



Notice is hereby given of the following meeting:

**ENVIRONMENT & CLIMATE
ADVISORY COMMITTEE (EnCAC)**

Wednesday, July 15, 2020, at 5:00 p.m.

Meeting held electronically under Ministerial Order No. M192

AGENDA

1.0 HOUSEKEEPING

1.1 Online Introductions and Icebreaker

2.0 ADDITIONS / DELETIONS TO AGENDA

2.1 Additions/revisions to and Adoption of the Agenda of July 15, 2020

3.0 ADOPTION OF MINUTES

3.1 Adoption of the Minutes of May 27, 2020

4.0 PRESENTATIONS

4.1 Community Energy Emissions Plan – Buildings – Leya Behra

4.2 [Energy Save New West](#) – Program Discussion – Ryan Coleman

5.0 UNFINISHED BUSINESS

No Items

6.0 NEW BUSINESS

6.1 Selection of Community Grant Program Committee Representative – Jennifer Lukianchuk

7.0 REPORTS AND INFORMATION

7.1 Environment Coordinator’s Update – Jennifer Lukianchuk

8.0 NEXT MEETING DATE

Wednesday, October 21, 2020, at 6:00 p.m. – Location details to be confirmed

9.0 ADJOURNMENT



ENVIRONMENT & CLIMATE ADVISORY COMMITTEE (EnCAC)

Wednesday, May 27, 2020, at 5:00 p.m.

Meeting held electronically under Ministerial Order No. M139

MINUTES

MEMBERS PRESENT:

Councillor Nadine Nakagawa	- Chair, City Council Member
Michelle Bono	- Community Member
Karen Crosby	- Community Member
Colleen Gillespie	- Representative, Professional in Environment or Climate Field, Business, Government or Non-Profit
John Lekakis	- Representative, Local Institution (SD40)
Teresa Morton	- Representative, Local Environment Association
Patrick Parkes	- Community Member
John Ragone (Left at 6:30 p.m.)	- Community Member
Bryanna Thiel	- Representative, Professional in Environment or Climate Field, Business, Government or Non-Profit
Serena Vampa	- Representative, Local Business Association

MEMBERS REGRETS:

Raunaq Singh	- Community Member
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GUESTS:

Mike Coulthard	- Diamond Head Consulting
Camille Lefrançois	- Diamond Head Consulting
Cassandra Cummings	- Diamond Head Consulting

STAFF PRESENT:

Leya Behra	- Manager, Climate Action
Jennifer Lukianchuk	- Senior Environmental Coordinator
Nicole Ludwig	- Assistant City Clerk
Carilyn Cook	- Committee Clerk

The meeting was called to order at 5:00 p.m.

1.0 HOUSEKEEPING

1.1 Online Introductions

Carilyn Cook, Committee Clerk, welcomed Committee members to the meeting and briefly outlined how to use online meeting functions.

2.0 ADDITIONS / DELETIONS TO AGENDA

No changes were made.

3.0 ADOPTION OF MINUTES

3.1 Adoption of the Minutes of March 11, 2020

MOVED and SECONDED

THAT the Minutes of the March 11, 2020 Environment Advisory Committee meeting be adopted as circulated.

CARRIED.

All Committee members present voted in favour of the motion.

Bryanna Thiel queried her designation on the Committee as she applied as a community member but is noted otherwise in the minutes. Staff agreed to provide clarification to Ms. Thiel after the meeting.

In response to Councillor Nakagawa's icebreaker question, "What nice thing or adventure have you experienced since the start of the pandemic?" Committee members shared that their experiences included finding a hummingbird nest, spending more time with their dogs, purchasing and reading books, bicycling to and exploring other municipalities, preparing for the re-start of school as a teacher, adopting a puppy, walks admiring neighbourhood gardens, exploring Colony Farm park, landscaping and working on their gardens, and navigating the simultaneous responsibilities that come with working and being home with children.

Procedural note: Item 4.2: Biodiversity Strategy Presentation and Workshop was addressed at this time.

4.0 PRESENTATIONS

4.1 Discussion – COVID and its Impacts on Climate Action, and the Green Recovery

Councillor Nakagawa shared that a lot of people are talking about the parallels between the COVID-19 response and the climate emergency response, noting that one of the City's most challenging and visible responses to a pandemic issue is facilitating social distancing in the public realm, including erecting pylons on some streets in order to provide safe pedestrian traffic through the community. She advised that while these are temporary measures, they are somewhat aligned with the City's goal to reclaim street space.

Further, Councillor Nakagawa stated that immediate response is required to address COVID-19 matters and, as such, the City's climate emergency work has been temporarily paused as these issues are addressed; however, as we enter the recovery stage, the climate emergency can be revisited.

In response to questions, Councillor Nakagawa advised:

- Over the past two months, staff have been working on pandemic-related tasks; however, the City still wants to address the climate emergency this year through the 7 Bold Steps as a number of the climate actions were already in the budget;
- In response to the pandemic, the City has formed a number of task forces, including those that address the needs of the City's vulnerable, at-risk, and senior populations such as food security. Since the City has established relationships with service providers and organizations, a number of food security actions were able to be undertaken immediately to assist these groups, as well work being undertaken to provide long-term food security;
- The City proposed a crisis climate levy; however, that was changed to an emergency fund which included funds not allocated elsewhere; and,
- Regarding tackling the increase in single-use plastic consumption, noting the necessity for rubber gloves and masks during the pandemic, the City is awaiting direction from the Province, therefore it has not yet been addressed by Council.

