Dawson Creek's Climate Action Plan

First steps towards deep reductions in global warming pollution

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the PEMBINA institute
Sustainable Energy Solutions

About the Pembina Institute

The Pembina Institute creates sustainable energy solutions through research, education and advocacy. It promotes environmental, social and economic sustainability in the public interest by developing practical solutions for communities, individuals, governments and businesses. The Pembina Institute provides policy research leadership and education on climate change, energy issues, green economics, energy efficiency and conservation, renewable energy, and environmental governance.

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1 About this Document

This document is part of Dawson Creek's overall initiative to move towards sustainable energy systems and reduce greenhouse gas emissions. It builds directly from *Dawson Creek and Climate Change: Current Emissions, Projected Growth and Needed Reductions* by summarizing the opportunities available to Dawson Creek and plotting an initial course forward. Some of these initiatives are already underway, others will begin in the near future, while others will require further planning and research.

These initiatives (and new ones that will be added in the future) are intended to begin moving Dawson Creek towards its targets of reducing greenhouse gas emissions. The targets adopted by the community are:

- 14% below 2006 levels by 2012
- 33% below 2006 levels by 2020
- 85% below 2006 levels by 2050

This report explores community emissions (all emissions in Dawson Creek), but does not separately deal with the City's corporate emissions (emissions from municipal operations). To learn more about Dawson Creek's corporate emissions and the strategies being employed to reduce them, see *Dawson Creek Corporate Baseline* and *Carbon Neutral Dawson Creek*.

All of the Dawson Creek reports referenced in this document can be downloaded from *www.planningforpeople.ca*.

2 Tackling Climate Change in Dawson Creek

2.1 Current activities

Dawson Creek has been working on energy and climate change issues since 2004, when it started its Corporate Baseline Inventory. The corporate inventory was a first step to identifying how Dawson Creek's corporate operations used energy, the associated cost and the associated greenhouse gas (GHG) emissions. Since that time, the City has begun to implement all of the recommended actions to reduce its corporate emissions. Dawson Creek has also recently committed to be carbon neutral in its corporate operations by 2012.

Paralleling the corporate activities, the City has also investigated a number of opportunities to reduce emissions throughout the community. These have included: solar energy installations for commercial and residential buildings, energy efficiency improvements in new homes, waste to energy opportunities from biomass and sewer wastes, and electricity generation from wind energy. Many of these are described in greater detail in this report.

In 2006, Dawson Creek began a larger Sustainability Planning process which will ensure that all planning in the city is done with consideration for economic, social and environmental sustainability. The previously completed Corporate Baseline Inventory and this report on the total community contribution to GHG emissions are an important component of the broader Sustainability Planning process.

2.2 Climate change: Why should we care?

Activities that burn fossil fuels, such as driving vehicles or generating electricity from natural gas, release greenhouse gas emissions. These emissions are causing the concentration of greenhouse gases in our atmosphere to increase because they have nowhere to go. The thicker layer of gases are trapping more of the sun's heat, warming the surface of the Earth, and leading to an increasingly uncertain climate. By reducing greenhouse gas emissions significantly, humans have the ability to begin stabilizing the concentrations of greenhouse gas emissions in the atmosphere, and reduce the risks of significant and dangerous changes in the Earth's climate.

If governments, communities, families, and businesses don't act decisively to reduce greenhouse gas emissions, the most severe impacts of climate change will become inevitable. Worldwide, the next few decades of climate change could see an increase in severe weather events, water shortages in some areas and flooding in others, an increase in vector-borne diseases, and rising sea levels.

2.2.1 Local environmental impacts

For Dawson Creek and British Columbia, climate change presents the risk of more immediate and local impacts:

- Climate change could change water levels and temperatures in rivers and streams leading to further pressures on already stressed species, such as bull trout and salmon. Even slight changes in river temperature can have major impacts on these ecosystems.
- British Columbia's forests will likely experience more forest fires and insect infestations as a result of climate change. The massive damage caused by the mountain pine beetle illustrates this concern, because its spread across the province is largely a result of warmer winters. Normally killed off by long, intense cold snaps, mountain pine beetles have been able to spread as a result of a number of mild winters.
- Rapid changes in climate, even if only relatively small, could result in loss of native species and biodiversity as environmental pressures increase.

2.2.2 Not just an environmental problem

The concerns discussed above are clearly significant and warrant decisive action on their own, but climate change is much broader than an environmental problem.

