

Peace River Regional District

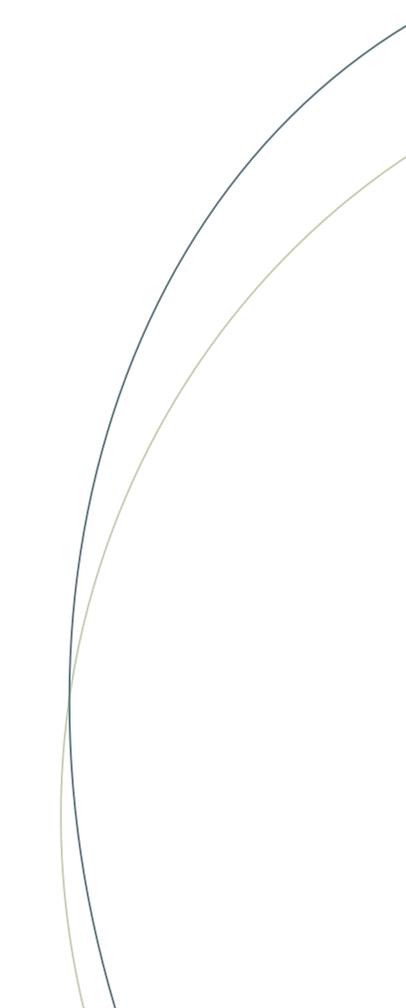
Corporate Energy Plan

Final

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A Regional Approach to Climate Action



The Peace River Regional Energy and Emissions Project is a collaborative effort between the Peace River Regional District and the municipalities of Chetwynd, Pouce Coupe, Taylor and Tumbler Ridge to develop both corporate and community energy plans for each community and the rural areas in order to meet their voluntary commitments under the Climate Action Charter and the regulatory commitments under the "Green Communities" amendment to the Local Government Act (Bill 27 in 2007). This report represents the Peace River Regional District's corporate energy plan.

Peace River Regional Energy and Emissions Project Partners:



- Peace River Regional District
- District of Chetwynd
- Village of Pouce Coupe
- District of Taylor
- District of Tumbler Ridge

Plan Summary

The Peace River Regional District (PRRD), in collaboration with the municipalities of Chetwynd, Pouce Coupe, Taylor and Tumbler Ridge, has undertaken this project to define a baseline inventory of **corporate energy consumption** and **greenhouse gas (GHG) emissions** for 2008 and develop a plan to reduce those emissions and become carbon neutral by 2012. This plan identifies the potential for the Regional District to reduce GHG emissions resulting from corporate operations over the next 5 years by approximately 15%. In addition to acting independently, there are tremendous opportunities to collaborate with member municipalities in the Peace River region to find further efficiencies and explore opportunities for alternative energy. This collaboration could result in more substantial reductions in consumption and emissions over the longer-term.

Corporate Energy and GHG Emissions: 2008

In 2008, the Peace River Regional District consumed a total of **5,463 GJ** of energy and emitted **221 tonnes of CO₂** equivalent GHG emissions in the delivery of its services¹. Energy consumption in buildings accounts for 42% of these GHG emissions, fleet accounts for 56%, and infrastructure accounts for 1%.

GHG Emission Reduction Target

The Peace River Regional District will commit to reducing corporate greenhouse gas emissions by 15% from 2008 levels by 2015.

Key Actions for Meeting the Target

The majority of potential savings identified are through building retrofits, including:

- Administrative office: high efficiency furnaces, sensors for lighting, weather stripping;
- Warehouse: energy efficient lighting, programmable thermostat;
- Charlie Lake fire hall: automatic flue damper, programmable thermostats;
- Bessborough landfill: energy efficient lighting, programmable thermostat, occupancy sensors; and
- North Peace Leisure Pool: several retrofits identified, though not currently included in the inventory.

¹ Reported GHG emissions are those applicable to the Climate Action Charter carbon neutrality commitment. Emissions resulting from solid waste decomposition are not included. Emissions from two facilities not available and not included.

Further reductions can be made through:

- Fleet right-sizing
- Staff education in energy efficient building operations and vehicle operations

Implementation

In order to meet the 5-year target of reducing corporate emissions by 15%, the Regional District will need to fund building retrofits of approximately \$100,000, some of which may be funded by external programs and agencies. Furthermore, the Regional District will need to introduce policies and programs to educate staff and heighten efficiency in the operations of buildings and fleet.

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1 Introduction

1.1 Background: Energy, GHG Emissions and Climate Change

There is increasing evidence that global climate change resulting from emissions of carbon dioxide and other greenhouse gases (GHGs) is causing, or will soon cause, significant environmental impact on the ecology of the planet. In addition to impacting ecology, climate change is expected to have serious negative impacts on global economic growth and development. In 2005, the UK government commissioned an independent review called the “Stern Review”, which states that the “costs of stabilizing the climate are significant but manageable; delay would be dangerous and much more costly”. This is a significant conclusion highlighting that deferring action will be more costly than initiating action immediately.

Climate change is a global issue, caused by the daily activities of billions of humans, primarily through the consumption of fossil fuel energy. A solution to the issue will require the activities of billions of humans to **conserve energy** and **reduce GHG emissions**. All persons and entities, including local governments, have a role to play in finding these solutions.

