City of Prince George
Corporate and Community Update for Greenhouse Gas Emissions Reduction and Monitoring

FCM Partners for Climate Protection Program
Milestones 4 and 5

November 10, 2011
Table of Contents

1 Executive Summary.......................................................................................................................... 1
   Background....................................................................................................................................... 1
   Corporate Initiatives......................................................................................................................... 1
   Community Initiatives....................................................................................................................... 2
   Next Steps......................................................................................................................................... 2

2 Introduction........................................................................................................................................ 3
   2.1 Background.................................................................................................................................... 3
   2.2 Context.......................................................................................................................................... 4

PART 1: CORPORATE UPDATE.............................................................................................................. 5

3 Corporate Energy and GHG Emissions Profile.................................................................................. 5
   3.1 Overview of Corporate Energy and GHG Emissions Inventory: 2002 and 2009......................... 5

4 Corporate Energy and GHG Management Initiatives...................................................................... 8
   4.1 Description of Corporate Initiatives............................................................................................. 8
   4.2 Carbon Neutral Reserve Fund....................................................................................................... 14

5 Corporate GHG Emissions Reduction Target.................................................................................. 15
   5.1 Corporate GHG Emissions Reduction Target.............................................................................. 15
   5.2 Reassessment of Reduction Target.............................................................................................. 15

PART 2: COMMUNITY UPDATE ............................................................................................................ 16

6 Community Energy and GHG Emissions Profile.......................................................................... 16
   6.1 Overview of Energy and GHG Emissions Inventory: 2002 to 2007............................................ 16

7 Progress on Community Energy and GHG Management Plan Initiatives...................................... 19
   7.1 Description of Community Initiatives.......................................................................................... 19
   7.2 Additional Community Energy and GHG Reduction Initiatives............................................... 26

8 Community GHG Emissions Reduction Target............................................................................. 28
   8.1 Community GHG Emissions Reduction Target......................................................................... 28
   8.2 Reassessment of Reduction Target............................................................................................ 28

PART 3: PARTICIPATION & ENGAGEMENT ......................................................................................... 29

9 Corporate Participation and Engagement......................................................................................... 29

10 Community Participation and Engagement..................................................................................... 30
   10.1 Consultation during Planning Processes.................................................................................... 30
   10.2 Community Outreach Activities.................................................................................................. 32

11 Funding Partnerships and Grants..................................................................................................... 33

PART 4: NEXT STEPS ............................................................................................................................. 34

12 Ongoing Monitoring and Reporting.................................................................................................. 34

13 Future Initiatives................................................................................................................................ 35

14 Appendices ......................................................................................................................................... 36
   14.1 Appendix 1: Corporate Inventory Summary 2009..................................................................... 36
   14.2 Appendix 2: Community Energy & Emissions Inventory (CEEI) 2007....................................... 37
   14.3 Appendix 3: Implementation Table Summary – Submission for PCP Program Milestone 4.......... 38
1 Executive Summary

Background

The City of Prince George enrolled in the Federation of Canadian Municipalities (FCM) Partners for Climate Protection (PCP) program in 2002 – a five-milestone program to identify and reduce GHG emissions. By 2005, the City had completed a baseline energy and greenhouse gas (GHG) emission inventory for both its corporate operations and for the community as a whole, completing Milestone 1. In 2007, the City Council endorsed an Energy and Greenhouse Gas Management Plan addressing both Corporate operations and Community reductions, and set a GHG reduction target, achieving Milestones 2 and 3 of the PCP program for both the Corporate and the Community streams. For four years the City has been implementing actions and is now assessing and reporting on its progress in undertaking these efforts.

This report represents the City’s submission for the PCP Milestones 4 and 5, and offers an opportunity to review the activities that have taken place and report on the challenges and successes encountered during the implementation of the energy and GHG management plan.

Corporate Initiatives

Inventories of corporate operations have been compiled for 2002 and 2009 – though the methodologies have evolved and the inventories are not directly comparable. 2009 emissions are estimated at 9,490 tonnes of carbon dioxide equivalents (t CO₂e), based on transportation fuel, electricity and natural gas consumption.

The 2007 Energy and GHG Management Plan identified 8 initiative areas and 18 actions to reduce Corporate energy consumption and GHG emissions. The following table summarizes the status of the Corporate actions:

<table>
<thead>
<tr>
<th>Status</th>
<th>Number</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed</td>
<td>6</td>
<td>Completed actions include facility audits and Sustainable Energy Management Plan, fleet management system and E3 Fleet Silver, utility efficiency initiatives.</td>
</tr>
<tr>
<td>Underway / Ongoing</td>
<td>9</td>
<td>The majority of actions are in progress or ongoing, including the completion of the Downtown District Energy System (DDES), facility retrofits for energy efficiency, waste reduction, and life cycle costing.</td>
</tr>
<tr>
<td>Started and Stopped</td>
<td>1</td>
<td>Bio-diesel supply is not currently available. This action will be re-started if a viable source is identified.</td>
</tr>
<tr>
<td>Not started</td>
<td>2</td>
<td>Two actions have yet to be implemented: a) adoption of a formal policy for new City facilities to attain a certain level of energy efficiency, opportunities are currently identified on a case-by-case basis; and b) evaluation of ethanol based fuels for the fleet, which is not currently a priority in the Green Fleet Corporate Plan.</td>
</tr>
</tbody>
</table>

Through measures implemented to date, the City has mitigated building-related emissions estimated at over 500 t CO₂e, relative to the business as usual. Identified activities underway or to be implemented are expected to reduce emissions by an additional 1,200 t CO₂e. Fleet reductions cannot be accurately quantified compared to 2002 due to changes in inventory methodology.

A recommendation is made that a target be re-defined based on the 2009 inventory (or 2007, if that inventory can be compiled, to be consistent with the province’s targets). This would provide a
reliable baseline for comparison and comparisons in future years would still capture many of the initiatives developed under the current plan.

Community Initiatives

Inventories of community energy and emissions have been compiled for 2002 and 2007 – though the methodologies have evolved and the inventories are not directly comparable. The BC provincial government (the Province) also prepared a Community Energy and Emissions Inventory (CEEI) for 2007. Community emissions in 2007 are estimated at 660,000 t CO₂e. This does not include the large industrial sector, due to confidentiality issues.¹

The 2007 Energy and GHG Management Plan identified 12 initiative areas and 27 actions to reduce Community energy consumption and GHG emissions.

<table>
<thead>
<tr>
<th>Status</th>
<th>Number</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed</td>
<td>9</td>
<td>Several initiatives related to improving efficiency of buildings, creating an Active Transportation Plan, and instituting the UPass are complete.</td>
</tr>
<tr>
<td>Underway / Ongoing</td>
<td>14</td>
<td>Several more initiatives are underway or ongoing, including encouraging further efficiencies in residential and commercial buildings, providing enhanced transit, updating the OCP with Smart Growth principles, and ongoing education activities.</td>
</tr>
<tr>
<td>Not started</td>
<td>2</td>
<td>Two actions have not been initiated to date, including soft incentives for carpool/vanpools, and a bylaw requiring connection to the DDES in new developments.</td>
</tr>
<tr>
<td>Not pursuing</td>
<td>2</td>
<td>The Plan linked two actions to the Provincial Energy Savings Plan initiative that was cancelled shortly after the Plan started implementation. Other measures were implemented instead of these.</td>
</tr>
</tbody>
</table>

A recommendation is made that a target be defined based on the 2007 year. This allows for consistency with the provincial targets, and the CEEI inventory monitoring framework.

Next Steps

Next steps for the City’s energy and GHG management plans are to implement and monitor progress on the following plans and activities:

<table>
<thead>
<tr>
<th>Corporate</th>
<th>Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Energy Management Plan (Corporate Energy Manager activities)</td>
<td>OCP update and implementation</td>
</tr>
<tr>
<td>Carbon Neutral Corporate Plan</td>
<td>Active Transportation Plan</td>
</tr>
<tr>
<td>Green Fleet Strategic Plan</td>
<td>Downtown District Energy System Phase 2</td>
</tr>
<tr>
<td>E3 Fleet Reporting</td>
<td>Community Energy Manager activities</td>
</tr>
<tr>
<td>Sustainable Procurement Policy</td>
<td></td>
</tr>
</tbody>
</table>

2 Introduction

2.1 Background

The PCP program is a network of Canadian local governments (LGs) that have committed to reducing greenhouse gas (GHG) emissions and acting on climate change. PCP is the Canadian component of International Council for Local Environmental Initiatives’ (ICLEI) Cities for Climate Protection network, involving more than 900 communities worldwide. PCP is a partnership between the Federation of Canadian Municipalities (FCM) and ICLEI – Local Governments for Sustainability. It is based on a five-milestone framework used to guide municipalities to reduce GHG emissions:

1. Creating a greenhouse gas emissions inventory and forecast;
2. Setting an emissions reductions target;
3. Developing a local action plan;
4. Implementing the local action plan or a set of activities; and
5. Monitoring progress and reporting results.

The City of Prince George signed on to the PCP program in July 2002. In 2005, the City achieved the first milestones of the PCP program in both Corporate and Community actions, through the development of a GHG emission baseline, using 2002 data that was available at the time. In 2007, the City set a corporate emission reduction target of 10% from 2002 levels by 2012 and a community emission reduction target of 2% from 2002 levels by 2012. The City also prepared its Energy and Greenhouse Gas Management Plan (Energy Plan) to achieve Milestones 2 and 3.

The City of Prince George took an early commitment to taking action on climate change by voluntarily enrolling in the Federation of Canadian Municipalities (FCM) Partners for Climate Protection (PCP) program in July 2002. In 2005, the City had completed a baseline energy and greenhouse gas (GHG) emission inventory for both its Corporate operations and for the Community as a whole, achieving the first milestones of the PCP program in for both Corporate and Community actions. In 2007, the City Council endorsed an Energy and Greenhouse Gas Management Plan (EGHGMP) that set GHG emission reduction targets and identified several initiatives and actions for achieving those targets in both corporate operations and for the community as a whole. Setting GHG reduction targets and developing the EGHGMP enabled Prince George to achieve Milestones 2 and 3 of the 5-milestone PCP program in both the Corporate and the Community streams.