In response to a question from Leya Behra, Manager, Climate Action, Committee members identified the following priorities for the 7 Bold Steps:

- Accelerate the timeline for Urban Forest Management Strategy tree planting, focussing on less green areas such as the Brow of Hill;
- Address the potential of increased flooding from the Fraser River as a result of changing climate, rising sea levels, and spring freshet, and how that may affect the City's infrastructure, utility corridors, etc., and also avoid development in areas prone to flooding, and instead use the space to create and encourage biodiversity;
- Reallocate road space for pedestrians;

- Reduce the number of cars on the street, including those that pass through the City and make it safer to bike around the community;
- If people continued working from home at least one day a week once the pandemic is over, that would help the City achieve the 2nd Bold Step: Car Light Community; and,
- The City needs to be educated as to what is scientifically proven to work when it comes to the use of single-use plastics, such as disposable gloves.

MOVED and SECONDED

THAT the Environment & Climate Advisory Committee recommends that Council continue moving forward with the 7 Bold Steps as a priority and seek federal funding for their implementation.

CARRIED.

All Committee members present voted in favour of the motion.

4.2 Biodiversity Strategy Presentation and Workshop

Mike Coulthard of Diamond Head Consulting, introduced himself and colleagues, Cassandra Cummings and Camille Lefrançois, and commenced with a presentation and workshop.

Committee members provided the following comments to questions regarding biodiversity:

What do you like about biodiversity and natural areas?

- People go to places with high biodiversity such as Queens Park, Glenbrooke Ravine Park, Hume Park, and the Fraser River for walks and recreation;
- Biodiversity maximizes social interactions;
- It is nice to hear the birds in the morning, before the traffic starts; and,
- The trees and planted boulevard areas in the Queens Park area and residential area gardens are all good neighbourhood features.

What could be done to improve biodiversity and natural areas?

- Prioritize the restoration of the Brunette-Fraser River corridor;
- Create quiet biodiverse areas away from traffic and understand the effects that noise and smell have on biodiversity;
- Investigate ways to regulate vehicle noise, possibly through fines;
- Consider accessibility to natural areas;
- Vegetation that addresses complementary climate change benefits;
- More movement corridors and fewer lawns;
- Urban orchards and natural food opportunity sources such as native berries, etc.

- Understand the impacts of land use on aquatic biodiversity;
- Address the lack of aquatic spaces in areas such as the west side;
- Including the Fraser River's aquatic biodiversity in the mapping will be important for consideration with climate change, flooding, etc.; and,
- Incentivize biodiversity in multi-family land use.

The consultants' email information was provided to Committee members for further input and Councillor Nakagawa thanked the consultants for attending the meeting.

Procedural note: Item 4.1: Discussion – COVID and its Impacts on Climate Action, and the Green Recovery was addressed after Item 4.2, followed by the remainder of agenda items.

5.0 UNFINISHED BUSINESS

There were no items.

6.0 NEW BUSINESS

6.1 Community Electric Vehicle (EV) Strategy Presentation and Workshop

Leya Behra, Climate Manager, shared that she was seeking feedback from the Committee regarding EV infrastructure in the City, including what the City can support and supply both publicly and privately, and the EV strategy's vision and guiding principles. Ms. Behra provided a PowerPoint presentation and facilitated a short workshop addressing the 4th Bold Step: Pollution Free Vehicles.

In response to questions from the Committee, Ms. Behra advised:

- The greater market availability of longer range EV vehicles and stronger incentives have increased the public's adoption of the vehicles;
- Use of EV charging stations is determined by location and time of day; and,
- EV charging stations which require payment to park may be used less.

Committee members provided the following comments to questions regarding the community EV strategy:

What is the City's role in supporting public access to EV charging stations?

- Supply the infrastructure but allow the private sector to own/operate it;
- Support the early stages of adoption, then support the transition to private;
- Provide additional support for at-home chargers;

- Provide more education and partnerships with funding;
- Allocate a share of privately owned/operated charging station profits to the public;
- Ensure accessibility to privately run stations; and,
- Support the adoption of stations publically so that rates are high enough to attract a private buy in.

What is the community's need as it relates to public access to EV charging infrastructure?

No comments were received.

Where could we potentially install curbside charging? Where are the priority areas?

- Uptown and Queensborough;
- Recreation centres and public parks; however, it was noted that some Committee members have mixed feelings regarding providing charging stations at these locations as they feel people should be using active modes of transportation to access these amenities; and,
- The Quay and other places that would attract tourism.

Ms. Behra urged Committee members to contact her directly if they had further questions and/or comments regarding the Community EV Strategy.

7.0 REPORTS AND INFORMATION

7.1 Environment Coordinator's Update

Jennifer Lukianchuk, Environment Coordinator, announced the following events:

- A Pop-Up Recycling event will take place on Saturday, May 30th at the City's Public Works Yard from 10:00 a.m. to 2:00 pm. This will be a trial event, with social distancing in place and, if it goes well, may become a monthly occurrence. Additional details can be found on the City's website; and,
- The Glenbrook Ravine Restoration event will also take place on Saturday, May 30th from 10:00 a.m. to 1:00 p.m. Ms. Lukianchuk can be contacted for more information.