In addition to reducing impacts on climate change, local governments can begin to plan for **energy resilience** in their communities. According to the International Energy Agency, oil accounts for 43% of global energy consumption.² Many of the products used on a daily basis are built using oil as a feedstock: plastics, paints, pharmaceuticals, fertilizers, electronic components, tires and many more. As the abundance of cheap oil declines, reducing dependence on it will be a key strategy for ensuring long-term sustainability; reducing vulnerability to price fluctuations and increasing the security of local energy supply.

Local governments can take action on energy consumption and greenhouse gas emissions by:

- Identifying opportunities to reduce consumption and GHG emissions in their operations (corporate energy plan), and
- Implementing broader policies and programs to reduce consumption and GHG emissions in the community as a whole (community energy plan).

² Key World Energy Statistics (2008). International Energy Agency.
http://www.iea.org/textbase/nppdf/free/2008/key_stats_2008.pdf

1.2 Climate Action Charter Commitment

The BC **Climate Action Charter** is a provincial initiative introduced in September 2007 to encourage local governments to significantly cut greenhouse gas emissions. Participating local governments have committed to becoming carbon neutral in their municipal operations by 2012. *The Peace River Regional District has signed this charter.* Achieving carbon neutrality will involve reducing greenhouse gas emissions, and because it is currently not possible to operate without some emissions, the Regional District will also need to purchase carbon offsets to reach this goal.

1.3 What is Carbon Neutrality? What is a Carbon Offset?

Achieving carbon neutrality in local government operations means that the Regional District will:

1. Establish a **baseline** of annual GHG emissions,
2. Reduce those emissions as much as possible through **reduction measures**, and
3. Purchase **carbon offsets** for any remaining emissions.

A carbon offset is a reduction in GHG emissions that is generated through a reduction project (either in the community or elsewhere). These reductions are verified, and then can be purchased by the local government. Note that a project that reduces the local government's current emissions does not qualify as an offset project. Since it is currently impossible to reduce emissions to zero, there will always be some requirement to procure offsets.

1.4 Objectives of this Corporate Action Plan

The corporate plan objectives are to:

- Set a baseline of energy consumption and GHG emissions for local government corporate operations.
- Define actions for the local government to implement that will reduce energy consumption and GHG emissions for corporate operations.
- Support the Regional District in meeting its commitment to be carbon neutral in operations by 2012 as part of the Climate Action Charter.

1.5 Methodology

The Peace River Regional District's Corporate Action Plan was developed in a series of steps as follows:

- **Corporate inventory:** An inventory of corporate activities that consume energy and produce GHG emissions was compiled to estimate annual energy consumption and GHG emissions for the baseline year of 2008.
- **Background review:** The current corporate policies and initiatives in the Regional District's operations were identified and assessed with regard to energy and GHG emissions through discussion with staff and review of documents.
- **Action planning workshop:** A workshop was held with staff to review potential types of actions and define activities that would be feasible to implement in order to reduce energy consumption and GHG emissions for corporate operations.
- **Activity research:** Research was conducted on current activities being undertaken in other jurisdictions in BC (particularly other municipalities in the Peace River Regional District (PRRD)) to address corporate operations in a local government context. These activities and examples helped inform the development of actions for this plan.

2 Corporate Energy and GHG Inventory

2.1 Operations Profile

In order to deliver services to residents, the Regional District operates the facilities, fleet and utility accounts as outlined in Table 1, either directly or through provision of funds to other agencies. This profile is the basis for the 2008 energy and emissions inventory.

Table 1. Operations profile for the Peace River Regional District

Type	Number
General Buildings	4 ³
Community and Recreational Facilities	1
Fire halls	1
Vehicle Fleet*	9
Electricity Accounts*	24
Natural Gas or Propane Accounts*	4

* Number of utility accounts accessed to develop the corporate inventory

There are five fire halls and two recreation centres that receive some funding from the Regional District, though they are operated by municipalities. These are not currently included in the Regional District inventory, but are identified in Table 2.

Table 2. Municipal buildings not included in the PRRD inventory

Building
Fort St John Fire hall
Chetwynd Fire hall
Pouce Coupe Fire hall
Dawson Creek Fire hall
Taylor Fire hall
North Peace Leisure Centre (in Fort St John)
Chetwynd Recreation Centre

³ Includes the North Pine TV Tower which has a BC Hydro account, but zero consumption for 2007 and 2008.

Facilities owned and operated by other agencies that receive “Grant in Aid” funding from the Regional District are also not included in the Regional District’s operational profile or emissions inventory. It is currently not clear whether the Regional District will have responsibility over these emissions with respect to the Climate Action Charter requirements.

2.2 2008 Energy Consumption and GHG Emissions

The Regional District consumed a total of 5,470 GJ of energy in 2008 and emitted 221 tonnes of CO₂ equivalents in the delivery of its services⁴. Table 3 breaks down these totals by fuel type.

Table 3. 2008 Corporate Operations Energy Consumption and GHG Emissions⁴

Fuel Type	Energy Consumption	Energy Units	GHG Emissions (tonnes CO ₂ e)	Annual Energy Expenditure (Approx \$)
Electricity	526,958	kWh	12	\$ 35,200
Natural Gas	1,712	GJ	85	\$ 20,800
Gasoline	42,946	L	102	\$ 60,000
Diesel	7,959	L	22	\$ 11,000
Total			221	\$ 127,000

The total energy consumed and GHG emissions produced are also broken down by operational departments, as shown in Figure 1 and Figure 2, respectively. These charts demonstrate that although electricity accounts for a substantial portion of energy consumption, it contributes fewer greenhouse gas emissions than fossil fuel-based energy sources (e.g. natural gas, gasoline, and diesel).