From a social perspective, all of the environmental impacts described above will have impacts on communities. Rising sea levels and changing climates will make some areas either much less suitable for communities or entirely inhabitable, shifting climates will put pressures on traditional natural resource economies such as agriculture and forestry. These examples represent just a short sampling of the many impacts of climate change on communities.

Climate change poses challenges from an economic perspective too. Although many of the opportunities to reduce emissions can save money, many will result in higher overall costs. At the same time, a large number of economists support taking these actions because the costs of inaction will inevitably be higher. In 2006, the former Chief Economist of the World Bank carried out a review of costs associated with climate change for the British government. The report concluded that a five degree Celsius rise in average temperatures could reduce global economic output by as much as 20 per cent. To stabilize emissions and minimize further temperature increases, on the other hand, would cost only 1 per cent of the world's combined gross domestic product.

In the same way that the challenge is broader than environmental, the solutions provide a broader set of benefits. Measures to reduce GHG emissions in cities can involve positive changes to community design such as improved infrastructure for active transportation. These features, in combination with well-designed public spaces can help create vibrant, healthy places to live and do business. Actively pursuing energy efficiency and renewable energy could also be a significant source of new employment opportunities in Dawson.

2.3 Why Dawson Creek?

In terms of Canadian or global greenhouse gas emissions, some people might say that Dawson Creek is just a drop in the bucket. What can the community and the City hope to achieve by taking action? Such sentiments unnecessarily discount an array of creative community-based solutions that will be absolutely critical in the overall effort to reduce greenhouse gas emissions.

Strong provincial and federal action is absolutely necessary to ensure bold and innovative climate change solutions become a reality. Without these partners, municipalities will not be able to achieve the deep cuts in emissions needed. But at the same time, municipalities have the ability to create their own unique solutions and tap into opportunities that other levels of government are unable to access.

In addition to the general role that municipalities can play in climate change solutions, Dawson Creek is well positioned to advance solutions particularly relevant for smaller and northern communities. While larger cities like Vancouver have started taking steps to reduce emissions, Dawson Creek can serve as an example northerly municipality that is proactive in addressing greenhouse gas emissions.

Dawson Creek has recognized the opportunities and need for municipal leadership on climate change. In response, the City has worked to understand the issues, identify solutions, and started to take action.

3 Opportunities Available to Dawson Creek

Although Dawson Creek is faced with a formidable global warming challenge, the City has access to the opportunities and resources to take on that challenge with confidence. To help identify, understand, prioritize, and take action on these different opportunities, Dawson Creek has engaged broadly from constituencies inside and outside of the community. These have included: City staff and council, the interested public, local business, environmental groups, utilities, and the provincial government. In addition to ongoing engagement and consultation sessions, the City has established a climate change advisory committee.

When thinking about Dawson Creek's 110,000 tonnes of greenhouse gas emissions (and the future increases if nothing is done), there are a few general ways in which they can be reduced:

- Transitioning to energy sources that produce less greenhouse gas emissions per unit of energy (e.g. relying on wind-powered electricity instead of coal-fired or using bio-diesel instead of conventional diesel).
- Using less energy to meet the same needs (e.g. better insulated homes or more efficient appliances).
- Changing behaviour to require less energy (e.g. living in a smaller home or driving less frequently).
- Capturing and storing emissions so that they do not contributed to global warming (e.g. converting brownfields back to forest or capturing carbon dioxide from natural gas processing and injecting it into depleted wells).

To achieve the community's overall reduction goals, all of these strategies will need to be pursued aggressively. That said, they all represent relatively new ground for municipal governments in Canada, so a staged approach will be required. When considering which opportunities make sense in the short-term, the following key factors should be considered:

- The potential for the opportunity to reduce emissions.
- The cost-effectiveness of the opportunity.
- The degree of control that the municipality can exert over the opportunity.
- The level of Council and community interest in, and support for, the opportunity.
- The ability of staff to effectively engage on the opportunity.

3.1 Diving Into the Details

The City has been able to investigate, and begin taking action on, a number of specific opportunities. The following sub-sections briefly describe those investigations and provide references to any relevant research and reports.

Energy Efficiency and Solar Energy in Homes

With the residential sector accounting for almost one quarter of the community's emissions, opportunities to improve the energy efficiency and increase the amount of renewable energy are obviously important. Two studies were conducted to look at the economic and environmental implications of higher levels of energy efficiency and solar energy in new and existing homes.