Since 2007, the City has engaged in numerous activities in both its corporate operations and in the broader community to help achieve a reduction in GHG emissions. In 2008, the City was awarded the Community Action on Energy Efficiency (CAEE) Gold Grant and was also recognized with the LiveSmart BC Green City Award for demonstrating leadership and innovation in sustainability, particularly with respect to reducing GHG emissions. In 2010, the City was given the UBCM Energy and Climate Action Award for its development of the Downtown District Energy System (DDES) and its collaboration with Natural Resources Canada (NRCan) on energy mapping. After four years of implementing measures outlined in the EGHGMP, the City is now assessing and reporting on its progress in undertaking these efforts. This report represents the City’s submission for the PCP program Milestones 4 and 5 – an opportunity to review the activities that have taken place and report on the challenges and successes encountered during the implementation of the energy and GHG management plan.
In 2007, the City also signed the Provincial **Climate Action Charter**, voluntarily committing to become carbon neutral in local government operations by the end of 2012, and to support community-scale climate change mitigation activities.

### 2.2 Context

This report addresses two levels of energy consumption and GHG emissions, and the associated activities for reducing those emissions. The two scales are:

- the City's corporate operations ("Corporate"), and
- the community as a whole ("Community").

Figure 1 helps to distinguish the two levels – the Corporate GHG emissions are 1.4% of the total Community GHG emissions. The Corporate emissions (the little dot) result from operating the City’s buildings (City hall, recreation centres, libraries, fire halls, etc.), operating the City’s vehicle fleet, and decomposition of the solid waste collected at City facilities (Appendix 1: Corporate Inventory Summary 2009).

The Community emissions (the big dot) result from heating and powering all residential, commercial, and small and medium industrial buildings in the city’s boundaries, all vehicles (personal and commercial) registered in the city, and all the solid waste generated by residents and businesses in the city (Appendix 2: Community Energy & Emissions Inventory (CEEI) 2007).

![Figure 1. Relative GHG Emissions from Corporate City operations and Community-wide](image-url)
PART 1: CORPORATE UPDATE

In order to provide services to residents and businesses in Prince George, the City operates an array of buildings, infrastructure and vehicles. Providing these services requires energy, which results in the release of GHG emissions. The City has made commitments to reduce its corporate energy consumption and GHG emissions. Part 1 of this report discusses how much energy these activities consume, how much this has changed between 2002 and 2009, the actions the City has taken that resulted in these changes, and the progress towards achieving the Corporate GHG emissions reduction targets that were set in 2007.

3 Corporate Energy and GHG Emissions Profile

3.1 Overview of Corporate Energy and GHG Emissions Inventory: 2002 and 2009

The City conducted a baseline energy and greenhouse gas (GHG) emissions inventory for its operations in 2002 and an updated inventory for its operations in 2009. The two inventories were conducted using similar methodologies for utility data collection and different methodologies to collect data for fleet fuel consumption and solid waste generation. A brief overview of the inventory contents and methodology of data collection is provided:

- **Buildings**: all facilities operated by the City to provide traditional services, including community services, fire services, parks, public safety and civic facilities. These buildings are heated and powered by natural gas and electricity.
  
  *Method*: extract all electricity and natural gas utility accounts owned by the City, extract and compile the consumption data by fuel type by facility.

- **Streetlights**: the City owns and operates streetlights that are powered by electricity.
  
  *Method*: extract all utility accounts for streetlights and compile the consumption data.

- **Water & sewer**: electricity and natural gas are used to pump and treat water and wastewater.
  
  *Method*: extract all utility accounts for water and sewer pump stations and treatment plans. Compile the consumption data.

- **Vehicle fleet**: the City operates a fleet of approximately 400 vehicles that consume gasoline, diesel, and biodiesel when available.
  
  *Method (2002)*: estimated fleet vehicle fuel consumption on a per vehicle basis. Personal mileage estimated from kilometres submitted on expense reports and estimated fuel efficiency for similar vehicle types. All personal vehicle use assumed to be gasoline.
Method (2009): all gasoline and diesel fleet fuel is tracked through a card-lock system, which is associated with the vehicle. The fuel volume reported includes all fuel filled at the City’s tanks and fuel filled remotely.

- Corporate solid waste: all waste generated in civic facilities (e.g. at the recreation centres, at City hall, at the libraries, etc.). When disposed in the landfill, waste decomposes and releases methane gas.


  Method (2009): Volumes provided by Waste Management for each facility. Estimated the mass of solid waste per cubic yard and applied the emission factor for solid waste disposed of in landfills used by the Provincial CEEI report for Prince George.

Due to the evolution in methodology between the two inventories, it is challenging to make a direct comparison between them. Table 1 provides a summary of the inventories by fuel type and a commentary on the differences between the inventories in the two years.
<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>2002</th>
<th>2009</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity (kWh)</td>
<td>35,571,400[a]</td>
<td>35,802,223</td>
<td>1% increase in overall electricity consumption.</td>
</tr>
<tr>
<td>Natural gas (GJ)</td>
<td>82,355</td>
<td>91,584</td>
<td>20% increase in overall natural gas consumption.</td>
</tr>
<tr>
<td>tonnes CO₂e Sub-Total</td>
<td>5,125</td>
<td>5,602</td>
<td>2002 inventory assumed all personal vehicles (used for City purposes) used gasoline which likely overestimated this quantity. 2009 inventory based on actual fuel consumption.</td>
</tr>
<tr>
<td>(electricity and natural</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>gas only)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gasoline (L) [b]</td>
<td>413,089</td>
<td>286,260</td>
<td>2002 inventory may have underestimated personal vehicle diesel (see above) and did not account for all fleet vehicles. 2009 inventory is based on actual fuel consumption tracked for the entire fleet.</td>
</tr>
<tr>
<td>Diesel (L) [b]</td>
<td>231,822</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Biodiesel B5 (L)</td>
<td>0</td>
<td>1,031,890</td>
<td></td>
</tr>
<tr>
<td>tonnes CO₂e Sub-Total</td>
<td>1,611</td>
<td>3,327</td>
<td></td>
</tr>
<tr>
<td>(fleet fuel only)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solid waste collected</td>
<td>1,118</td>
<td>1,643</td>
<td>Different estimation methods used in 2002 and 2009.</td>
</tr>
<tr>
<td>(metric tonnes) [c]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL tonnes CO₂e</td>
<td>7,097</td>
<td>9,490</td>
<td>2009 Inventory is believed to be more accurate.</td>
</tr>
</tbody>
</table>

Table notes:

[a] This electricity consumption is reported in the first inventory completed in 2005. BC Hydro re-extracted the 2002 consumption data in 2011 and reported a total consumption of 34,839,855 kWh for 2002.

[b] The City has made considerable efforts to improve tracking of fuel consumption since the first inventories were completed. The 2003 fleet fuel records were extracted in 2011 for comparison, and are believed to be more accurate than the 2002 inventory. However the 2003 records may not include all fuel filled remotely (e.g. fire services). These records indicate consumption in 2003 was as follows:
Gasoline: 286,909 L  Diesel: 586,109 L  Oil: 251 L

[c] The 2002 inventory estimated solid waste by estimating bin size and pickup frequency. The 2009 inventory is based on actual volumes collected, combined with an estimated mass per cubic yard.
4 Corporate Energy and GHG Management Initiatives

The 2007 Energy and GHG Management Plan identified 8 initiative areas and 18 actions to reduce Corporate energy consumption and GHG emissions. To date, 6 have been completed, 10 are underway or have ongoing implementation, and 2 are not started. Additional measures have also been identified since plan development.

This section describes the activities that have been undertaken, the estimated reductions in energy consumption and/or GHG emissions from these activities where possible, and provides potential for future reductions. Appendix 3: Implementation Table Summary – Submission for PCP Program Milestone 4 provides an overall summary of this information by action.

4.1 Description of Corporate Initiatives

Initiative 1: Implement Phase 1 of the Community Energy System

Action 1: Phase 1 of the community energy system – ensure the implementation of Phase 1 of the community energy system.

Status: Planning complete; Under construction

The City is currently managing the construction of a District Energy System (DES) in the downtown core that will provide heat to several buildings distributed through hot water pipes laid in the ground. The heat will be produced from by-products from a sawmill site adjacent to downtown. Phase 1 is expected to have 11 tenants connecting to the system – six will be City owned buildings, and the others will be Provincially and privately owned buildings.

This DES has several benefits to the community including:

- reducing GHG emissions from reduced use of natural gas;
- reducing particulate matter emissions through more efficient wood combustion and reduced truck traffic;
- supporting one of the community’s major industries (forestry);
- using a local resource for energy to circulate money within the community; and
- providing greater energy price certainty.
**Initiative 2: Evaluate and Implement Energy Reduction Opportunities for Civic Buildings**

**Action 2:** Energy audit program for municipal buildings – Develop and implement an energy audit program with a goal to assessing all municipal buildings for retrofit opportunities by 2008.

**Status:** Completed

**Action 3:** Energy tracking and management systems – Update or develop energy tracking and management systems to allow for effective analysis and reporting of energy consumption by the municipality.

**Status:** Completed

**Action 4:** Building retrofits for municipal buildings – Implement identified building retrofit for municipal buildings.

**Status:** Ongoing

The City has undertaken a series of actions since 2007 to address energy conservation in its buildings, including:

- a **comprehensive energy audit program**, completed by 2008, that identified 72 opportunities for conservation in 12 facilities,
- funding secured with BC Hydro to employ a **corporate energy manager** to oversee the program for all civic facilities,
- an energy management and tracking system, including annually producing a "**Sustainable Energy Management Plan**" (SEMP) for all facilities, and
- a **City facility retrofit program** to address the identified opportunities.

The retrofit program is funded by a combination of City funds and various funding programs and rebates available. To date, the completed projects are expected to save approximately 460,000 kWh of electricity and 2,700 GJ of natural gas annually. Planned projects up to 2012 are anticipated to see further savings of 310,000 kWh of electricity and 4,000 GJ of natural gas (not including savings expected from connecting six facilities to the District Energy System).

In addition to the energy savings already achieved by the City, several more retrofits and capital improvements are planned. Estimates of the anticipated change in building energy consumption over five years were completed for the 2010 SEMP as follows:

- Year 1 (2010): 3% reduction in overall energy intensity (of City facilities)
- Year 2: 5% reduction in overall energy intensity
- Year 3: 7% reduction in overall energy intensity
- Year 4: 9% reduction in overall energy intensity
- Year 5: 12% reduction in overall energy intensity
Initiative 3: Build All New Municipal Buildings to High Energy Efficient Standards

Action 5: Green building policy – Require all new buildings greater than 500 m² (approx. 5382 square feet) to meet the BC Energy Efficient Buildings Plan Target for new construction.