⁴ Total energy consumption and GHG emissions for 2008 do not include two facilities: the Charlie Lake Fire Hall and Kelly Lake Community Centre as data was not available at the time of finalizing the report.

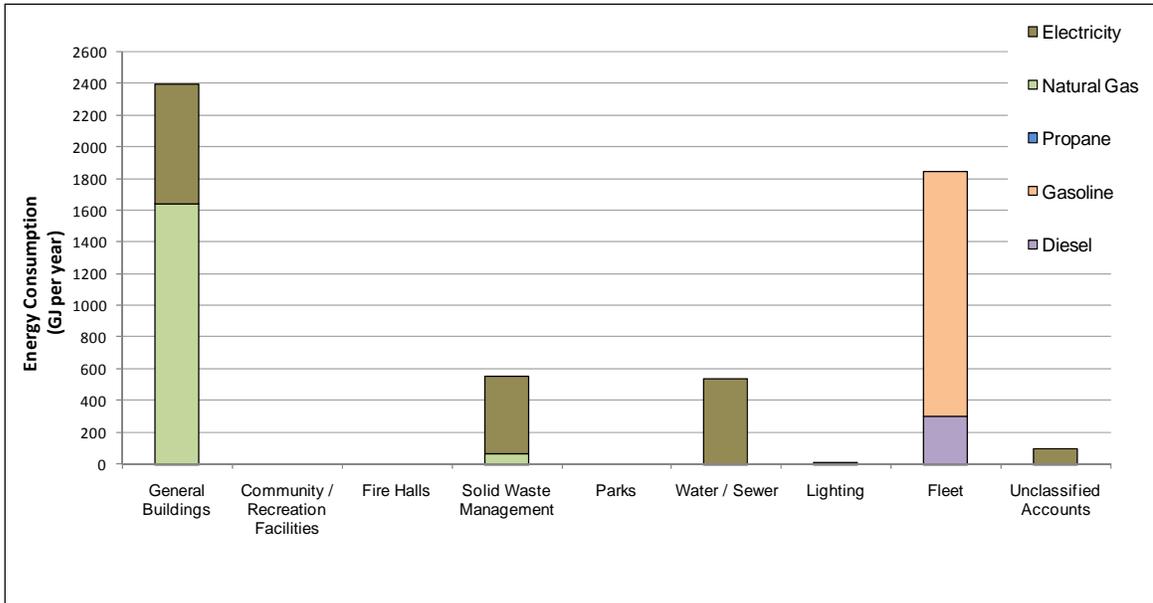


Figure 1: Energy consumption (GJ) in the Peace River Regional District’s corporate operations

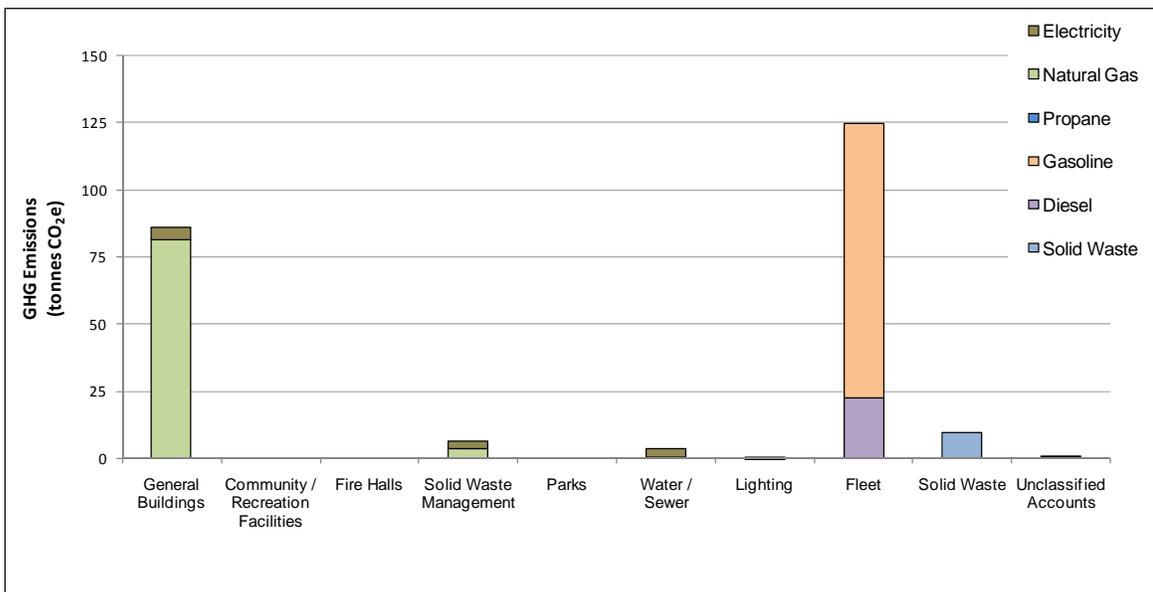


Figure 2: GHG emissions (tonnes CO2e) from Peace River Regional District’s corporate operations

2.3 Carbon Costs and Rebates

Local governments in BC now have costs associated with carbon – first for the “Carbon Tax” associated with all purchases of fossil fuels (e.g. gasoline, diesel, natural gas, propane), and second for the voluntary purchase of carbon offsets to become carbon neutral starting in 2012. By committing to become carbon neutral, local governments are

eligible for a rebate on the carbon taxes paid. The following outlines the expected costs and rebates for 2012, based on 2008 consumption. Offsets are assumed to cost \$25 per tonne and the carbon tax is scheduled to cost \$30 per tonne.

