
- <sup>29</sup> Oxford Centre for Sustainable Development "Can Urban Intensification Contribute to Sustainable Cities?" 2007
- <sup>30</sup> Canadian Green Building Council "A Business Case for Green Buildings" March 2005
- <sup>31</sup> City of Vancouver "Vancouver 2020: A Bright Green Future" February 2010
- <sup>32</sup> City of Vancouver "Rezoning Policy for Greener Buildings" June 2008
- <sup>33</sup> City of Vancouver, Standing Committee on Planning and Environment "Vancouver Green Building Strategy" November 2005
- <sup>34</sup> Sustainable Prosperity "The Smart Budget Toolkit: Environmental Pricing Reform for Municipalities" May 2010
- <sup>35</sup> Ibid
- <sup>36</sup> CityGreen Solutions 'Saanich Community Members get an Energy Efficiency Boost from BC Hydro' October 2009
- <sup>37</sup> <http://www.citygreen.ca/saanich-community-members-get-energy-efficiency-boost-bc-hydro>
- <sup>38</sup> District of Saanich 'Green Building Rebate Program' 2009
- <sup>39</sup> Victoria WaterWise website
- <sup>40</sup> RREEF Research
- <sup>41</sup> Green Building in North America "Toward Sustainable Financing and Strong Markets for Green Building: US Green Building Finance Review"