Status: Not formally implemented

The City identifies opportunities for energy efficiency and alternative energy in new buildings on a case-by-case basis. Currently the City is in the process of building a new RCMP building that is expected to attain LEED Gold. Design features may include: exhaust heat recovery, increased insulation, daylight harvesting, groundwater cooling, and innovative lighting controls. The facility is expected to connect to the District Energy System as part of Phase 2. The City is identifying higher energy efficiency measures for the upcoming building at the 18th Avenue Yard.


Future initiatives: The City has not defined a formal policy to ensure all buildings meet a minimum energy standard that exceeds the building code. Defining such a policy may assist in communicating the ongoing efforts to build energy efficient buildings.

Initiative 4: Implement a Consolidated Fleet Energy Management Strategy

Action 6: Evaluate fleet management system – Evaluate an appropriate system for fleet management and evaluate the potential benefits of joining the Fleet E3 program.

Status: Completed

Action 7: Implement fleet management systems and training – Implement (or revise existing) fleet management systems and training with the objective of reducing energy consumption.

Status: Completed; ongoing implementation
In order to reduce energy consumption in the fleet, the City decided to enrol in the Fraser Basin Council's E3 Fleet program. In June 2010, the City's efforts in fleet energy management were recognized with a Silver E3 Fleet Rating. The results of these efforts include embarking on fleet right-sizing, purchasing hybrid vehicles, developing anti-idling guidelines and conducting life cycle costing based on fuel consumption.

In December 2010, the City completed “Towards a Greener Fleet, City of Prince George Green Fleet Corporate Plan” (GFCP) based on the following objectives:

- reduce GHG emissions,
- improve fuel efficiency,
- consider equipment and fuel alternatives, and
- implement effective driver systems through the purchasing and operational practices of the fleet.

The GFCP is being implemented in three phases to address gaps identified during the E3 fleet process between 2011 and 2013. One of the goals is to achieve the Gold E3 fleet rating.

Additional measures:

- Installed mechanism for tracking fuel use and idle-times: COBI-II units are being installed on fleet vehicles to track hours driven, idle-times and kilometres driven. Through this system, unexpected idling or other fuel inefficient behaviours can be identified and addressed. Units can also be installed to turn the vehicle off after a set period of time if certain criteria are met (e.g. battery is charged enough, cabin temperature is warm enough).
- Working to purchase a 100% electric vehicle with 3 partners in 2012 (RDFFG, UNBC, Northern Health).
- Pilot project to convert trucks to propane: This initiative is primarily intended to reduce costs, but is also likely to result in reduced GHG emissions. There may also be opportunities for conversion to natural gas vehicles, where appropriate.

**Initiative 5: Continue to Evaluate and Implement Bio-based Fuels**

**Action 8:** Assess ethanol fuel blends – Assess the applicability and availability of ethanol fuel blends at the time of the next fuel purchase contract.

**Status:** Not started

**Action 9:** Bio-diesel within the municipal vehicle fleet – Continue efforts to implement the use of bio-diesel within the municipal vehicle fleet.

**Status:** Started then stopped (lack of suppliers)
The City switched to biodiesel blends for all diesel fleet vehicles in 2007, 2008 and 2009. Staff found the use of B20 in warm months and B5 in cold months was feasible, though several adjustments were required to get to that point. After 2009 the supplier was no longer available.

Ethanol-based fuels have not been evaluated; however, the City’s sustainable procurement procedure ensures all new vehicles are “Flex fuel” to ensure compatibility in the future.

Future initiatives: The City will switch back to biodiesel if a suitable supply of biodiesel becomes available.

**Initiative 6: Incorporate Energy Conservation and GHG Reduction in Utility Operations**

**Action 10:** Street Light dimming program – Implement the Street Light dimming program within the community where applicable.

*Status: Completed*

**Action 11:** Micro-turbine energy recovery at the Wastewater Treatment Plant (WWTP) – Complete the implementation of the energy recovery project at the WWTP to use digester gas to generate electricity with micro-turbines.

*Status: Completed*

**Action 12:** Energy efficient infrastructure, life cycle energy considerations – Use energy efficient system components in new infrastructure, and include the life cycle energy consumption in project evaluations.

*Status: Ongoing*

There are two key initiatives that have been undertaken by the City to conserve energy in utility operations that are notably innovative.

The City was the first local government in BC to install new **street light dimming technology** that allows street lights to be dimmed during low traffic times. A pilot project demonstrated that the new technology led to approximately 30% electricity savings where installed\(^2\). Due to the success, the

\(^2\) Staff report to City Council, Smart Street Lights, March 29, 2010

City installed an additional 825 units in 2010. Funding was received to facilitate the purchase and installation. The City expects a payback period of just over one year on their portion of the funding.

The City also installed microturbines that convert excess biogas into electricity at the WWTP. The excess biogas is flared. These units have reduced electricity demand at the WWTP by approximately 280,000 kWh annually.

In addition to these activities, the City established a Life Cycle Costing Committee in 2011. This committee has broad representation from departments (e.g. corporate services, operations, planning & development, facilities), and will work to define standard methods of calculating life cycle costs on purchases to inform decision-making.

**Initiative 7: Advance Energy Efficiency through Municipal Practices and “In-Reach”**

**Action 13:** Internal (staff) program on energy conservation and climate change – Develop and implement an ongoing internal (staff) program to raise awareness of energy conservation and climate change.

**Status:** Ongoing

**Action 14:** Staff education and trip reduction programs – Promote a reduction in single occupancy vehicle use for city staff through education and trip reduction programs such as car-pooling, and summertime bike to work events.

**Status:** Ongoing

**Action 15:** Corporate waste diversion and reduction – Reduce the impacts of corporate waste generation at civic facilities through diversion and reduction activities with a goal to reduce waste generation at civic facilities by 25% from 2002 levels by 2012. As well, support the regional district in efforts to capture and utilise landfill gas.

**Status:** Ongoing

The City annually organizes the community Bike-to-Work-Week in partnership with the PG Cycling Club. In 2009, 30 City staff participated. “In-reach” activities have been undertaken first through the Corporate Energy Manager, then through the City’s internal Green Team. These efforts include email reminders and tips for energy conservation, as well as energy saving quick facts on the staff intranet.

The City also has increased the diversion of waste – approximately 6% of total corporate waste is recycled through the paper recycling program.

---

3 Staff presentation to City Council, 2011 Budget Presentations – Utilities Division
Future initiatives: As recycling services expand in the community, City facilities will work to increase the diversion rate of those materials. The City may also explore collection of compost to further reduce waste.

**Initiative 8: Promote Energy Efficiency in Purchasing Decisions**

**Action 16:** Energy efficient purchasing policy – Whenever available and suitable, the City will purchase ENERGY STAR® rated equipment. For products without an ENERGY STAR® rating, the City will work to purchase the most energy efficient where ever possible.

**Status:** Ongoing

**Action 17:** Life cycle cost/benefits of energy efficient purchasing – The City will continue to include a consideration for life cycle cost/benefits of energy efficient purchasing.

**Status:** Ongoing

**Action 18:** Energy conservation in tenders and RFPs – Where appropriate and feasible, the City will include energy conservation considerations in its purchasing criteria for tenders and RFPs.

**Status:** Ongoing

In 2009 the City developed a strategy for sustainable procurement. This led to the development of a **Sustainable Procurement Policy and Guide** in 2010. The policy covers a variety of criteria, including energy efficiency. To support this, the City has designated a staff position as the Sustainable Procurement Coordinator to evaluate tenders and purchases to identify opportunities for inclusion of sustainability criteria. Further to this, vehicle purchases are assessed for **fleet right-sizing opportunities** at both the individual scale, and at the fleet scale.

Future initiatives: The Life Cycle Costing Committee will inform ongoing improvements in sustainable purchasing policies by identifying tools and procedures for life cycle costing before decisions are made.

### 4.2 Carbon Neutral Reserve Fund

In the City’s Carbon Neutral Corporate Plan (December 2010), staff identified an action to **establish a Carbon Neutral Reserve Fund (CNRF)**. The CNRF will be established with funds received from the annual carbon tax refund incentive program received by being a signatory to the Climate Action Charter. The City is currently assessing how to best make use of the funding.
5 Corporate GHG Emissions Reduction Target

5.1 Corporate GHG Emissions Reduction Target

The 2007 Energy and GHG Management Plan identified a Corporate GHG reduction target as follows:

*The municipality will target to reduce corporate GHG emissions by 10% from 2002 levels by the year 2012.*

The EGHGMP estimated that implementing the measures above would result in a GHG emission reduction of approximately 735 t CO\textsubscript{2}e, resulting in 6,345 t CO\textsubscript{2}e, or a 10.4% reduction.

As shown in the GHG emissions profile above, the difference in methodologies between 2002 and 2009 makes it challenging to assess progress towards Prince George’s Corporate target. Looking only at electricity and natural gas consumption based on utility records, the City has increased Corporate GHG emissions by 9% (480 t CO\textsubscript{2}e) from 2002 levels by 2009. However, primarily due to the Downtown District Energy System currently under construction and ongoing facility retrofits discussed above, it is expected that the City can achieve a reduction of approximately 1,200 t CO\textsubscript{2}e from current levels by the end of 2012. This equates to reducing Corporate GHG emissions in buildings 15% from 2002 levels by 2012.

5.2 Reassessment of Reduction Target

Due to the challenges in making comparisons between the 2002 and 2009 inventories, it is recommended that a new corporate GHG emissions reduction target be developed relative to a new baseline year. This new baseline year will ideally be aligned with the new baseline selected for the community in order to facilitate messaging and reduce confusion (either 2007 or 2010 to align with the availability of data for the community emissions). This assessment can be led by the Carbon Neutral Committee which is responsible for supporting implementation of the Carbon Neutral Plan. The target will need to be reflective of initiatives and targets being developed through:

- Green Fleet Strategic Plan
- Sustainable Energy Management Plan

As well, the 2010 SEMP identified a tentative target of a 20% reduction in overall energy intensity (electricity & natural gas) from 2009 levels by 2015, which would result in GHG emissions as well.
PART 2: COMMUNITY UPDATE

In the broader context of the community of Prince George, residents, organizations and businesses also consume energy and generate GHG emissions as a result of heating and powering buildings, moving people and goods, and disposing of solid waste. Part 2 of this report discusses the total energy consumed and GHG emissions produced from these activities, the types of activities the City has undertaken to reduce those emissions, and the progress towards achieving the community’s GHG emissions reduction target that was set in 2007.