Estimated cost of offsets required to become "Carbon Neutral":	\$ 5,525
Estimated Carbon Tax Rebate (CARIP rebate) in 2012:	\$ 6,300

2.4 Forecast to 2020

Increased energy consumption for local government operations is driven by growth in the community. The methods for estimating growth are shown in Table 4. Based on these methods, the emissions from corporate operations in 2020 are expected to be approximately 222 tonnes CO₂ equivalents, based on 2008 emissions.

Note that actual annual emissions tend to vary due to variations in weather.

Table 4. Corporate Operations Forecasting Assumptions

Area	Consideration	Application
New Facilities	Major facilities (buildings, rec centers) are built periodically and so the energy consumption and GHG profile shows a step increase when a new facility is created.	No new facilities are currently planned for the Regional District.
Existing Facilities	Existing facilities may show a slight increase in energy use and emissions as community population growth results in increased operating hours (e.g. an arena). For support facilities (e.g. municipal hall, works yard buildings) there wouldn't be expected any substantial increases over the period of a few years.	There are potential plans to expand the administrative building in Dawson Creek, however no increase assumed.
Infra-structure	Some infrastructure energy use such as street lighting or water pumping would grow as the population grows (but likely at a lower rate. These are frequently electricity powered facilities and so do not result in substantial GHG emissions increases.	Assumed that lighting and infrastructure grow at the rate of population growth to 2020.
Vehicle fleet	Vehicle fleets grow slowly as new activities are created, or new areas need servicing.	Assumed no increase in vehicle fleet.

3 Current Initiatives

The Regional District has already undertaken initiatives to reduce energy consumption and GHG emissions from its operations. These initiatives include:

- Retrofitted interior lighting from T12 to T8;
- Recently began evaluating options for right-sizing vehicles using spreadsheet tool developed by the City of Dawson Creek;
- Adopted solid waste management plan with aggressive diversion; and
- Started tracking mileage from personal vehicle use and have informally set a goal to reduce this mileage.

4 Opportunities for Reducing Emissions

4.1 Summary of Opportunities

In order to become carbon neutral by 2012, the Regional District will need to undertake a combination of: emission reduction measures and carbon offset purchases for the remaining emissions. Opportunities for reducing emissions were identified through analysis of the Regional District's corporate inventory, building assessments of key facilities, consultation with staff, and a review of activities in similar jurisdictions. The actions are summarized in Table 5. By implementing these reduction measures, it is estimated that the Peace River Regional District could reduce operational GHG emissions by approximately 15%.

Table 5. Summary of Emission Reduction Opportunities (tonnes CO₂e)

Actions	2008 GHG Emissions	Estimated Reductions
Existing Buildings:		
1. Retrofit buildings for energy efficiency	92	25-30
2. Promote energy efficiency practices among staff		
3. Include energy efficiency in building maintenance		
New Buildings:		
4. Develop an energy efficiency building policy	0 [impacts future emissions only]	30% or more [of future emissions]
5. Develop an alternative energy policy for new buildings / major renovations		
Fleet:		
6. Select fleet vehicles with "right-sizing" principles	124	15
7. Switch fuels or use additives to reduce emissions		
8. Reduce idling		
9. Train staff on energy efficient driving techniques		
Infrastructure:		
10. Reduce energy requirements for water and wastewater infrastructure	3	minimal
11. Convert exterior lighting to LED and/or solar power		
Purchasing & Corporate Leadership:		
12. Develop an energy efficiency purchasing policy	n/a	[indirect]
13. Provide energy efficiency incentives for funding applications		
14. Identify energy champions		
15. Reduce corporate travel (carpooling)		
Regional Collaboration:		
16. Participate in regional building energy performance benchmarking	n/a	[indirect]
17. Establish a regional energy manager position		
18. Collaborate regionally on purchasing and training		

4.2 Actions for Existing Buildings

Proportion of PRRD corporate GHG emissions from existing buildings in 2008:	42%
2008 GHG emissions from existing buildings:	92 tonnes
	25-30
Estimated reduction potential from implementing identified reduction measures:	tonnes

Corporate Action 1: Retrofit buildings for energy efficiency

As part of this project, opportunity assessments were performed in five Regional District buildings. These assessments included a review of energy bills, a short walk-through of each building, and discussions with staff involved in operating the buildings⁵. Through this process, a total reduction potential of approximately 26 tonnes of greenhouse gases was identified, or 362 tonnes if the North Peace Leisure Pool savings are included (note: the pool is not included in the PRRD corporate inventory for 2008). Further reductions are expected for undertaking retrofits of the Charlie Lake fire hall, but these were not estimated due to a lack of utility consumption information.