The energy efficiency opportunities analysed only looked at new construction, and they included improved insulation, windows, ventilation, and space and water heating. The improvements were capable of taking a typical new house from an EnerGuide rating of 72 to 81 at a cost of $4,500. This would reduce greenhouse gas emissions by more than 30% and energy costs by over $800 per year. If these improvements became standard practice they could reduce emissions by over 4,000 tonnes from homes built over the next 20 years.

Solar hot water and solar photo-voltaics were also both examined and although Dawson Creek has a good solar resource, the solar opportunities were not as cost-effective as the energy efficiency improvements. A conservative estimate is that 60% of homes in Dawson Creek could install solar hot water systems, or an estimated 2,141 homes. If such an uptake occurred over 2,190 tonnes of CO_{2eq} emissions would be reduced annually. Potential residential uptake for solar PV in Dawson Creek is estimated to be between 6.4-21.7 MW, which would reduce annual greenhouse gas emissions by between 241 and 714 tonnes.

The full reports are titled *Energy Efficiency and Renewable Energy Improvements for New Homes in Dawson Creek* and *Residential Solar Opportunities in Dawson Creek*.[1]

Solar Energy in Commercial Buildings

Due to its location at the starting point of the Alaska Highway, Dawson Creek is a popular business and vacation destination, so there are a large number of hotels. Due to standard practices that demand short-term payback on investment, these hotels are typically built to a fairly poor level of energy efficiency and utilize almost no renewable energy resources. Solar hot water heating in particular is seen as a viable option to reduce greenhouse gas emissions from local hotels because Dawson Creek has a good solar resource and the hotels use large amounts of hot water for showers and laundry. In total, commercial buildings account for 23% of the community's emissions.

Working in partnership with the University of Victoria, the City studied the potential for solar hot-water heating in the George Dawson Hotel and developed a simple model to analyze the potential in other hotels and apartment buildings. Based on this study, solar hot water systems are economic for commercial buildings with large hot water loads if they are willing to accept a longer-term payback (in the range of 10 years). Greenhouse gas emissions reductions for the George Dawson were estimated to be almost 32 tonnes per year. Although the models allow specific results to be easily produced for other buildings, no results were extrapolated to the entire community.

The full report is titled *An Assessment of the Potential for Solar Water Heating for Buildings in Dawson Creek.*

Generating electricity and heat from bio-resources

[1] A similar report was also completed for the City of Vancouver.

Dawson Creek is surrounded by significant amounts of agriculture and forestry, and both of these industries produce considerable amount of wastes that can be converted to energy. A project like Revelstoke's district heating system is a prime example, where the community uses wastes from the local mill to burn for heat. Generating energy from bio-resources is not straigt-forward because many of the "wastes" are already being used, so a significant new demand for their use could increase their value. To understand these issues in greater detail, the City commissioned Timenga and Associates to develop and inventory of bio-energy resources in the South Peace Region.

This report is still in draft, so the findings are not summarized here. The full report (in draft) is titled *Potential for Bio-Energy in the Dawson Creek Area*.

Wind Energy

Electricity generated from wind turbines is one of the largest and most visible sources of renewable energy around the world. Although no commercial projects are currently operating in B.C., many installations can be seen across Canada, and three large wind farms have power purchasing agreements with B.C. Hydro – including one on Bear Mountain within site of Dawson Creek. Given the strong potential in the region and an interest in having a community owned wind project, Dawson Creek conducted a pre-feasibility analysis on wind energy potential. The analysis used data from the Peace Energy Co-op that had been collected between 2002 and 2004.

The data recorded at elevations of 30 and 50 m at the "Leer Site" northeast of Dawson Creek suggests an annual average wind speed of 6.6 m/s at 80 m. This may be overestimated however, because the measured wind shear at this site appears to be unusually high. Depending on the price paid for the electricity and the actual wind speed at 80 meters, the revenues from a 1.5 megawatt wind project could range from $255,530 to $427,680 per year

Depending on the financing arrangements, these conditions could provide a viable project for Dawson Creek, although the estimated average wind speeds are just below what would generally be considered necessary for a commercial wind project. However, because there is commercial wind energy development happening in the Peace Region there is good reason to believe that the local wind regime can be conducive to wind power projects. It also appears likely that specific local conditions can have a significant impact on the economics of a project, such as the exposure to a ridge, local tree cover and project altitude.

The preliminary results for the "Leer site" suggest that there is guarded promise to further investigate wind energy development at this site; especially if a better price is offered for electricity is available. The current data set does not warrant investment in wind power without completing a more detailed monitoring study, which would need to include the installation of a tower that monitors at the wind resource at the actual height of a future wind project.