8.0 NEXT MEETING DATE

Wednesday, July 15, 2020, at 5:00 p.m. – Details to be confirmed

9.0 ADJOURNMENT

ON MOTION, the meeting was adjourned at 6:58 p.m.

Certified correct,

**COUNCILLOR NADINE NAKAGAWA
CHAIR**

**CARILYN COOK
COMMITTEE CLERK**

DRAFT

City of New Westminster
COMMUNITY ENERGY
& EMISSIONS PLAN

Stantec Consulting Ltd.
June 20, 2011



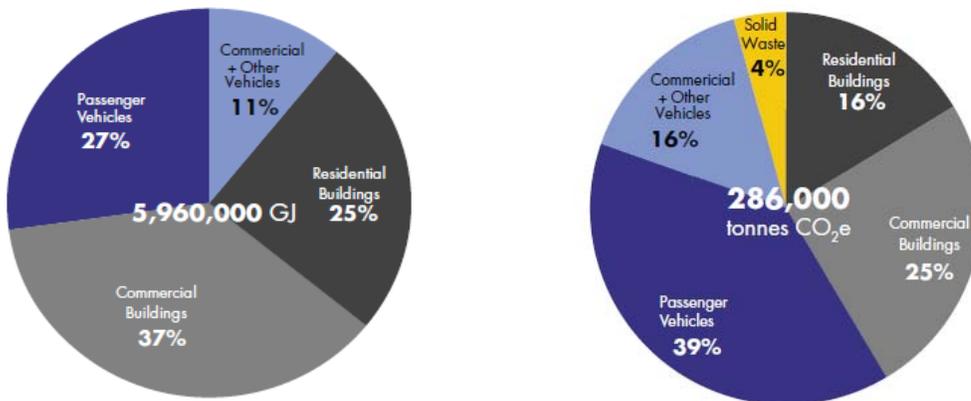
SUMMARY

The City of New Westminster has developed this Community Energy and Emissions Plan (CEEP) as part of its ongoing efforts to ensure we support a highly livable, healthy, sustainable community as we continue to grow and develop over the next 25 years and beyond. The CEEP supports sustainable community development by identifying opportunities for reducing community level energy consumption and GHG emissions with the benefits of:

- Reduced energy costs
- Reduced impacts to climate change
- Improved air quality
- Reduced vulnerability to energy markets
- Job creation and business opportunities
- A more sustainable community

This plan identifies:

Where are we now? Residents, businesses and organizations in New Westminster consume energy in order to heat and power buildings, and to move goods and people around. In order to purchase this energy, residents, businesses and organizations in New Westminster spend approximately \$114 million dollars annually. Approximately 38% of the energy we consume is used to move our vehicles, and 62% of the energy is used for our buildings. With respect to greenhouse gas emissions (GHGs), approximately 55% come from our vehicles, 41% from heating and powering our buildings, and the remaining 4% comes from the breakdown of our solid waste in landfills.



Where are we going? Although New Westminster's geographic boundaries are not expanding, the city's population continues to grow and is projected to increase by approximately 40% in 25 years. As population grows, so does demand for energy. If we continue using fossil fuels as the energy source, the result will be increasing GHG emissions, as well as an increasing reliance on energy sources with uncertainty about supply and volatility in costs.

Where do we want to be? To ensure New Westminster continues to be a place we want to live, work and play in, the plan defines our long-term vision and goals for the city with respect to energy:

We are a healthy, active and livable community. We are well positioned and ready to make choices to reduce our carbon footprint. We honour our past and embrace the future.

8 Goals for Reducing Energy and GHG Emissions in New West:

1. *Improve energy efficiency in existing buildings*
2. *Build the most energy efficient new buildings*
3. *Encourage renewable, responsible & local energy*
4. *Build neighbourhoods where residents can live, work and play in close proximity*
5. *Foster walking, cycling, and taking transit as the preferred ways of getting around*
6. *Support use of efficient and low-carbon mobility*
7. *Minimize waste generation*
8. *Maximize reuse, recycling and material recovery*

The City has adopted a GHG emission reduction target as follows:

Reduce community-wide GHG emissions by 15% by 2030

How will we get there? The CEEP identifies 35 actions the City can put into place, from education campaigns to policies about re-zoning, to help achieve this vision, goals and the GHG emission reduction target. Various levels of actions are defined from “Light Green” to “Moderate” to “Deep Green”. Implementation of the “Moderate” scenario is estimated to achieve the GHG emissions reduction target and is estimated to have the following costs for implementation:

Estimated City Staff Time: 1 FTE for 5 years

Estimated City Disbursement Costs: \$250,000 per year over 10 years

The City will need to dedicate staff time and annual funding to support the implementation of this plan. It will also be important to continually monitor, report and review progress on these activities so that they can be adjusted as necessary to improve the outcomes. This plan commits the City to taking action; however, **to fully achieve this plan, residents, businesses and organizations in New Westminster will each need to do their part.**

5. BUILDINGS

Buildings account for the majority of the energy consumed in the community; 3,699,317 GJ or 55% of total energy consumption in 2007. When energy consumption is converted into GHG emissions, buildings account for only 36% of total emissions or 118,398 tonnes CO₂e. This is because the majority of the energy consumed by buildings is from hydro electricity, which is a less carbon intensive energy source than fossil fuels such as natural gas, gasoline, propane, etc.



Figure 7. Westminster Centre, LEED Gold certified
Source: City of New Westminster

Reducing energy demand in both existing and new buildings and finding ways to incorporate alternative energy systems are the key strategies for reducing GHG emissions from buildings.