A preliminary financial analysis indicates that undertaking all “recommended” retrofits in buildings included in the PRRD inventory would cost \$100,000 with a simple payback of 14 years. If recommended retrofits to the North Peace Leisure Pool are included, retrofits would cost \$540,000⁶ with a simple payback of 4.8 years.

The Regional District and/or the City of Fort St. John may also wish to use an energy performance contract with an Energy Services Company (ESCO) to provide guaranteed savings and costs for retrofits to the North Peace Leisure Pool. To attract interest from ESCOs, it may be best to include other recreation centres in the region under one larger contract (e.g. the recreation centres in Chetwynd, Tumbler Ridge and Dawson Creek).

Opportunities identified for each building are summarized in Table 6. For more detailed descriptions, refer to the separate report entitled “Energy Efficiency Opportunity Assessment of Corporate Buildings – PRRD”.

⁵ These assessments are not a substitute for comprehensive energy audits or studies, but do allow local governments to make informed decisions about proceeding with more detailed assessments.

⁶ Includes 15% allowance for engineering and project management. Incentives may be available from BC Hydro and the federal government. Additional funding may be available through other sources.

Table 6. Summary of Building Retrofit Opportunities from Building Assessments

Recommended Retrofits	Optional Retrofits (not included in GHG or cost estimates)	Estimated Energy Reductions	Estimated Annual Savings
Administrative Office (Dawson Creek)			
<ul style="list-style-type: none"> Daylight sensors for lighting Programmable thermostats / controls CO2 control of ventilation High efficiency furnaces Weatherstripping and sealing 		29%	\$5,000
Warehouse			
<ul style="list-style-type: none"> Lighting retrofit Programmable thermostats 	<ul style="list-style-type: none"> Insulate walls 	14%	\$1,000
Bessborough Landfill			
<ul style="list-style-type: none"> Convert incandescent to CFL bulbs Occupancy sensors Programmable thermostats 	<ul style="list-style-type: none"> Replace magnetic ballasts with electronic ballasts 	7%	\$200
Charlie Lake Fire Hall			
<ul style="list-style-type: none"> Programmable thermostats Automatic flue damper 	<ul style="list-style-type: none"> Replace magnetic ballasts with electronic ballasts Reduce block heater hours 	[not calculated due to missing utility data]	
North Peace Leisure Pool			
<ul style="list-style-type: none"> Lighting retrofit Reduce overlit areas New condensing boilers Recommissioning of controls Economizers Variable speed drive on fans Variable speed drive on pumps 	<ul style="list-style-type: none"> Insulate slide Mechanical dehumidication Solar water heating Heat recovery from ice plant 	37%	\$77,000

Corporate Action 2: Promote energy efficiency practices among staff

Promoting energy efficiency in the workplace is a combination of increasing education and awareness of energy conservation, and engaging staff to actively participate in conservation. Possible methods for promoting conservation include:

1. Strategically place “smart meters” to track the power consumption of certain equipment.
2. Regularly report building energy usage to staff responsible for operating facilities.
3. Workshops about reducing energy use (e.g. “lunch and learns” with guest speakers). BC Hydro has Power Smart representatives that can engage staff and work with them on specific energy related concerns.
4. Notices about energy efficiency (e.g., quick facts sent via email, posted around the office, or printed on paystubs).
5. Incentives to encourage employees to generate and share ideas for action (e.g., idea of the month gets a prize).

Corporate Action 3: Include energy efficiency in building maintenance

During routine maintenance of buildings there are opportunities to ensure ongoing energy efficiency performance in buildings. Include the following practices into existing maintenance routines:

1. Regularly check programming of thermostats to ensure they have not been altered. Ensure instructions for temporarily changing temperature are clearly posted.
2. Check and replace weather stripping on doors and windows as necessary.
3. Generate reports and monitor annual energy use by building to identify fluctuations. Investigate abnormal energy use to determine cause – operational or structural.

4.3 Actions for New Buildings

Corporate Action 4: Develop an energy efficiency building policy

Construction of new buildings provides an opportunity to design for energy efficiency and to integrate technologies and materials that may result in more efficient building operation. Although there are no immediate plans for new facilities at the Regional District, there is an opportunity to develop a policy that guides future construction, which may also be applicable to renovations or other major capital projects (e.g. if the Administrative office in Dawson Creek undergoes renovations).

This policy can be incorporated into a broader green buildings framework such as LEED (Leadership in Energy and Environmental Design)⁷, GreenGlobes⁸, or the upcoming ASHRAE Sustainable Buildings Standard. Considerations include:

- Design: Passive solar, motion sensors for lighting, advanced controls for heating and energy systems, and energy efficient mechanical equipment. Ensure that the designs of buildings are suitable for the intended use with regards to size, layout and intended lifespan.
- Materials: Better insulation, light-coloured exterior materials that reflect heat, and energy efficient windows or window glazings.
- Decision Making Tools: Life cycle costing and triple bottom line methodologies⁹.
- Operation: Regular maintenance, regular audits and re-commissioning, operator training.

⁷ The Province of BC, through the BC Energy Plan, is considering a requirement that all new provincially owned or funded buildings (with over 600m² of non-residential floor space) must be LEED Gold certified.

⁸ Green Globes website: <http://www.greenglobes.com/about.asp>

⁹ Life Cycle Costing considers the total capital and operating costs over the lifetime of the purchase. For example, purchasing a more expensive pump that uses less energy than conventional pumps may save more money over its lifetime, or a shorter period.