6 Community Energy and GHG Emissions Profile

6.1 Overview of Energy and GHG Emissions Inventory: 2002 to 2007

In order to complete Milestone 1 of the PCP program, the City completed a community GHG emissions inventory in 2005, using 2002 as the baseline year. Since this time, the Province has set up a Community Energy and Emissions Inventory (CEEI) program that provides a baseline community GHG emissions inventory for 2007 using a consistent methodology for every municipality and regional district in BC.4

An overview of the components incorporated into a community-wide energy and GHG emissions inventory is provided:

---

4 The CEEI methodology and reports are available on the BC Ministry of Environment website: http://www.env.gov.bc.ca/cas/mitigation/ceei/reports.html
- **Residential buildings**: includes all homes in the Prince George city boundaries.

  *Method*: electricity and natural gas records were extracted for all residential accounts in Prince George. Documentation of that data extraction, and the accounts captured and their locations cannot be verified. The subsequent CEEI inventories identified conflicts regarding data boundaries and categorization, and spent considerable effort to resolve these conflicts. The 2002 extract should be considered as a preliminary effort and the 2007 CEEI reports to be more rigorous.

  *Method (2007)*: in addition to the utility records, rough estimates were made for the quantity of heating oil, propane and wood.

- **Commercial, small, medium industrial buildings**: includes all non-residential buildings in the city boundaries, except large industrial buildings. This includes government buildings (e.g. schools, hospitals, City facilities).

  *Method (2002)*: electricity and natural gas records were extracted for all non-residential / non-industrial accounts in Prince George.

  *Method (2007)*: electricity and natural gas records were extracted for all non-residential accounts in Prince George except large industrial accounts (see below).

- **Large industrial buildings**: includes all utility accounts in Prince George classified as industrial, except Northwood Pulp and Paper (2002). This category is not included in the community total reported by the CEEI.\(^5\)

  *Method*: electricity and natural gas records were extracted for all industrial accounts. In the 2002 inventory, Northwood Pulp and Paper was excluded. The 2007 inventory only includes accounts that use more than 7 GWh per year in the industrial category. Also in 2007 the electricity for large industrial was withheld due to confidentiality criteria.

- **Transportation**: estimates the fuel consumed by all vehicles in the community.

  *Method (2002)*: estimated total consumption by tallying fuel (gasoline and diesel) sales data collected by a private company from fuel stations in the city.

  *Method (2007)*: obtained number of registered vehicles by type (e.g. small passenger cars, large passenger cars, commercial vehicles, etc.) and estimated total consumption by multiplying expected distances driven for each vehicle type.

- **Solid waste**: includes all solid waste collected in the city that must be disposed.

  *Method (2002)*: collected total disposal tonnage, then estimated emissions from decomposition using the “waste commitment” method.

---

\(^5\) Although not included in the Community inventory total, the CEEI does report large industrial data for information purposes only. In Prince George, there are 10 large industrial electricity accounts, but the total consumption is withheld due to confidentiality. There are 28 large industrial natural gas accounts that total 320,000 tonnes CO\(_2\)e.
Method (2007): collected total disposal tonnage, then estimated emissions from decomposition using the “waste-in-place” method.

Due to the discrepancies in methodology between the two inventories, a direct comparison is not possible. Error! Reference source not found. provides a commentary on the differences between the two inventories.

Table 2. Comparison of Community Inventory for 2002 and 2007

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2007</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Residential Buildings</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity (kWh)</td>
<td>282,420,895</td>
<td>283,788,900</td>
<td>Uncertainty about diligence applied to utility data extraction in 2002.</td>
</tr>
<tr>
<td>Natural gas (GJ)</td>
<td>2,684,454</td>
<td>2,307,866</td>
<td></td>
</tr>
<tr>
<td>GHG Emissions (CO₂e)</td>
<td>143,873</td>
<td>137,205</td>
<td></td>
</tr>
<tr>
<td><strong>Commercial Buildings</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity (kWh)</td>
<td>296,003,590</td>
<td>366,051,403</td>
<td></td>
</tr>
<tr>
<td>Natural gas (GJ)</td>
<td>8,351,005</td>
<td>1,400,005</td>
<td></td>
</tr>
<tr>
<td>GHG Emissions (CO₂e)</td>
<td>433,202</td>
<td>80,429</td>
<td></td>
</tr>
<tr>
<td><strong>Industrial</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity (kWh)</td>
<td>1,097,976,212</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Natural gas (GJ)</td>
<td>7,417,414</td>
<td>6,306,994</td>
<td></td>
</tr>
<tr>
<td>GHG Emissions (CO₂e)</td>
<td>405,370</td>
<td>321,657</td>
<td></td>
</tr>
<tr>
<td><strong>Transportation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gasoline (L) [a]</td>
<td>84,912,947</td>
<td>108,368,416</td>
<td></td>
</tr>
<tr>
<td>Diesel (L) [a]</td>
<td>866,007</td>
<td>59,063,836</td>
<td></td>
</tr>
<tr>
<td>GHG Emissions (CO₂e)</td>
<td>204,976</td>
<td>419,041</td>
<td></td>
</tr>
<tr>
<td><strong>Solid Waste</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solid waste collected (metric tonnes)</td>
<td>65,886</td>
<td>69,043</td>
<td>2002 and 2007 use different estimation methodologies.</td>
</tr>
<tr>
<td>GHG Emissions (CO₂e)</td>
<td>22,545</td>
<td>23,625</td>
<td></td>
</tr>
<tr>
<td>TOTAL CO₂e</td>
<td>804,596</td>
<td>660,300</td>
<td></td>
</tr>
</tbody>
</table>
7 Progress on Community Energy and GHG Management Plan Initiatives

The 2007 Energy and GHG Management Plan identified 12 initiative areas and 27 actions to reduce Community energy consumption and GHG emissions. To date, 9 have been completed, 14 are underway or have ongoing implementation, 2 are not started and 2 will not be implemented. Additional measures have also been identified since plan development. This section describes the activities that have been undertaken, the estimated reductions in energy consumption and/or GHG emissions from these activities where possible, and provides potential for future reductions. Appendix 3: Implementation Table Summary – Submission for PCP Program Milestone 43 provides an overall summary of this information by action.

7.1 Description of Community Initiatives

**Initiative 9: Endorse the BC Energy Efficient Buildings Plan Targets**


Status: Not undertaken (Plan reduced in profile)

Description: The provincial Energy Savings Plan (ESP) program only ran for one year and was not renewed. The City pursued other opportunities in place of this program, with the objective of promoting energy efficient new and existing buildings in the city. Formal endorsement of the BC Energy Efficient Buildings Plan targets was a requirement for access to ESP funding. At present there are no drivers for endorsement. Refer to Initiatives 10 to 12.

**Initiative 10: Encourage Energy Efficiency in Residential Buildings**

Action 20: Residential energy retrofit program – Work with the Ministry of Energy Mines and Petroleum Resources to extend the Energy Savings Plan (ESP) residential program for energy retrofits to Prince George in 2007. Consider participating in the program on a cost share basis. If required, commit funding to support the subsidized audit or the grant program.

Status: Not applicable

Action 21: Capacity building on energy efficiency with home builders sector – Consult with the home builders sector about ways to encourage the development of energy efficient (e.g. EnerGuide 80) homes.

Status: Completed

Action 22: Building permit rebate for energy audits – Implement a discounted building permit fee to applicants making renovations to their homes conditional on them undertaking an energy evaluation/audit prior to initiating the work.
Status: Underway

Action 23: Energy labelling for real estate transactions – Develop an Energy “Labelling” initiative to include energy evaluations (or ratings) as part of Real Estate transactions.

Status: Completed

Key components of this initiative were undertaken through funding from the Community Action on Energy Efficiency (CAEE) Gold program, combined with dedication of City staff resources. In support of improving energy efficiency in residential buildings, the City undertook three actions:

- **Build capacity on energy efficiency with the home builders sector.** This was undertaken under the Community Action on Energy Efficiency (CAEE) Gold program. One of the four main objectives of the CAEE Gold program was to increase the number of certified Built Green contractors in Prince George. As a result of the program, nine builders became certified – this is approximately half of all registered Canadian Home Builders Association (CHBA) members.

- **Develop building permit rebate program for energy audits or upgrades.** This is currently under analysis by staff to determine the potential costs and impacts of such a program. BC Hydro is supporting the policy analysis with its Policy Impact Estimator.

- **Energy labelling of homes for real estate transactions.** This was also undertaken under the CAEE Gold program. One of the four main objectives was to increase public awareness and demand for high efficiency homes. The result was zero uptake on this voluntary initiative, likely due to a variety of factors, including a lack of market desire to obtain energy efficiency information during home purchase.

**Additional measures:** In addition to the actions identified in the plan, the City also undertook the following under the CAEE Gold program:

- **New Home Energy Efficiency REBATE Pilot.** One of the four main objectives was to provide incentives to home buildings to defray some costs of higher energy efficient products / methods. The assistance provided was substantial ($29,750 was distributed to the 6 applicants) for achieving EnerGuide ratings of 81, 82, 83+. It took 18 months to reach full uptake, which provided a learning opportunity to City staff and committee members.

- **Promotion of LiveSmart BC.** The City also promotes the Provincial rebate program for energy efficiency in homes and tries to align rebates with this and the Federal grant program.

**Future initiatives:** The City will continue to investigate opportunities for encouraging energy efficiency in residential buildings, focusing on existing building stock due to low rates of new development. This may include providing discounted building permits during renovations with completion of an energy audit or achievement of performance standards (e.g. increase in EnerGuide rating).
**Initiative 11:** Encourage Energy Conservation in the Commercial, Institutional and Light Industrial Sectors

**Action 24:** Revitalization tax exemption bylaw downtown for energy efficiency – Evaluate whether the tax exemption bylaw system currently used to encourage downtown revitalization could be used as a model for encouraging energy efficiency.

**Status:** Completed

**Action 25:** Promote green building design in commercial sector – Promote green building design guidelines in the commercial sector through training, workshops, and interaction with the local construction sector.

**Status:** Underway

**Action 26:** Small ICI energy audits and retrofits – Promote the Energy Savings Plan’s “Existing Small ICI Program” to link potential participants with program funding (free audits and retrofit assistance).

**Status:** Underway

This initiative has been addressed through a combination of promotions, incentives, and program offerings of free audit services to businesses in the community. These include:

- **Downtown revitalization tax exemption for LEED.** The primary objective of the Downtown revitalization tax exemption program is to encourage higher density, mixed-use developments. One criterion for tax exemption eligibility is to build a LEED certified building. The bylaw was adopted in summer 2011.