This section deals exclusively with activities at the building scale and presents:

- the context with respect to current and future building stock and the associated energy use and GHG emissions;
- key strategies and related actions that will result in energy and emissions reductions, and;
- potential scenarios for reducing energy and GHG emissions and the reduction targets associated with each of these scenarios

5.1 Context

Housing

In 2007, residential buildings accounted for 25% of the energy consumed in the community and 16% of total GHG emissions. The type, form and function of buildings, including their size, age and construction, impact the amount of energy that is needed to heat and power them. While there is variation in building energy use within the City's building stock, generally speaking, smaller, newer dwellings built in a more compact form tend to consume less energy than larger, older single family dwellings.

Key statistics with respect to New Westminster's current housing stock and their relevance for energy and emissions planning are as follows:

- Over 66% of dwellings are low-rise and high-rise apartments. Only 19% of dwellings are single family detached homes.**
 Apartments have a lower energy intensity (energy consumed per unit) than other dwelling types, and New Westminster has more apartment buildings than most Lower Mainland municipalities (Figure 8).
- Approximately two-thirds of dwellings are over 20 years old.**
 Primarily due to advances in building codes, newer dwellings tend to be more energy efficient than older dwellings. Studies suggest that the energy intensity of new homes built to current building standards is about 15% lower than the existing building stock.
- Almost half of dwellings are rented.**
 This can present challenges for retrofitting existing buildings. Often in older buildings, heat and hot water costs are included in rent which means there is a lack of direct financial incentive for residents to change their energy consumption behaviour. Tenants are also less inclined to make energy efficiency investments in dwellings where they may only live temporarily. In other cases, property owners may be reluctant to make the upfront capital investments without direct control over the behaviour of the occupants and resulting payback periods.

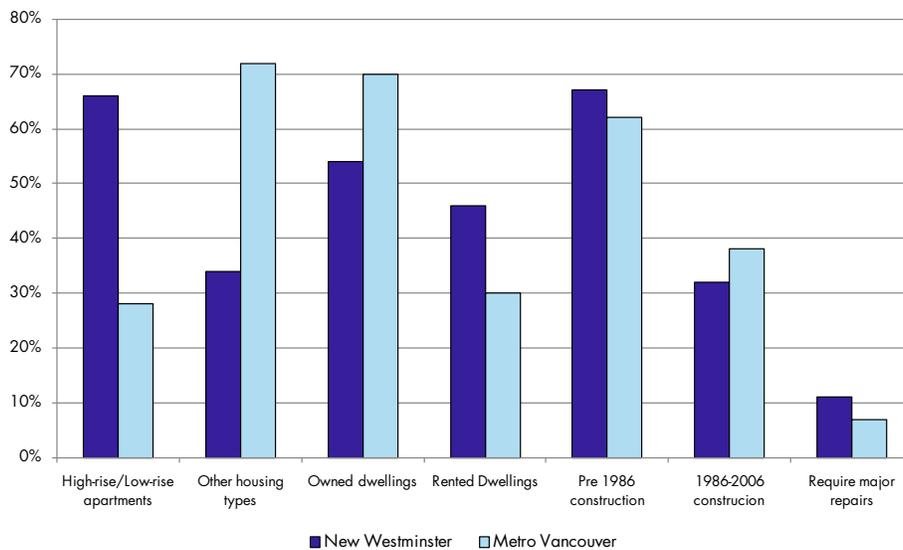


Figure 8. Housing Type and Characteristics
 Source: Statistics Canada Census, 2006

Moving forward, the City has plans to continue to encourage medium-to-high density residential development. New growth is expected to be accommodated mainly in the Downtown and Queensborough neighbourhoods. According to the Downtown Plan, 26% of the City’s housing stock will be in the Downtown by 2031 and 98% of that Downtown housing stock will be in apartment form. In Queensborough, the current housing mix is diverse with 31% in single family homes; 23% in apartments, 15% in primary suites of homes having secondary suites; 15% in secondary suites; 13% in townhomes, and 3% in movable dwellings. Housing projections to 2031 for the Queensborough neighbourhood show growth in all

dwelling types, with the following housing split: 14% single family homes; 13% residential multi-family (row homes); 58% residential multi-family (low rise apartments); and 26% residential multi-family (high rise apartments).

Commercial, Industrial and Institutional Buildings

The amount and type of commercial, institutional and industrial activity in a community defines the amount of energy consumed and GHGs emitted by non-residential buildings. The combined total space available in buildings for these activities has been in slight decline in New Westminster over the last 10 years, and in 2007 was reported as 12.8 million square feet of floorspace¹⁰. During this period, the commercial floorspace area has increased by 11%, while industrial and institutional floorspace have decreased by 14% and 12%, respectively (see Figure 9).