Triple Bottom Line (TBL) methodologies consider how an initiative meets economic, environmental and social objectives in an integrated evaluation. For example, an energy efficient ventilation system may reduce energy consumption, reducing infrastructure costs and GHG emissions, while also improving indoor air quality and comfort.

Corporate Action 5: Develop an alternative energy policy

All new construction projects should include a technical and financial evaluation of using alternative energy sources for space and hot water heating that accounts for both the capital and operational costs over an extended period. Alternative energy systems may require higher up-front capital costs, but reduce operating costs (including fuel costs) over the lifetime of the building. Evaluating these costs at the design stage of any major capital project is the most effective time to incorporate alternative energy systems.

Alternative energy sources with promise for the Regional District include:

- Geo-exchange: likely not practical for retrofits, but should be evaluated for any new buildings. Open loop groundwater is the least expensive, if available, but care is needed with re-injection. Could be considered for expansion of the Administrative Office in Dawson Creek.
- Solar hot water: practical for facilities with high hot water demand (e.g. pools – North Peace Leisure Centre and Chetwynd Recreation Centre are good candidates)
- No district energy opportunities were identified.

4.4 Actions for Fleet

Proportion of PRRD corporate GHG emissions from fleet in 2008:	56%
2008 GHG emissions from fleet:	124
Estimated reduction potential from implementing identified reduction measures:	15

Corporate Action 6: Select fleet vehicles with “right-sizing” principles

Fleet energy efficiency can be improved by purchasing vehicles that are appropriate for the job being performed. Throughout the region, alternatives to standard vehicles are being evaluated. For example, “mini trucks” with 3-cylinder engines have been used successfully throughout the year and hybrid vehicles are being tested. Evaluate:

1. Anticipated usage of vehicles when purchasing them (e.g. engine size, vehicle weight, average load capacity, average passenger capacity, average operational terrain).

2. Life cycle considerations (e.g. residual costs / values of vehicle being replaced, capital costs, maintenance costs, fuel costs, resale values).

These considerations may be included in a formal policy regarding the purchase of vehicles, or be made a part of a general purchasing policy.

Corporate Action 7: Switch Fuels or use additives to reduce emissions

Fleet GHG emissions may be lowered by switching to electric or low emission fuels, or improving fuel efficiencies.

1. Electric vehicles: electric or hybrid vehicles are tested by vehicle manufacturers for cold-weather climate and typically guarantee engines will start down to 30 degrees Celsius below zero. Hybrid vehicles are currently being used by some municipalities in the region.
2. Fuel additives and after-market equipment: these may improve fuel efficiency or reduce emissions. The testing and evaluation of items such as vortex exhaust and hydrogen generation systems has recently started in the region. Sharing experiences with these technologies between local governments can facilitate more informed decisions regarding their adoption.

Corporate Action 8: Reduce idling

Idling is generally unnecessary for newer vehicles, and excessive idling can lead to increased wear and maintenance. Idling reduction may be promoted through outreach and signage; however, this approach is unlikely to result in significant uptake (or reduced emissions) unless formal anti-idling policies are adopted and enforced. Such a policy may read as follows:

All fleet vehicle operators will not idle for more than 30 seconds after starting the vehicle once the windows are clear, and should be encouraged to turn off the vehicle if stopped for more than 10 seconds unless the vehicle is:

- In traffic,
- In the course of performing a specific duty that requires the vehicle to be left running,
- If the temperature is below -10C, or
- If doing so would compromise human safety or the mechanical integrity of the vehicle.

Installing LED traffic control and construction beacons on applicable vehicles also reduces the need to run engines in order to power the beacons. While LED lighting equipment may cost more initially, they generally last significantly longer and reduce fuel consumption.

Corporate Action 9: Train staff on energy efficient driving techniques

Driver behaviour and fleet maintenance can have significant impacts on the amount of fuel used by a vehicle fleet. Staff education programs for driving techniques that maximize fuel efficiency can be arranged through institutions such as Northern Lights College. Simple measures such as checking tire pressure before trips and ensuring that vehicles are regularly maintained can save fuel and prolong the lifespan of fleet vehicles.

4.5 Actions for Infrastructure

Proportion of PRRD corporate GHG emissions from infrastructure in 2008:	1%
2008 GHG emissions from infrastructure:	3
Estimated reduction potential from implementing identified reduction measures:	minimal

Corporate Action 10: Reduce energy requirements for water and wastewater infrastructure

GHG emissions resulting from the operation of water and wastewater infrastructure currently account for just over 1% of the Regional District's total GHG emissions and approximately 10% of the total energy consumption. Although these are not very significant, there are opportunities to improve efficiency during routine upgrades by considering lifecycle energy costs during the purchase of new equipment. Equipment that may result in a reduction in energy consumption includes:

- Variable speed drives on pumps and fans – allows them to run at lower speeds when demand is low
- Soft starts and capacitors for motors – reduces power factor charges (note: may not have much impact on overall energy requirements, but reduces peak grid loads)
- Sewage lagoon aerator options – wind or solar-powered; surface

Corporate Action 11: Convert exterior lighting to LED and/or solar power

Lighting does not account for any GHG emissions in the Regional District's inventory, and therefore is not a reduction area. However, future requirements for lighting (street, signage or cross-walks) can be met through the use of LED technology and/or solar powered lights. The solar potential in the Regional District is quite good, and is likely cost effective, particularly if distribution wiring would otherwise need to be installed.