- **Small and Medium Business (SMB) energy audit program.** In 2009 the City’s Community Energy Manager undertook 30 energy audits in SMBs. This resulted in identifying potential annual cost savings of $108,000. Extrapolating from these results to the rest of the sector, it was estimated that a reduction of 1,300 tonnes CO₂e could be achieved in the SMB sector per year (equivalent to a 7% reduction in GHGs from 2002 by 2012).

- **Promote energy efficient practices in the commercial sector.** The City, together with the Province’s Climate Action Secretariat, funded the Climate Smart program for two years. This program is helping 12 Prince George organizations (7 commercial, 4 institutional and non-profit, and 1 industrial) to measure and reduce their carbon footprints.

**Future initiatives:** The 2009 pilot program for community energy efficiency identified the need for ongoing education, technical and financial support to achieve the target reduction in GHGs in the SMB sector. The City is also assessing other ways to support the commercial sector to reduce its energy consumption.

---

6 For a detailed list, see section 3.3.2 – Proposed Actions for SMB Sector – in “Pilot Program Final Report Community Energy Efficiency and Conservation Opportunities”, February 2010, Environ.
**Initiative 12: Support Industry to Reduce Energy Consumption and GHG Emissions**

Action 27: Encourage energy conservation in industrial sector – Continue communication with the industrial sector to ensure that all possible municipal opportunities to assist in energy conservation are being explored. Challenge the industrial sector to implement energy reduction measures totalling 10% of 2002 consumption by 2012.

Status: Underway

Large industries in Prince George have undertaken initiatives to reduce energy consumption and GHG emissions, including hiring corporate energy managers. There are other initiatives that link to potential reductions in the industrial sector:

- The Climate Smart program identified above was open to industrial partners and currently one industrial site is involved.
- The City has also developed a partnership with Lakeland Mills to supply the District Energy System (see Initiative 1 for more information). Through this initiative, the mill has installed more efficient burners and reduced energy expended on transporting biomass residues off-site.

**Initiative 13: Promote Transportation Alternatives**

Action 28: Encourage carpooling to reduce single-occupancy vehicles – Encourage vanpool, car pool, and other trip reduction measures in the community. Use soft incentives such as preferential or discounted parking.

Status: Not started

Action 29: Non-SOV transportation strategies for large end destinations – Work with large end destinations (UNBC, community colleges, mills, etc.) to create parking and transportation strategies that support non-SOV commuting.

Status: Underway

Action 30: Support green commuter challenges – Continue to support the GO GREEN Commuter Challenge.

Status: Underway

Action 31: Implement Cycle Network Plan – Work to ensure that the Cycle Network Plan Recommendations are implemented.

Status: Completed

Action 32: Non-motorized transportation plan – Develop a non-motorized transportation plan to increase walking and cycling paths and corridors.
There has been substantial effort put into the development of a **10-year Active Transportation Plan (ATP)** for Prince George that integrates pedestrian and cycling planning efforts, and coordinates with transit plans. This plan was recently passed by Council with an implementation plan that includes increased annual funding to Signage and Painting, as well as seven major capital projects that will be incorporated into the budget-planning process.

The annual **Bike to Work Week (BTWW)** event is jointly led by the City and the PG Cycling Club. The City provides both time and funding to support the event. In 2011, 606 cyclists participated, riding 17,600 km during the week.

**Future initiatives:** The City will move forward with implementation of the ATP.

---

**Initiative 14: Advance the Transit Plan Objectives**

**Action 33:** Support strategic transit plan – Continue to support the goals outlined in the City’s Transit System Strategic Marketing Plan.

**Status:** Underway

**Action 34:** U-Pass program for UNBC students – Encourage and advocate for the successful implementation of a U-Pass program with UNBC students.

**Status:** Completed

The city’s transit system is jointly funded by the City and BC Transit and is operated by PG Transit. Since 2007, the transit system has implemented new programs and routes that have resulted in a **46% increase in ridership since 2007.** One of the new programs is the implementation of the **UPass program** for two locations (the University of Northern BC and College of New Caledonia), which incorporates monthly bus passes into student fees for all registered students.

**Future initiatives:** The City will work with BC Transit to develop a Transit Future Plan for Prince George.

---

**Initiative 15: Reduce Unnecessary (Transport) Fuel Consumption in the Community**

**Action 35:** Downtown anti-idling zone – Expand the anti-idling area to encompass the downtown core.

**Status:** Underway

**Action 36:** Education program to reduce idling – Develop an education program to promote reduced idling at common pick-up / drop-off locations such as schools, recreation centres, etc.

**Status:** Completed
Through funding obtained from the ecoENERGY for Personal Vehicles program with Natural Resources Canada (NRCan), the City and PG AIR conducted an anti-idling campaign that:

- a school program on anti-idling (375 students participated),
- emissions testing clinic (311 vehicles tested),
- surveys and analysis of idling behaviour, and
- signage installed for 300 idling hot spots.

These activities targeting a reduction in idling have the co-benefit of reducing other air emissions from vehicles, which can contribute to improved air quality.

At this time the City is not planning to pursue anti-idling regulation, but to continue to focus on education and awareness for reducing fuel consumption in driving behaviour.

**Initiative 16: Encourage “Smart Growth” Principles in Land Use Planning**

**Action 37:** Encourage “Smart Growth” principles in new developments.

**Status:** Completed (Downtown) and ongoing

In 2008 to 2009 a Smart Growth on the Ground (SGOG) process took place that resulted in the Downtown Smart Growth Concept. A vision was developed through a series of public meetings, followed by development of the concept plan at a four-day charrette. The concept is now being incorporated into the OCP update and other planning initiatives (including a downtown revitalization initiative) and the Downtown Development Permit Area Design Guidelines.

**Initiative 17: Incorporate Energy Considerations into Planning Documents**

**Action 38:** Include energy efficient / climate mitigation text in the OCP and other planning documents – Learn from the Community Action on Energy Efficiency (CAEE) and review sample text for potential inclusion in OCP and other planning department documents.

**Status:** Underway (OCP update in progress)

The City is currently in the process of updating the community’s Official Community Plan (OCP), which incorporates the principles of Smart Growth throughout the policies and objectives, as well as policies and objectives specific to energy efficiency and climate mitigation.

*Future initiatives:* In 2009, City staff developed a Sustainability Checklist as a voluntary measure for reaching out to developers, builders, and homeowners about sustainable considerations when building. The City will review the opportunity to provide the checklist with all development applications for OCP Amendments, Zoning Bylaw Amendments, Subdivision, or Development Permits.

---

**Initiative 18: Implement Phase 2 of the District Energy System**

Action 39: Ensure that any future development in the DES service area is ‘retrofit’ ready for the DES development.

Status: Not started

Action 40: DES Phase 2 expansion planning – Work with funding and operating partners to ensure that the system advances to Phase 2.

Status: Underway

Phase 1 of the Downtown District Energy System includes buildings that are owned by the City, as well as privately-owned and Provincially-owned buildings. Therefore, even in Phase 1, there will be community-wide reductions in GHG emissions. Phase 2 planning has begun, with one tenant identified to date (the new RCMP building to be constructed 2012).

This DES has several benefits to the community including: reduced GHG emissions from reduced use of natural gas, reduced particulate matter emissions through more efficient wood combustion and reduced truck traffic, supports the community’s main industry (forestry), retains energy spending within the community, and provides greater energy price certainty.

*Future initiatives:* A DES service area “retrofit ready” bylaw has not yet been developed. This may be desirable if the City determines continued expansion of the system is desirable, and that there is ability to provide sufficient capacity.

**Initiative 19: Encourage Alternate Energy Supply Systems**

Action 41: Explore with the Regional District to identify a strategy to maximize the recovery and beneficial use of recovered landfill gas.

Status: Underway

Action 42: Promote and encourage the application of Ground source Heat Pumps in new or retrofitted buildings.

Status: Underway

There are two areas of activity for this initiative: the use of captured landfill gas and the encouragement of alternate energy systems in new developments.

The Regional District of Fraser Fort George operates the landfill in Prince George, which includes a landfill gas capture system. The RD investigated the opportunity for using recovered landfill gas to heat a greenhouse, but found it was not viable in short term. There remains potential to utilise the natural gas in the longer term (e.g. within the next five years), but this requires further study.
The City has incorporated opportunities for geo-exchange into its neighbourhood planning processes. The University Heights Neighbourhood Plan, developed in 2007, states that geo-exchange should be incorporated into the future design of educational facilities (3.7.1.4 Design Guidelines).

**Future initiatives:** There may be opportunities to promote the application of alternative energy systems in new and retrofit buildings during applications for re-zoning or for development permits. The City will investigate these opportunities to identify the most suitable mechanism for encouraging this technology.

### Initiative 20: Develop and Implement a Stakeholder Outreach Campaign

**Action 43:** Develop informational material for residents and businesses, such as posters and brochures.

**Status:** Underway

**Action 44:** Deliver climate change programs to schools within PG.

**Status:** Completed

**Action 45:** Promote energy efficiency to residents and businesses – through home and trade shows.

**Status:** Underway

City staff have undertaken several initiatives to engage stakeholders and the broader community, including:

- Booths at Home Shows, including the upcoming Canadian Home Builders Association Home Energy Fair, and at UNBC’s Green Day
- Display boards on energy efficiency for City Hall and the library,
- Website on energy efficiency incentives and measures ([http://www.princegeorge.ca/savingenergy/](http://www.princegeorge.ca/savingenergy/)),
- Distribution of materials developed by BC Hydro and FortisBC at community events,
- Educational videos about energy efficient homes and technologies on the City of Prince George's YouTube page ([http://www.youtube.com/user/CityofPG](http://www.youtube.com/user/CityofPG)), and
- Funding of BC Sustainable Energy Association's Climate Change Showdown school program for one year.

Staff will continue to conduct outreach, particularly with continued assistance from funders for the Community Energy Manager position (BC Hydro, FortisBC and NRCan).

### 7.2 Additional Community Energy and GHG Reduction Initiatives

The City has undertaken two other initiatives not identified above with the intent of addressing energy consumption and GHG emissions in the community. These include:
- **Energy mapping of the community**: The City collaborated with CanmetENERGY, Natural Resources Canada's energy research division to pilot the Spatial Community Energy, Cost and Carbon Characterization Model (SCEC3).