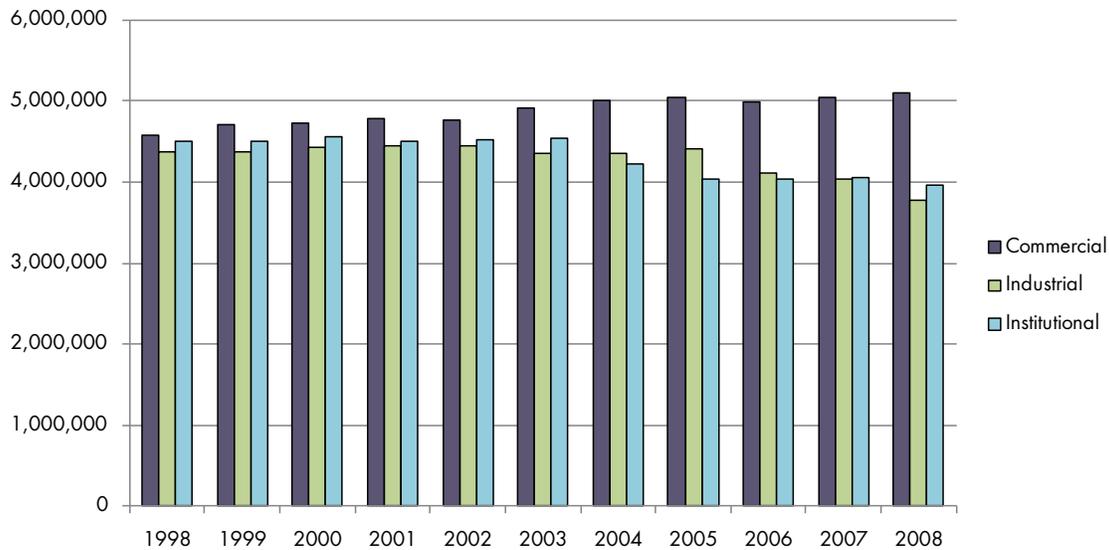


Figure 9. Non-residential Floorspace Area (1998-2008)

Source: City of New Westminster Community Profile, 2009

In 2007, commercial buildings (including small/medium industrial buildings) accounted for 37% of the community’s total energy consumption. When converted into GHG emissions, this represents 25% of total emissions in the community.

In an effort to improve the sustainability of commercial buildings and to reduce their demand on municipal services and infrastructure, the City has recently updated the existing Development Cost Charges (DCCs) program to reflect the actual costs attributable to accommodating new growth (i.e. new cost burden on the municipality to support the accompanying infrastructure and amenities). DCC rates are structured such that they

¹⁰ City of New Westminster Community Profile, 2009

encourage the development or redevelopment of more smaller, more efficient buildings, which may serve to improve the resource efficiency (including the energy efficiency) of commercial development over time.

Mixed use developments and redevelopments that incorporate commercial and institutional spaces alongside diverse housing options and transit continue to move forward in New Westminster. In Sapperton, development of the Brewery District is underway with the first building currently under construction.

Alternative Energy in Buildings

There are a few known alternative energy systems in place or under development in New Westminster and the City is interested in encouraging more. The City will participate in the Solar Hot Water Ready program that, once a bylaw is established, will require that all new single family homes in New Westminster be built to accommodate future installation of solar hot water systems.

A major barrier to the implementation of alternative energy systems is the real or perceived financial cost associated with installing these technologies. In fact, many of these technologies are fully commercialized today and are just not widely deployed. Efforts to communicate the benefits of these systems and to encourage and support their implementation at the building scale will help to overcome these barriers.

5.2 Strategy for Existing Buildings

GOAL: TO IMPROVE ENERGY EFFICIENCY IN EXISTING BUILDINGS

Description

Older buildings are prone to having compromised air sealing from windows and doors, poor or no insulation of walls, and inefficient furnaces and water heating appliances, all of which contribute to increased energy demand and GHG emissions. Further, almost 70% of the building stock that exists today in New Westminster is over 25 years old. As such, existing buildings present a significant opportunity to reduce energy demand and GHG emissions in New Westminster.



Figure 10. Installation of a geo-exchange system in New Westminster

Source: DEC Design Mechanical Consultants

This strategy looks at ways to encourage homeowners, landlords, commercial building owners and property managers to retrofit their buildings so that they perform to higher standards of energy performance. Given the make-up of the existing residential building stock, this strategy has a particular focus on multi-unit residential buildings (MURBs) and policies and actions that the City can employ to encourage strata councils to undertake energy efficiency retrofits.

Role of Other Agencies

- BC Building Code requires existing buildings to meet new standards when undertaking renovations
- Federal government, provincial government and utility (BC Hydro and Terasen) rebate and incentive programs encourage voluntary improvements in energy efficiency in residential and commercial buildings

City Actions

Action 1 Develop a retrofit campaign targeting MURB residents

A barrier to the implementation of multi-unit residential building (MURB) retrofits is the complications involved in arranging financing when dealing with multiple owners. Retrofit financing through MURB strata corporations presents a potential opportunity to overcome this barrier. With the large quantity of owned and rented units in MURBs in New Westminster,

there is a large opportunity for conserving energy by working with stratas and/or owners of rental buildings.

- Light Green: The City will work with the Electric Utility Commission (EUC) to:
 - Package and promote information on existing retrofit incentives programs (use electric utility bills as a communications vehicle)
 - Engage strata councils and property owners/managers in discussions around how to further encourage energy retrofits in MURBs
- Moderate/Deep Green: The City will also:
 - Explore opportunities to create a retrofit financing program modelled after programs being offered (and piloted) by the Cities of Toronto and Vancouver¹¹, where stratas can receive up to \$60,000 in incentives towards a retrofit project

Action 2 Promote existing programs for commercial/institutional buildings

- Light / Moderate / Deep Green: The City will work with BC Hydro and other partners to gather information on existing energy efficiency programs targeted at commercial and institutional buildings and provide it to Electric Utility customers. Other complimentary programs such as those offered through Natural Resources Canada's Office of Energy Efficiency should also be communicated to customers.