4.6 Actions Demonstrating Leadership

Corporate Action 12: Develop an energy efficiency purchasing policy

Adopting an energy efficiency purchasing policy enables an organization to consistently consider energy use/GHG emission criteria in addition to financial and quality criteria when making a purchase. Organizations may define various types of criteria which may include: recycled content, energy ratings, product lifespan, presence of toxic materials, packaging, etc. There is now a BuySmart Network that has been developed by the Fraser Basin Council to provide support for organizations pursuing these efforts.

The purchasing policy may include:

- Guidelines for selecting appropriate fleet vehicles ("right-sizing"),
- Listing labelling programs to look for (e.g. Energy Star, Environmental Choice),
- Requiring recycled content in paper purchases,
- Setting vehicle standards for contractors,
- Requiring reporting of energy consumption and greenhouse gases for contracted services included in the Climate Action Charter (e.g. waste collection and disposal), and
- Including energy conservation targets in facility management contracts and possibly providing incentives or requirements for conservation.

Corporate Action 13: Provide energy efficiency incentives for funding applications

The Regional District receives applications for funding on an annual basis to aid in the delivery of community services in the region. Where funding requests are related to capital expenses that impact energy use (e.g. purchasing a vehicle, renovating a building), the Regional District may wish to allocate additional funds to applications that propose a high level of energy efficiency or mitigation of emissions.

Corporate Action 14: Identify energy champions

To increase energy awareness and energy efficient behaviours among staff, one “energy champion” can be identified in each department. This person would put up signs and information about energy efficient behaviours, ensure lights and other equipment are being turned off when not in use, promote carpooling to meetings and events, etc. Champions from each department may meet on occasion to share ideas and progress. Prizes or incentives may be awarded to champions and/or departments that report significant progress.

Corporate Action 15: Reduce corporate travel

The Regional District has started to track and report the number of kilometres being driven by staff and Board members, using expense records. These trips may be to attend meetings, events, training sessions, etc, which can be considered “corporate travel”. In order to reduce the emissions resulting from corporate travel, staff and Board members may:

1. Encourage the use of videoconferencing for training courses, or coordinate with other local governments to bring trainers to the PRRD rather than flying or driving great distances elsewhere.
2. Encourage carpooling to Board meetings.
3. Encourage carpooling to community meetings and events.
4. Set a target to reduce corporate emissions. For example, reduce travel by 15% by 2012.

4.7 Actions Requiring Regional Collaboration

Corporate Action 16: Participate in regional building energy performance benchmarking

Regional building energy performance benchmarking provides building operators with a comparison of energy performance with other local government buildings of similar use. As a preliminary example, Figure 3 shows the energy consumption per square foot of building area for a selection of local government buildings in the Peace River region. This task could be undertaken by the regional energy manager, if such a position is established, who could work with local government operators to identify buildings that are not performing to expected levels.

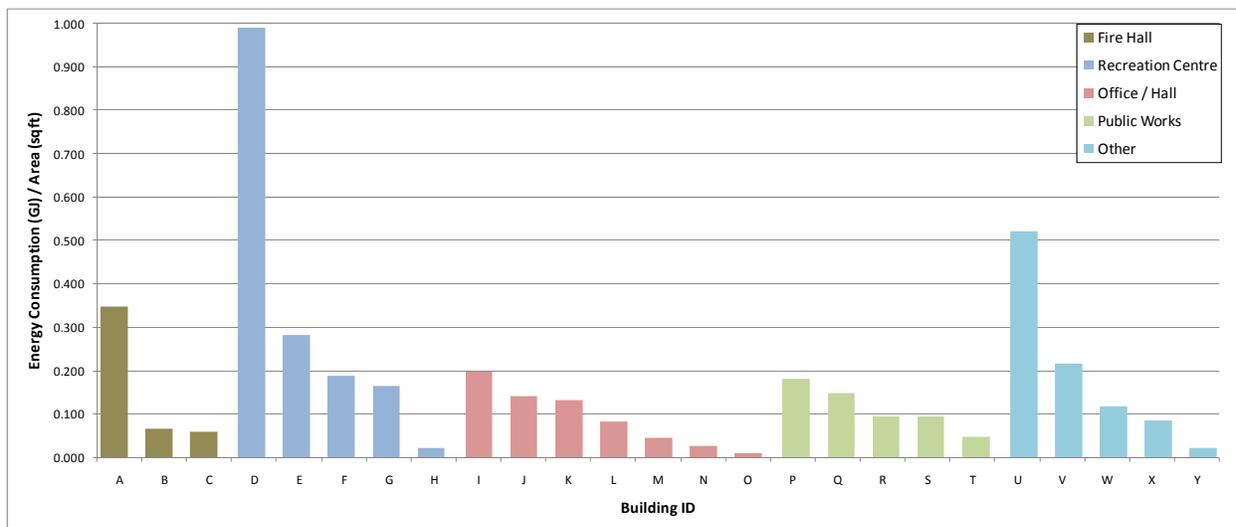


Figure 3: Example of a regional building energy performance benchmarking exercise

Corporate Action 17: Establish a regional energy manager

Consider establishing a staff position that works to identify, coordinate, and/or implement opportunities for energy conservation and emission reduction for all municipalities in the PRRD. This role may be responsible for:

- Assisting with development of business cases for alternative energy projects,
- Distributing up-to-date case studies and information about energy efficient technologies to Public Works / Engineering / Operations staff throughout the region,
- Identifying funding opportunities for alternative energy projects,

- Organizing semi-annual meetings with select local government staff from each municipality and the Regional District to share experiences (successes and problems) with regard to energy efficiency programs and alternative energy projects in their communities, etc.