- **Energy Charrette**: A one-day workshop with community stakeholders to identify options for energy conservation and alternative energy in the Crescents neighbourhood in Prince George. Funding was provided by BC Hydro and by Natural Resources Canada.
8 Community GHG Emissions Reduction Target

8.1 Community GHG Emissions Reduction Target

The 2007 Energy and GHG Management Plan identified a Community GHG reduction target as follows:

The municipality, working with funding and implementation partners, and the community will target to reduce community-wide GHG emissions by 2% from 2002 levels by 2012.

This reduction was estimated at approximately 20,000 t CO₂e from 2002 levels by 2012, resulting in 1.217 million t CO₂e (including large industrial emissions).

As shown in the GHG emissions profile above, the difference in methodologies between 2002 and 2007 inventories makes it difficult to compare the overall change in GHG emissions. Looking only at electricity and natural gas consumption based on utility records for the residential sector, the community GHG emissions from residential buildings has decreased by 13% from 2002 levels to 2007. However, the 2002 utility data extract should be considered a preliminary effort and the 2007 CEEI reports to be more rigorous so this may not be comparable.

8.2 Reassessment of Reduction Target

Due to the challenges in making comparisons between the 2002 and 2007 inventories, it is recommended that a new corporate GHG emissions reduction target be developed that uses 2007 as the baseline year. Most municipalities in BC have now set GHG reduction targets relative to the 2007 baseline data provided through CEEI due to the legislated requirement in the Local Government Act (Bill 27, 2008). Setting a new target to relative to 2007 will allow Prince George to align with the CEEI reports (providing consistent inventories) and to enable comparisons with other communities across BC.

The City may wish to set a target that is reflective of objectives and policies identified in the updated OCP and other planning processes, and that considers projected population growth rates.
PART 3: PARTICIPATION & ENGAGEMENT

9  Corporate Participation and Engagement

Although there are two positions on City staff that are dedicated to energy conservation (the Corporate Energy Manager and the Community Energy Manager), there are numerous staff throughout the organization that incorporate energy conservation and climate change mitigation into their roles. Formally, the City has several initiatives to encourage more energy efficient practices. Key committees that address this are:

- **Green Team** – representatives from several departments (10 members) with an agenda to conduct in-reach “green” activities, with one focus being energy conservation and GHG emissions reduction.

- **Green Fleet Team** – group of 5 staff have monthly meetings to develop and track progress on the 9 action plans that make up the Green Fleet Corporate Plan.

- **Life Cycle Costing Committee** – broad representation from several departments (e.g. corporate services, operations, planning & development, facilities) to define standard methods of calculating life cycle costs on purchases to inform decision-making.

- **Carbon Neutral Team** – identified in the Carbon Neutral Corporate Plan (December 2010) to maintain and amend the City’s Energy Efficiency and GHG Reduction Policy, develop implementation plans and provide oversight for the Carbon Neutral Reserve Fund.
10 Community Participation and Engagement

10.1 Consultation during Planning Processes

Since the development of the Energy and GHG Reduction Plan in 2007, the City has undertaken several planning processes that have involved significant consultation. The following list provides a summary of the key processes:

- **DDES Phase 1**: the district energy project first proposed in 2007-2008 received criticism during public consultation, primarily due to concerns over the potential impact on air quality. During the initial stages of the revised project, a comprehensive community, stakeholder and First Nations consultation plan was developed. This plan was carried out and involved numerous meetings with key community groups to garner input and gain support. The result was a redesign of the system to use biomass residues available at Lakeland Mills on site as fuel. This new project design received no Elector Response Forms, which would indicate opposition to the project, from the community on the revised project, and construction is underway at the time of writing (October 2011). Letters of support were received from:
  - PG AIR,
  - Millar Addition Citizens’ Coalition,
  - People’s Action Committee for Healthy Air.

  Further consultation was required to engage potential tenants of the system. Final agreements are currently being established with the Phase 1 tenants.

- **Smart Growth on the Ground (Downtown)**: 5 public meetings were held to develop a vision and a four-day design charrette was held to develop the Downtown concept.

- **myPG Integrated Community Sustainability Plan and OCP update**: The City’s OCP update (currently in Draft) has been a 2 year process that began in 2009. The following diagram depicts the key elements of the engagement process:

  - Envision the Future involved 1,907 people who made contributions to the development of the community goals.
o Understanding Options involved 250 community stakeholders attending five workshops.

o Choosing the Future involved 203 survey responses, 388 Canada Day input participants, and 11 stakeholder meetings with representatives from 43 organizations.

o Designing the Outcomes involved 283 survey responses, 26 citizens at a workshop, 3 youth-focused events, 9 stakeholder workshops, and booths at local events.

o Making it Happen involved full review of the Draft OCP.

● **Active Transportation Plan**: the ATP was developed in consultation with the community to ensure the community’s priorities in pedestrian and cycling infrastructure will be prioritized. Community consultation included: stakeholder consultation (with setup of an Active Communities Committee), an Open House (attended by over 50 people), and a Web-Based Survey (162 responses). Figure 3 illustrates the responses from the survey regarding prioritizing options for the ATP. This input fed directly into plan development:

![Active Transportation Modes Used in Prince George](image)

Figure 3. Results from a Web-Based Survey of Active Transportation Modes from the Active Transportation Plan.

Additionally, consultation with City staff from various departments was required to secure operational support and feasibility of implementation.

● **Energy Charrette**: the primary objective of this event was to engage the community in a discussion about energy efficiency, intensification of land use, and alternative energy for the Crescents neighbourhood. The one-day charrette had 37 participants from various sectors and organizations, including: City staff, NRCan, architects, developers, CHBA, UNBC, BC Hydro, non-profit organizations, energy efficiency auditors, realtors, and local businesses.

---

10.2 Community Outreach Activities

In addition to the planning processes outlined above, the City has undertaken several outreach activities (described in the initiatives overview above). The uptake on these initiatives has been variable, with some programs (notably the Home Energy Labelling Pilot) not attracting any uptake. The City has learned much from these endeavours and continues to seek opportunities for meaningful outreach. The following list provides a brief summary of these activities:

- CAEE Gold program – three of the four initiatives under this program involved community outreach and incentives with the objective of reducing energy consumption in residential buildings:
  - Built green certification with Canadian Home Builders Association members: 9 builders achieved certification through this program (1/2 of all registered builders).
  - Audit rebates for energy labelling with real estate transactions: no homeowners used the program; realtors were engaged in discussions but market was not ready for this initiative on a voluntary basis. One homeowner was interested, and apparently went ahead with the audit, but did not request the rebate.
  - New home efficiency rebate: Six homeowners used the program over 18 months; City staff were surprised at the slow uptake rate given the substantial incentives provided.

- Climate Smart: jointly funded by the City, the Province, and the participants, this program enables businesses to measure and report on their carbon footprints. The program signed up 12 business partners to participate in developing these reports and moving forward with reducing their carbon footprint.

- SMB audit program: through the Community Energy Manager position, funded by BC Hydro, 30 Small and Medium Businesses in Prince George received free energy walk-through audits and reports highlighting key opportunities for cost savings and energy reductions.

- Anti-idling program: this program involved significant community outreach that included surveys, school programs (reaching 375 students), free vehicle emissions testing (311 vehicles tested), and identification of partners willing to install anti-idling signage (300 signs provided).
11 Funding Partnerships and Grants

The City has dedicated significant staff resources and funds to the implementation of energy and GHG reduction activities. However, many of the initiatives would not have been possible without the support of external partners and funding agencies. The following list summarizes several of the funding partnerships and grants obtained:

- Ongoing support from BC Hydro for a Corporate Energy Manager
- Combined support from BC Hydro, FortisBC and NRCan for a Community Energy Manager
- Substantial support for the DDES Phase 1 implementation from the Municipal Rural Infrastructure Fund (MRIF) - $5.3 million, the Green Municipal Fund (GMF): $0.5 million, and the Community Works Fund (CWF): $4.4 million
- Support from FCM for the new RCMP LEED Gold building
- The Province has provided support through various programs and departments, including the CAEE Gold Program: $75,000, the Innovative Clean Energy program, the Climate Action Secretariat (e.g. $7,500 for Climate Smart Business training)
- NRCan has provided substantial funding and in-kind support of around $400,000 for energy initiatives, particularly around Community Energy Mapping as a tool for urban planning
- UBCM provided funding through the BEAT (Built Environment & Active Transportation) Program funding ($20,000)
- BC Hydro provided funding to conduct an Energy Charrette ($20,000)
PART 4: NEXT STEPS

The City is committed to continuing efforts to improve energy efficiency and reduce GHG emissions, both in Corporate operations and more broadly across the Community. Achieving reductions requires commitments to ongoing monitoring and reporting of progress, implementing identified measures, and reassessing progress on a regular basis.

12 Ongoing Monitoring and Reporting

The City will continue to monitor energy consumption and GHG emissions from its Corporate activities on an annual basis. Systems are in place for tracking changes in energy consumption in facilities (through the Sustainable Energy Management Plan) and fleet (through E3 fleet). The City signed on to use the provincial SMARTTool as a mechanism to support tracking and reporting progress in 2009, and is currently assessing tools for tracking energy consumption. This will ease annual comparisons and understanding progress toward reduction targets.

At the Community scale, the Province has provided a 2007 baseline that is consistent in methodology across all local governments in the province. These reports are expected to be updated through the provincial CEEI initiative for the 2010 year, then every second year thereafter. The City will continue to track and report its community-wide inventory through the CEEI initiative.
13 Future Initiatives

Future initiatives are primarily defined through a series of strategic documents and plans maintained by staff, including:

CORPORATE:
- Sustainable Energy Management Plan (Corporate Energy Manager)
- Carbon Neutral Corporate Plan
- Green Fleet Strategic Plan
- E3 Fleet Reporting
- Sustainable Procurement Policy

COMMUNITY:
- OCP update and implementation
- Active Transportation Plan
- Downtown District Energy System Phase 2
- Community Energy Manager activities
14 Appendices

14.1 Appendix 1: Corporate Inventory Summary 2009

<table>
<thead>
<tr>
<th>2009 Corporate Energy and Emissions Inventory Summary</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>elec (kWh)</td>
<td>NG (GJ)</td>
<td>CO₂e</td>
</tr>
<tr>
<td>Buildings</td>
<td>35,802,223</td>
<td>88,160</td>
<td>5,427</td>
</tr>
<tr>
<td>Fleet</td>
<td>286,260</td>
<td>1,031,890</td>
<td>3,327</td>
</tr>
<tr>
<td>Solid Waste</td>
<td>1,643</td>
<td></td>
<td>562</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>9,320</td>
</tr>
</tbody>
</table>

Buildings: Electricity consumption is based on BC Hydro utility records for all City accounts. Natural gas consumption is based on FortisBC account records summarized in the City's Smart Tool submission and in the Carbon Neutral Corporate Plan.