Action 3 Provide training to building permit and inspections staff

- Light / Moderate / Deep Green: The City will ensure that building inspectors receive training to build their knowledge and understanding of ways to improve energy efficiency and reduce demand in buildings. The training should result in increased familiarity with a variety of building scale alternative energy systems and their installation requirements, as well as familiarity with incentive programs, local suppliers and installers.

Action 4 Work with its Electric Utility Commission and BC Hydro Power Smart to implement demand management strategies

Having a municipally-owned utility presents the City of New Westminster with a unique opportunity to reach residents and businesses directly with outreach and incentives aimed at reducing demand. Through this action the City will work directly with the Electric Utility to investigate opportunities for implementing demand management strategies.

- Light Green strategies might include:
 - Providing educational information and raising awareness around energy efficiency opportunities via messaging on electric utility bills and/or billing inserts jointly

¹¹ City of Vancouver program information: <http://gw.vancouver.ca/greencapital/MURB-pilot-details.htm>

provide by the EUC and BC Hydro Power Smart

- Moderate strategies might further include:
 - Subsidizing the installation of energy efficient appliances and alternative energy equipment (e.g., programmable thermostats, new furnaces, etc) through electric utility bills that go beyond incentives offered by senior levels of government and provincial utilities
 - Implementing conservation-oriented rate structures to manage peak demand and encourage energy conservation
- Deep Green strategies may also include:
 - Assisting customers with financing for large scale efficiency investments in buildings by tying repayment to electric utility bills

Action 5 Offer incentives for energy audits in detached dwellings

- Moderate / Deep Green: The City will develop an incentive program targeted at dwelling owners in an effort to encourage building energy audits and retrofits. Such a program may include cash rebates for completing energy audits and/or retrofits that are validated through a third party system (i.e. EnerGuide, LEED®, ASHRAE 90.1). Alternatively, the building permit application process could serve as a vehicle for providing rebates and for communicating such a program.

Action 6 Offer incentives for building energy retrofits

- Moderate / Deep Green: The City will extend the current incentive programs targeted at residential and commercial building owners (with BC Hydro Power Smart) in an effort to encourage building energy audits and retrofits. The incentives may be offered in the form of building permit fee rebates for energy retrofits that require a permit.

Action 7 Expand revitalization tax exemption program

- Moderate / Deep Green: The City currently offers revitalization tax exemptions for improvements made to heritage buildings. The Community Charter now allows for revitalization tax exemptions to be offered for the purposes of energy and water conservation. Local governments must clearly define the revitalization program in a bylaw. The City should investigate opportunities for expanding the current program to include energy efficiency improvements made to existing buildings. The objective of this action is to create financial value for building “green” that stays with the property owner (as opposed to the occupants/tenants). This value can be used by builders as a marketing tool for the extra features of the energy efficient home and provides a clearly defined ‘value’ to offset the incremental cost to the purchaser.

Examples and Best Practices

- City of Toronto TowerWise program
- City of Vancouver MURB retrofit Incentive program
- District of Saanich Energy Advisor and Retrofit Program
- District of Squamish online Build Green Guide

Secondary Indicators

Existing Energy Efficient (Residential) Buildings:

- Percent of existing residential buildings renovated to high energy performance standards (e.g., EnerGuide for Homes 80 or higher)

Existing Energy Efficient (Commercial) Buildings:

- Percent of existing commercial buildings renovated to high energy performance standards (e.g., exceeding ASHRAE 90.1)

5.3 Strategy for New Buildings

GOAL: TO BUILD THE MOST ENERGY EFFICIENT NEW BUILDINGS

Description

New buildings present the City with opportunities to encourage higher standards of energy performance in new construction, and reduce the overall need for new energy supply and replacement of infrastructure. In New West, new construction will mainly focus on multi-unit residential buildings and commercial buildings. As a result, the energy performance of new construction is already likely to be better in New West than in communities where projected growth is largely in single family dwellings.

This strategy focuses on developing incentives and policies to more strongly encourage and require new large developments to attain higher energy performance standards. Multi-family residential and commercial/institutional buildings are the primary target for the actions within this strategy.

Role of Other Agencies

- BC Climate Action Plan targets a 20% reduction in residential and a 9% reduction in commercial building energy demand by 2020.
- BC Building Code currently requires new homes achieve equivalent of an EnerGuide 77 rating. Changes to the Code in 2011 are expected to increase this to an equivalent of an EnerGuide 80 rating.

City Actions

Action 8 Use the Sustainability Report Card to structure a fee rebate program

- Light / Moderate / Deep Green: The City is in the process of developing a Sustainability Report Card that will enable staff and Council to evaluate development applications against the City's sustainability objectives. The City will look to establish building fee rebates based on the levels of performance (or scores) attained on the Sustainability Report Card.

Action 9 Broaden the reach of the Downtown Plan Design Guidelines

- Light / Moderate / Deep Green: The Downtown Plan includes design guidelines that promote energy efficient development (e.g., orientation for solar aspect and ventilation, high albedo roofing materials, shading devices, maximum glazing, on-site renewable energy production).
- In an effort to promote these energy efficient building practices more broadly, the City will incorporate applicable energy-efficiency design guidelines into other neighbourhood plans, the Official Community Plan (during the next revision) and the Zoning Bylaw.