BC Hydro has recently announced up to 50% funding for energy manager positions through the Power Smart program. Although the Regional District alone does not have large enough consumption to qualify, together at a regional level the PRRD municipalities may be eligible (total consumption needs to be 200,000 kWh per year).

Corporate Action 18: Collaborate regionally on purchasing and training

Building on the collaborative approach to energy planning undertaken with this project, the Regional District can partner with municipalities to make bulk purchases of energy efficient technologies that may be more expensive if purchased individually. This may apply to:

- Hybrid, electric, or more compact efficient vehicles.
- Programmable thermostats, efficient lighting, LED lighting, etc.

This initiative may also be extended to coordinate training among local government staff to bring trainers to the region and reduce the need for staff to travel outside the region.

5 Implementation

It is recommended the Peace River Regional District undertake a 5-year implementation plan to carry out the key reduction measures identified in this plan and attain a reduction of 15% from 2008 GHG emissions.

5.1 GHG Emission Reduction Target

The Peace River Regional District will reduce corporate greenhouse gas emissions by 15% from 2008 levels by 2015.

The majority of these GHG emission reductions are achievable through a comprehensive building retrofit program, as identified in the opportunities section. Some additional savings are achievable through right-sizing fleet vehicles, and using more efficient fuels (or electric vehicles) where possible.

5.2 Purchasing Carbon Offsets

In order to achieve carbon neutrality in 2012, the Regional District will need to purchase carbon offsets for any greenhouse gas emissions remaining after undertaking reduction activities. Based on 2008 emission levels and an estimated offset cost of \$25 per tonne, the Regional District will need to spend approximately \$5,525 (note: this may change if reduction measures are effective in reducing emissions by the end of 2012).

The Regional District and other local governments in the Peace River region would like to direct the purchase of these carbon offsets towards projects within area. Note that the Regional District may not apply carbon offset funds towards projects that result in the reduction of its own corporate emissions (for example, the funds cannot be used to retrofit local government facilities with solar panels).

However, there are currently no qualifying carbon offset projects underway in the Peace River region. To facilitate the development of such projects, the Regional District may wish to work together with all the local governments in the region to pool resources and fund projects within the region.

5.3 Personnel Requirements

In order to carry out the recommended reduction measures identified in this plan, the Regional District will need to establish energy management as part of staff roles – either by integrating into existing roles, or establishing a portion of a new role. The types of energy management tasks that will need to be carried out include:

- Contracting services to retrofit buildings
- Promoting energy efficiency among staff
- Developing policies (energy efficient building, using alternative energy, purchasing)
- Conducting lifecycle costing for efficient / alternative technologies
- Evaluating appropriate vehicles
- Coordinating staff training for efficient driving
- Communicating with regional partners

Several of these tasks could be undertaken by a regional energy manager, if such a position is established.

5.4 Funding

In order to carry out the recommended building retrofits in the four assessed buildings that are included in the inventory, the Regional District will need to secure funds of approximately \$100,000. If recommended retrofits to the North Peace Leisure Centre are undertaken, an approximate total of \$540,000 will need to be secured. Some funding may be available through programs, as outlined in Table 7.

Table 7: Sample funding programs to support the GHG Emission Reduction Plan

Program	Key Features
Climate Action Rebate Incentive Program (CARIP)	<p>This provincial initiative will reimburse communities that have signed on to the Climate Action Charter. (NB emissions associated with electricity purchases do not pay carbon tax or receive the rebate, but must still be neutralized through offsets).</p> <p>As an example, Whistler has designated that its rebate will not go to general revenue, but will be put in a dedicated fund.</p>
BC Hydro Energy Coordinator Funding	BC Hydro has provided partial funding to some municipalities to fund an energy coordinator for the municipal operations.
BC Hydro Power Smart	Rebates and incentives to encourage energy efficiency in new construction and the installation of energy efficient products and appliances in existing facilities.
FCM Green Municipal Fund	Grants and loans available to support capital projects that reduce energy and GHG emissions. Competitive process with RFPs launched annually to fund projects related to brownfield redevelopment, energy, planning, transportation, waste and water.
Community Works Fund	This funding represents a portion of the transfer of Federal Gas Tax revenue under the New Deal for Cities and Communities. Local governments in British Columbia will receive this benefit through 2010, and projects that are eligible include capacity building projects and environmentally sustainable municipal infrastructure projects.

6 Conclusion

Through the implementation of the recommended actions outlined in this plan, the Peace River Regional District is well positioned to reduce both the energy consumption and GHG emissions resulting from corporate operations over the next 5 years by approximately 15%. In addition to acting independently, there are tremendous opportunities to collaborate with other local governments in the Peace River region to find further efficiencies and explore opportunities for alternative energy. This collaboration could result in more substantial reductions in consumption and emissions over the longer-term.