Fleet: Total fuel consumed from City fuel stations and vehicles using remote fuelling.

Solid Waste: Total volume of waste collected from City facilities in 2009 was provided by Waste Management. Assumed density of 0.2 tonnes per m³ and emission factor equivalent to the factor used for the CEEI 2007 for Prince George.
14.2 Appendix 2: Community Energy & Emissions Inventory (CEEI) 2007
### 14.3 Appendix 3: Implementation Table Summary – Submission for PCP Program Milestone 4

<table>
<thead>
<tr>
<th>Action</th>
<th>Action Name</th>
<th>Project timeframe</th>
<th>Project completion</th>
<th>Implementation Costs</th>
<th>Annual Change in Energy / Resource Use</th>
<th>Annual Change in GHG Emissions</th>
<th>Other metric</th>
<th>Relevant Reports</th>
<th>Link</th>
<th>Funding Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Corporate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Phase 1 of the community energy system.</td>
<td>2008 - 2012</td>
<td>Underway</td>
<td>Total costs: $14.1 million ([Soft costs: $300k]) City portion of total: $4.0 million</td>
<td>-18,100 Q (Annual change in the community: -36,600 Q)</td>
<td>-926 tonnes CO2e (Annual change in the community: -1,800 tonnes CO2e)</td>
<td>Reduced Particulate Matter emissions estimated at 100 tonnes per year through emission control equipment at mill site, and reduced diesel truck traffic</td>
<td>Staff Report to Council – Downtown District Energy System</td>
<td><a href="http://www.princegeorge.ca/Portals/20/attachment/documents/PCP/Downtown_District_Energy_System%20MERGED%20FINAL.pdf">http://www.princegeorge.ca/Portals/20/attachment/documents/PCP/Downtown_District_Energy_System%20MERGED%20FINAL.pdf</a></td>
<td>The City entered into an energy supply agreement with Lakeland Mills Ltd who will supply the heat. Extensive meetings with prospective tenants have taken place - including internal City departments, Provincial government, and private hotels. Final agreements pending, and expected soon.</td>
</tr>
<tr>
<td>3</td>
<td>Energy tracking and management systems</td>
<td>2008 - 2010</td>
<td>Completed</td>
<td>(as above)</td>
<td>-</td>
<td>-</td>
<td>Sustainable Energy Management Plan (SEMP) updated annually</td>
<td>Sustainable Energy Management Plan - 2010 and 2011</td>
<td>Not available online</td>
<td>BC Hydro</td>
</tr>
<tr>
<td>4</td>
<td>Building retrofits for municipal buildings - COMPLETED.</td>
<td>2008 - 2011</td>
<td>Underway</td>
<td>2009 City funds: $43,000 2010 total rebates $164,000; City funds for remainder $25,000 2011 total rebates $331,000; City funds for remainder $455,000</td>
<td>Elec: -721,000 kWh NG: -7,300 Q</td>
<td>-385</td>
<td>Number retrofit projects completed: 2 (2009), 8 (2010), 12 (2011)</td>
<td>Sustainable Energy Management Plan - 2008</td>
<td><a href="http://www.princegeorge.ca/Portals/20/attachment/documents/PCP/Green_Municipal_Fund%20-%20Sustainable%20Energy%20Systems%20-%200618.pdf">http://www.princegeorge.ca/Portals/20/attachment/documents/PCP/Green_Municipal_Fund%20-%20Sustainable%20Energy%20Systems%20-%200618.pdf</a></td>
<td>n/a</td>
</tr>
<tr>
<td>Action</td>
<td>Action Name</td>
<td>Project timeframe</td>
<td>Project completion</td>
<td>Implementation Costs</td>
<td>Annual Change in Energy / Resource Use</td>
<td>Annual Change in GHG Emissions</td>
<td>Other metric</td>
<td>Relevant Reports</td>
<td>Link</td>
<td>Project Partners</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>---------------------</td>
<td>----------------------------------------</td>
<td>---------------------------------</td>
<td>--------------</td>
<td>----------------</td>
<td>------</td>
<td>----------------</td>
</tr>
<tr>
<td>13</td>
<td>Internal (staff) program on energy conservation and climate change</td>
<td>2008</td>
<td>Underway</td>
<td></td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>14</td>
<td>Staff education and trip reduction programs</td>
<td>2009</td>
<td>Underway</td>
<td></td>
<td>-</td>
<td>-</td>
<td>Organised 2 Bike to Work Week events Number of City staff participants in 2011: 30</td>
<td></td>
<td><a href="http://www.biketowork.ca/node/8407/results">http://www.biketowork.ca/node/8407/results</a></td>
<td>PG Cycling Club</td>
</tr>
<tr>
<td>15</td>
<td>Corporate waste diversion and reduction</td>
<td>2006</td>
<td>Underway</td>
<td></td>
<td>Amount of waste being diverted to recycling: 6% (113 Tonnes paper in 2010)</td>
<td>-39</td>
<td>Annual paper recycling data spreadsheet; annual waste data</td>
<td></td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>17</td>
<td>Life cycle cost/benefits of energy efficient purchasing</td>
<td>2011</td>
<td>Underway</td>
<td></td>
<td>-</td>
<td>-</td>
<td>Life Cycle Costing Team identified with representatives from 9 City divisions</td>
<td></td>
<td><a href="http://www.princegeorge.ca/citybusiness/supplies/services/biddingopportunities/Documents/sustainableprocurement/Pages/Default.aspx">http://www.princegeorge.ca/citybusiness/supplies/services/biddingopportunities/Documents/sustainableprocurement/Pages/Default.aspx</a></td>
<td>n/a</td>
</tr>
<tr>
<td>18</td>
<td>Energy conservation in tenders and RFPs</td>
<td>2009</td>
<td>Underway</td>
<td></td>
<td>-</td>
<td>-</td>
<td>Sustainable Procurement Guide (2010); Sustainable Procurement Policy (2010); Sustainable Procurement Policy (2010); Sustainable Procurement Guide (2010)</td>
<td></td>
<td><a href="http://www.princegeorge.ca/citybusiness/supplies/services/sustainableprocurement/Pages/Default.aspx">http://www.princegeorge.ca/citybusiness/supplies/services/sustainableprocurement/Pages/Default.aspx</a></td>
<td>n/a</td>
</tr>
</tbody>
</table>