Action 10 Require higher energy performance standards in new commercial and multi-family residential developments

- Light Green: As part of new developments, the City will encourage or require improved energy efficiency in outdoor facilities such as lighting. For example, the City can require installation of adaptive lighting in parking lots to reduce electricity consumption.
- Moderate / Deep Green: In addition to efficiencies in the outdoor areas, the City will require higher energy performance for the buildings through re-zoning approvals. Approval of a re-zoning is at the discretion of Council, though it is typically guided by an interpretation of the broader objectives of an OCP or neighbourhood plan. This action provides clear direction to staff, Council and the development community by requiring high energy performance standards in new commercial and large multi-family residential buildings. The City will use the Leadership in Energy and Environmental Design (LEED®) for New Construction scorecard as the basis for evaluation. Specifically, the City will require all re-zonings to meet a minimum point score within the LEED Energy and Atmosphere category. This may be incorporated into the Sustainability Report Card.

Examples and Best Practices

- City of Toronto Green Standard Checklist
- City of Vancouver Green Buildings Policy for Rezoning
- City of Vancouver Passive Design Toolkit

Secondary Indicators

New Energy Efficient (Residential) Buildings:

- Percent of new residential buildings exceeding energy performance standards in the current building code (validated through third party rating systems such as EnerGuide, LEED®, etc)

New Energy Efficient (Commercial) Buildings:

- Percent of new commercial buildings exceeding energy performance standards in the current building code (validated through third party rating systems such as LEED®, ASHRAE 90.1, etc)

5.4 Strategy for Energy Supply

GOAL: TO ENCOURAGE RENEWABLE, RESPONSIBLE & LOCAL ENERGY

Description

Energy used to heat and power buildings currently comes mainly from a combination of electricity (primarily from hydro), and natural gas. Encouraging use of alternative energy systems in new and existing buildings will reduce the community's collective reliance on fossil fuel energy sources, particularly for heating. Alternative energy systems that may be used in on a building-scale include solar panels for hot water, solar photovoltaic panels for electricity, and heat exchange systems (in the ground, air or water) for heat and hot water.



At larger scales (e.g. groups of buildings or blocks), district energy systems may supply heat and hot water using heat recovered from sewers or other available heat sources, heat exchange systems, or several other potential sources. Developing these kinds of alternative energy systems on individual buildings, or on larger groups of buildings, can lead to increased community resilience, particularly when energy comes from local sources.

This strategy outlines education, incentives and policies that the City can implement to encourage alternative energy systems at the buildings scale and to develop and encourage connection to district energy systems.

Refer to Appendix C for a brief overview of renewable energy opportunities in New Westminster.

Role of Other Agencies

- Federal government, provincial government and utility (BC Hydro and Terasen) rebate and incentive programs encourage voluntary installation of alternative energy systems in residential and commercial buildings
- SolarBC is an initiative run by the BC Sustainable Energy Association that aims to get solar panels on 100,000 buildings in BC by 2020. To date, the program has led to the installation of over 500 systems on homes, over 30 on schools, and over 30 on municipal buildings.

City Actions

Action 11 Promote building scale alternative energy

- Light / Moderate / Deep Green: The City will identify an opportunity to install a building-scale alternative energy unit on a Civic facility, then build on this initiative to promote building scale alternative energy systems to residents. This could be done by packaging information on existing programs and incentives and promoting it via the City's website. One opportunity for this may include installation of solar hot water panels at the Multi-Use Civic Facility currently being designed (at 777 Columbia Street).

Action 12 Train City building inspectors on alternative energy technologies

- Light / Moderate / Deep Green: Building on Action 3, the City will ensure that building inspectors receive training to build their knowledge and understanding of building scale alternative energy systems. The training should result in increased familiarity with a variety of building scale alternative energy systems and their installation requirements, as well as familiarity with incentive programs, and local suppliers and installers.

Action 13 Identify and promote "eco-industrial networking" opportunities

- Deep Green: "Eco industrial networking" (EIN) is the exchange of materials/resources between industrial operations, where one industry's waste becomes another industry's resource. When permitting new industrial development, the City will work with developers to investigate opportunities to make use of waste resources from other industrial operations and to consider how the waste resources from their operations might benefit another industry. The City may also wish to incorporate EIN language and objectives into a comprehensive industrial strategy. This process was undertaken by the District of North Vancouver when planning for the re-development of the Maplewood Flats area.

Action 14 Offer free inspections for alternative energy systems

- Light / Moderate / Deep Green: The City will offer free inspections to building owners that install alternative energy systems. This action will result in minimal lost revenue and will serve to reinforce the City's support for actions that reduce energy demand and GHG emissions.

Action 15 Allow Local Improvement Charges

- Moderate / Deep Green: To encourage building owners to install alternative energy systems or hydronic systems (for connection to district energy systems), the City will consider implementing Local Improvement Charges that tie the installation costs to property taxes. In this way, the cost burden for these systems is borne over time by the property owner that continues to benefit from the reduced energy demand afforded by these systems. As a

starting point, a Local Improvement Area can be established in conjunction with development of any district energy systems (e.g. around the Royal Columbian Hospital) for eventual expansion to the surrounding buildings.