**Community**

<table>
<thead>
<tr>
<th>Action</th>
<th>Action Name</th>
<th>Project timeframe</th>
<th>Project completion</th>
<th>Implementation Costs</th>
<th>Annual Change in Energy / Resource Use</th>
<th>Annual Change in GHG Emissions</th>
<th>Other metric</th>
<th>Relevant Reports</th>
<th>Link</th>
<th>Project Partners</th>
<th>Funding Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Participate in provincial Energy Savings Plan</td>
<td>n/a</td>
<td>Not applicable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Action</td>
<td>Action Name</td>
<td>Project timeframe</td>
<td>Project completion</td>
<td>Implementation Costs</td>
<td>Annual Change in Energy / Resource Use</td>
<td>Annual Change in GHG Emissions</td>
<td>Other metric</td>
<td>Relevant Reports</td>
<td>Link</td>
<td>Project Partners</td>
<td>Funding Sources</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>---------------------</td>
<td>--------------------------------------</td>
<td>-------------------------------</td>
<td>-------------</td>
<td>-----------------</td>
<td>------</td>
<td>----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>20</td>
<td>Residential energy retrofit program</td>
<td>n/a</td>
<td>Not applicable</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Capacity building on energy efficiency with home builders sector</td>
<td>2009 - 2011</td>
<td>Completed</td>
<td>CAEE Gold Grant: $7,250</td>
<td>Number of homes certified under Built Green through the City program: 9 (50% of the registered builders with Canadian Home Builders Association in Prince George)</td>
<td>Not available online</td>
<td>Canadian Home Builders Association</td>
<td>Provincial CAEE (Community Action on Energy and Emissions) Gold program: $50,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Building permit rebate for energy audit</td>
<td>2011 - 2012</td>
<td>Underway</td>
<td>Evaluation of options - staff time: Community Energy Manager</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>BC Hydro</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Energy labelling for real estate transactions</td>
<td>2009 - 2010</td>
<td>Completed</td>
<td>CAEE Gold Grant: $3,000</td>
<td>Number of homes audited: 30 homes, no uptake</td>
<td>Not available online</td>
<td>n/a</td>
<td>Provincial CAEE (Community Action on Energy and Emissions) Gold program: $50,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Revitalization tax exemption bylaw downtown for energy efficiency</td>
<td>2009 - 2011</td>
<td>Completed</td>
<td>Staff time: Reduced tax income from successful applicants - no applications to date (new program)</td>
<td>-</td>
<td>-</td>
<td><a href="http://www.princegeorge.ca/cityhall/mayorcouncil/councilagendasminutes/minutes/2011/2011_07_25/documents/BL83_2011_report.pdf">http://www.princegeorge.ca/cityhall/mayorcouncil/councilagendasminutes/minutes/2011/2011_07_25/documents/BL83_2011_report.pdf</a></td>
<td>CFOS, Manager Real Estate Services, Manager of Policy Initiatives, Planning Dept</td>
<td>Potential assistance from Northern Development Initiatives Trust Grant Programs (up to $1 million)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Promote green building design in commercial sector</td>
<td>2011</td>
<td>Underway</td>
<td>Staff time: Climate Smart Program: Grant: $7,500 City: $3,000</td>
<td>Number of participants in the Climate Smart program: 12 participants (total), 6 commercial, 4 institutional/Non-profit, 1 industrial</td>
<td><a href="http://www.princegeorge.ca/cityhall/mayorcouncil/councilagendasminutes/minutes/2011/2011_03_24/documents/Report_CSB_2011_03_24_report.pdf">http://www.princegeorge.ca/cityhall/mayorcouncil/councilagendasminutes/minutes/2011/2011_03_24/documents/Report_CSB_2011_03_24_report.pdf</a></td>
<td>Climate Smart Participants: 12 local organizations participated</td>
<td>$7,500 Climate Action Secretariat, $9,000 City funds, participants funded remainder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Encourage energy conservation in industrial sector</td>
<td>2008 - 2012</td>
<td>Underway</td>
<td>DES - See Action 1</td>
<td>Number of industrial participants in the Climate Smart program: 12 participants (total), 1 industrial</td>
<td>DES Partnership with Lakeland Mills estimated to reduce Particulate Matter emissions by 100 tonnes per year</td>
<td>District Energy Partner: Lakeland Mills Climate Smart Participants: 13 local businesses participated</td>
<td>$7,500 Climate Action Secretariat, $9,000 City funds, participants funded remainder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Encourage carpooling to reduce single-occupancy vehicles</td>
<td>n/a</td>
<td>Not started</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Action</td>
<td>Action Name</td>
<td>Project Timeframe</td>
<td>Project completion</td>
<td>Implementation Costs</td>
<td>Annual Change in Energy / Resource Use</td>
<td>Annual Change in GHG Emissions</td>
<td>Other metric</td>
<td>Relevant Reports</td>
<td>Link</td>
<td>Project Partners</td>
<td>Funding Sources</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>---------------------</td>
<td>----------------------------------------</td>
<td>-------------------------------</td>
<td>----------------</td>
<td>-----------------</td>
<td>------</td>
<td>----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>29</td>
<td>Non-SOV transportation strategies for large and destinations</td>
<td>2009 *</td>
<td>Underway</td>
<td>Staff time: 50 hours</td>
<td>-</td>
<td>-</td>
<td>Number of students using &quot;Free-fare for classes&quot; program in 2010: 33 in 2011: &gt;50</td>
<td></td>
<td></td>
<td></td>
<td>BC Transit, PG Transit</td>
</tr>
<tr>
<td>30</td>
<td>Support green commuting challenges</td>
<td>2009 *</td>
<td>Underway</td>
<td>Staff time: $2,000 per year</td>
<td>17,726 km</td>
<td>-5</td>
<td>Number of participants in Bike To Work Week in 2011: 609 (3.4% return trips)</td>
<td></td>
<td></td>
<td>See to the right for data for the week</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Implement Cycle Network Plan</td>
<td>1999 - 2010</td>
<td>Completed</td>
<td>Senior government grants: &gt;$500,000 since 2001</td>
<td>-</td>
<td>-</td>
<td>Length of bike lanes created: 100 km</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Non-motorized transportation plan</td>
<td>2008 - 2010</td>
<td>Completed</td>
<td>Staff time: approx 1/3 FTE for 2 years</td>
<td>-</td>
<td>-</td>
<td>Number of classroom presentations completed: 15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Support strategic transit plan</td>
<td>2008 *</td>
<td>Underway</td>
<td>Annual total transit budget: 2007/2008: $4.6m 2008/2009: $5.7m 2009/2010: $5.8m 2010/2011: $6.3m 2011/2012: $6.7m (City funds approximately 1/2 of the total budget)</td>
<td>550,000 additional trips taken by transit in 2010/11 compared to 2007/08</td>
<td>not quantified</td>
<td>Ridership change since 2007: 46%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>U-Pass program for UNBC students</td>
<td>2009 - 2010</td>
<td>Completed</td>
<td>Increased revenues from passes, also increased service levels to accommodate (see action 33)</td>
<td>-</td>
<td>-</td>
<td>Number of classroom presentations completed: 15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Downtown anti-idling zone</td>
<td>2009 - 2010</td>
<td>Completed</td>
<td>Funding provided by: ecoENERGY for personal vehicles program (NRCan) - included dedicated staff at the Prince George Air Improvement Roundtable (PGAIR)</td>
<td>-</td>
<td>-</td>
<td>Number of classroom presentations completed: 15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Education program to reduce idling</td>
<td>2009 - 2010</td>
<td>Completed</td>
<td>Funding provided by: ecoENERGY for personal vehicles program (NRCan) - included dedicated staff at PAGAR</td>
<td>-</td>
<td>-</td>
<td>Number of classroom presentations completed: 15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36b</td>
<td>Additional idling reduction programming</td>
<td>2010 - 2011</td>
<td>City funding to PAGAR: $10,000</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Action</td>
<td>Action Name</td>
<td>Project timeframe</td>
<td>Project completion</td>
<td>Implementation Costs</td>
<td>Annual Change in Energy / Resource Use</td>
<td>Other metric</td>
<td>Relevant Reports</td>
<td>Link</td>
<td>Project Partners</td>
<td>Funding Sources</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>---------------------</td>
<td>----------------------------------------</td>
<td>-------------</td>
<td>-----------------</td>
<td>------</td>
<td>-----------------</td>
<td>-----------------</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>“Smart Growth” principles in new developments</td>
<td>2008 - 2011</td>
<td>Underway</td>
<td>-</td>
<td>Draft OCP Objectives and Policies incorporate Smart Growth</td>
<td>DOWNTOWN PG Concept Plan - SGOG</td>
<td><a href="http://www.sgc.gov.bc.ca/gbi/sgog_downtownpgconceptplan.pdf">http://www.sgc.gov.bc.ca/gbi/sgog_downtownpgconceptplan.pdf</a></td>
<td>BC Hydro Power Smart George and Housing Corporation, Ministry of Environment, Ministry of Tourism, Culture and Arts (Heritage Branch), Northern Development Initiative Trust, Prince George Community Foundation Ramada Real Estate Foundation Tree Canada YankCity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>Include energy efficient / climate mitigation text in the OCP and other planning documents</td>
<td>2010</td>
<td>Underway</td>
<td>Staff time to undertake OCP update process</td>
<td>Draft OCP contains several Objectives and Policies to address energy consumption and climate change</td>
<td>Draft OCP</td>
<td><a href="http://mypg.ca/progress/Pages/DesigningtheOutcomeOCP.aspx">http://mypg.ca/progress/Pages/DesigningtheOutcomeOCP.aspx</a></td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>DES service area retrofit ready / development</td>
<td>n/a</td>
<td>Not started</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>DES Phase 2 expansion planning</td>
<td>2011</td>
<td>Underway</td>
<td>PHASE 1 Capital costs: $14.1 million</td>
<td>DES Phase 1 connects community facilities, expected GHG reductions: -1,868 (total), -427 (private), -516 (Prov Govt)</td>
<td>Lakeland Mills working to identify new tenants for Phase 2</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>Strategy for beneficial use of recovered landfill gas</td>
<td>2008</td>
<td>Underway</td>
<td>Regional District studies</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>FootHills Boulevard Regional Landfill and Compost Facility - Landfill Gas Utilization Study Update</td>
<td>Led by Regional District</td>
<td>Regional District of Fraser Fort George received funding from Western Economic Diversification Canada – Mountain Pine Beetle Program and Northern Development Initiative Trust – Pine Beetle Recovery Program</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>Promote Ground Source Heat Pumps</td>
<td>2007</td>
<td>Underway</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Educational videos produced for City website: 3</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>Develop informational material for residents and businesses</td>
<td>2010</td>
<td>Underway</td>
<td>Staff time: 400 hours Material costs: $3,000</td>
<td>-</td>
<td>-</td>
<td>University Heights Neighbourhood Plan</td>
<td>BC Hydro, Fortis Community Energy Manager position funded in partnership with BC Hydro, Fortis, NR Can</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>Deliver climate change programs to schools</td>
<td>2010 - 2011</td>
<td>Completed</td>
<td>City funding for 1 year: $2,000</td>
<td>Number classes participating: 6</td>
<td>-</td>
<td>Number events / displays about energy efficiency: 6</td>
<td>BCIEA</td>
<td>BC Hydro</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>Promote energy efficiency to residents and businesses</td>
<td>2010</td>
<td>Underway</td>
<td>Staff time: 0.25 FTE (Community Energy Manager + Manager of Environment)</td>
<td>-</td>
<td>-</td>
<td>Number events / displays about energy efficiency: 6</td>
<td>Community Energy Manager position funded in partnership with BC Hydro, Fortis, NR Can</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**New Measures**

<table>
<thead>
<tr>
<th>Action</th>
<th>Action Name</th>
<th>Project timeframe</th>
<th>Project completion</th>
<th>Implementation Costs</th>
<th>Annual Change in Energy / Resource Use</th>
<th>Other metric</th>
<th>Relevant Reports</th>
<th>Link</th>
<th>Project Partners</th>
<th>Funding Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Energy mapping of the community</td>
<td>2008</td>
<td>Underway</td>
<td>CanmoreENERGY initiative (NRCan)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td><a href="http://www.sgc.gov.bc.ca/gbi/energy/index.pdf">http://www.sgc.gov.bc.ca/gbi/energy/index.pdf</a></td>
<td>NR Can</td>
<td>n/a</td>
</tr>
<tr>
<td>Action</td>
<td>Action Name</td>
<td>Project timeframe</td>
<td>Implementation Costs</td>
<td>Annual Change in Energy / Resource Use</td>
<td>Annual Change in GHG Emissions</td>
<td>Other metric</td>
<td>Relevant Reports</td>
<td>Link</td>
<td>Project Partners</td>
<td>Funding Sources</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>----------------------------------------</td>
<td>------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>-----------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>B</td>
<td>Energy Design Charrette</td>
<td>2011</td>
<td>BC Hydro funding: $20,000 Staff time: 0.5 FTE for 3 months NRCan in kind: 0.5 FTE for 3 months and funding for contractor of approx. $40,000</td>
<td>-</td>
<td>-</td>
<td>Number participants: 37 (10 City staff)</td>
<td></td>
<td>NRCan, BC Hydro, Vive Le Monde Mapping,  ENVIRON</td>
<td>BC Hydro funded program ($20K)</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Incentive program for energy efficient new homes</td>
<td>2009 - 2011</td>
<td>CAEE Gold Grant: $29,750</td>
<td>-</td>
<td>-</td>
<td>Number new homes built exceeding building code energy efficiency requirements 6</td>
<td></td>
<td>Canadian Home Builders Association</td>
<td>Provincial CAEE (Community Actions on Energy and Emissions) Gold program: $50,000</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Sustainability Checklist</td>
<td>2009</td>
<td>Staff time</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Staff report to Council September 24, 2009</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Pedestrian network enhancements (based on the Pedestrian Network Study in 2004)</td>
<td>2004 - 2010</td>
<td>Over $1 million for new sidewalks and rehabilitation since 2004</td>
<td>-</td>
<td>-</td>
<td>Over $1 million for new sidewalks and rehabilitation since 2004</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Develop solid waste reduction plan (2011) in conjunction with RSFFG</td>
<td>2011</td>
<td>RDFFG funding</td>
<td>-</td>
<td>-</td>
<td>Potential to divert up to 50% of residential waste</td>
<td><a href="http://princegeorge.ca/cityhall/mayor/2011/05_17/index.html">http://princegeorge.ca/cityhall/mayor/2011/05_17/index.html</a></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>