Action 16 Identify and support district energy zones

- Light / Moderate / Deep Green: To ensure that existing development is able to benefit from future district energy opportunities during major renovations or redevelopment, and that new development maximizes these opportunities from the beginning, the City will:
- - Understand where potential opportunities exist and identify specific zones;
 - Identify potential energy supply sources (e.g. sewer heat recovery);
 - Update zoning and development guidelines to encourage or require hydronic systems in identified district energy zones;¹²
 - Investigate partnerships, financing and governance models to advance a potential system for New West.

The maps provided in section 3.3 identify the three most likely neighbourhoods where future district energy may be feasible due to projected increases in energy load: Downtown, Uptown and Sapperton/Brunette (see Table 2 for a summary of projected thermal load increases). Further study should be pursued in these neighbourhoods to identify the feasibility of future projects. These studies should be conducted in partnership with local developers and/or potential “anchor tenants” (e.g. major institutional buildings).

Table 2. Projected increases in thermal loads for high growth neighbourhoods

Neighbourhood	Projected Increase in Thermal Load by 2032	Projected Growth in Non-Residential Floorspace	Projected Growth in Residential Units
Downtown	3,400 GJ/Ha	10 million sqft	7,000
Uptown	760 GJ/Ha	2.5 million sqft	800
Sapperton/Brunette	900 GJ/Ha	1.2 million sqft	1,500

Action 17 Include policies to support alternative energy in the OCP

- Light / Moderate / Deep Green: To solidify and communicate the City’s commitment to pursuing alternative energy opportunities, the City will look to include policies to support alternative energy during the next OCP update. The City of Dawson Creek, for example, has included the following supportive policies in their OCP:
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¹² See City of Dawson Creek OCP Policy 4.5.3 for example: “If a District Energy System is established, create a Service Area Bylaw that requires connection to a district energy system, possibly Dawson Creek’s existing biomass system.”

Guideline 16.52: Renewable Energy Generation

It is strongly encouraged that all buildings over 1000 square feet meet at least 10% of their annual combined lighting, space heating and water heating energy demand using one or more of the following renewable energy generation technologies:

- Solar thermal hot water heater;
- Solar photo-voltaic (PV) panels;
- Micro-wind turbine; and
- Ground-source heat pump.

Guideline 16.54: District Energy-Ready

All buildings are encouraged to be built with a hydronic heating system to facilitate future connection to a district heating system. Mechanical rooms should be located closest to the street, where possible, to accommodate access to equipment to facilitate conversion to a district energy at some point in the future.

The outcomes of Action 16 will help to guide the development of these policies, which might include things such as Local Service Area Bylaws¹³ to ensure buildings are prepared for future connection to district energy systems (i.e. installation of hydronic systems for multi-family and commercial developments and re-developments).

Action 18 Require evaluation of alternative or district energy feasibility

- **Moderate / Deep Green:** New development presents the best opportunity for implementation of alternative energy supply and district energy systems. The re-zoning application process provides a potential mechanism to trigger an investigation of these opportunities. As such, the City will require alternative or district energy feasibility studies for re-zoning approvals of all large, new developments. District energy feasibility studies should be encouraged in areas projected to have high thermal load growth (as described in section 3.3), or in zones as identified by further study (see Action 16). The City of Vancouver instituted such a policy in 2008¹⁴.

Examples and Best Practices

- City of Dawson Creek OCP Guidelines supportive of renewable and district energy
- Alternative Energy Evaluations (Vancouver)
- Showcase Projects (Dockside - Victoria, South East False Creek - Vancouver)
- Eco-industrial networking in Maplewood Flats (District of North Vancouver)

¹³ For example, see City of North Vancouver Bylaw 7575 <http://www.cnv.org/c//DATA/2/98/BYLAWS%207575.PDF>

¹⁴ See the following for the City of Vancouver policy: <http://vancouver.ca/commsvcs/guidelines/R024.pdf>

Secondary Indicators

Connections to Alternative Energy Supply:

- Percent of homes in New West connected to alternative energy supply
- Percent of commercial buildings in New West connected to alternative energy supply

5.5 Reduction Scenarios

Using the strategies and actions detailed above, three reduction scenarios have been created to present possible paths for the City to take to reduce community-wide energy consumption and GHG emissions. The “light green” scenario presents a soft approach to energy demand management and GHG emissions reductions. This scenario focuses on elements of the actions that are likely to result in a smaller percentage of the population actually changing behaviours and taking action (e.g., education and outreach oriented activities). The “moderate” scenario presents a higher level of effort and investment including more financial incentives and regulatory measures. Finally, the “deep green” scenario presents a more aggressive approach by the City, including further financial incentives and stronger regulatory measures.

Table 3. Assumptions made in the three scenarios for Buildings

Focus of the Action	Uptake in the community % of ... by 2032		
	Light Green	Moderate	Deep Green
Strategy for Existing Buildings:			
% residential buildings have undergone energy efficiency retrofits	25%	50%	60%
% commercial buildings have undergone energy efficiency retrofits	10%	15%	35%
Strategy for New Buildings			
% new single family/duplex/row homes meet equivalent of Downtown Plan design guidelines with respect to energy conservation and passive design	15%	30%	60%
% new multi-family residential and commercial buildings achieve LEED Gold equivalent with respect to energy	15%	30%	60%
Strategy for Energy Supply			
% existing buildings and % new buildings have solar hot water	5% and 10%	10% and 15%	25% and 50%
% new buildings have geo-exchange systems	5%	15%	25%
% new commercial/multi-family buildings are connected to a District Energy system	0%	75% new buildings in 1 DE zone	75% new buildings in 2 DE zones