The full report is titled *Wind Power Potential Near Dawson Creek*.

Energy from the sewer system

Dawson Creek's sewer system is a potential source of energy using a variety of processes. To investigate these, the Pembina Institute conducted a pre-feasibility analysis on the following options:

- Energy from Bio-solids – The organic mass in a sewage stream, also called bio-solids, can be converted into various fuels that are used to generate heat or electricity. The specific conversion technologies reviewed were: gasification, anaerobic digestions, and deep well injection.
- Waste Heat Recovery – These processes do not require the bio-solids to be processed, but instead use heat-exchangers to capture the heat in a sewage system and use it to offset the need for natural gas (or other fuels) in heating applications. This process can be similar to the way geo-exchange systems capture heat from the ground.
- Land Application – Sludge from the lagoon system could be used in land applications as a fertilizer. Although direct energy savings would not be realized using this strategy, the need for chemical fertilizer (and its associated energy inputs) would be reduced.

Based on the nature of Dawson Creek's sewage system, the quantity of wastes, and technologies available for the needed scale, experts did not rate any of the opportunities as particularly promising. With the current system, the waste heat recovery system offered the most potential, but even it would still likely be too expensive. This question should be revisited when major work needs to be done on the sewer system, because the economics could change significantly if a major upgrade is already underway.

The full report is titled *Energy from Dawson Creek' Sewer System*.

Air show

In 2007, City Council wanted to know what the greenhouse gas footprint of Dawson Creek's annual air show was and whether or not there were any ways of reducing that footprint. The air show is a significant local event and contributor to the regional economy, but there was concern that the greenhouse gas intensive nature of the show was contradicting the City's efforts to reduce emissions.

An analysis of the air show's emissions showed that the airplanes were responsible for 26 tonnes of greenhouse gas emissions. Although this is quite small relative to the 110,000 tonnes that the entire community is responsible for, the analysis also looked at the potential to reduce those emissions by changing the type or frequency of flights, and purchasing offsets. Although the transportation emissions associated with the show (e.g. spectator travel) were not accounted for, the report also discussed opportunities to reduce those emissions.

The full report is titled *The Dawson Creek Air Show: An Estimate of Greenhouse Gas Emissions*.

4 Taking Action – Programs and Policies

This section outlines the specific programs and policies that Dawson Creek will be taking action on in the short-term. Section 5 describes additional opportunities that will be looked at in greater detail before becoming part of the action plan. *Carbon Neutral Dawson Creek* provides similar detail for the corporate action plan.

4.1 Getting Projects in the Ground

Greening Dawson Creek's Homes

One of the key priorities that emerged from discussions with the community is finding ways to make Dawson Creek's homes greener. In addition to accounting for almost 25% of the community's emissions, they also represent a very significant and visible opportunity for solutions. In order to act on this opportunity, Dawson Creek will be developing and launching a local improvement charge project that will help homeowners and developers finance energy efficiency and renewable energy improvements in all homes in the community.

Local improvement charges are a mechanism by which the City would provide a homeowner or developer a loan to finance the renewable energy or energy efficiency improvement. The loan is then paid back over time through property taxes. They are commonly used across Canada for investments such as sewers and sidewalks, but only the Yukon has used them for renewable energy projects. They are seen as a potentially powerful tool to accelerate renewable energy and energy efficiency because they help homeowners get over the capital cost hurdle. They also remove the risk of paybacks being cut short because of the property being sold because the loan is attached to the property as opposed to the property owner. More information on local improvement charges can be found at http://www.pembina.org/pub/197.

The specifics of the local improvement program still need to be finalized, but the following eight steps have been laid out to ensure ongoing progress:

1. ***Outlining preliminary scope:*** Prior to beginning any detailed discussions regarding program design, city staff and council will conduct a preliminary scoping exercise to define a rough budget, types of projects that the city would like to support, and partners that the community wants to work with.
2. ***Developing draft bylaw:*** The District of Central Saanich has already obtained a legal opinion stating that municipalities can use local improvement charges to encourage renewable energy and energy efficiency. This step would build on that work by drafting a model bylaw that would be used to authorize the local improvement charge. In particular, there are several key questions about liability that need to be satisfactorily addressed in that model bylaw.
3. ***Refining scope and design:*** This step will be one of the most significant in the process because it will work through the detailed design of what Dawson Creek's program is

going to eventually look like. Important questions will include finalizing the improvements that will be supported, the available loans and repayment terms, how the City will handle program administration, and how the program will mesh with incentive programs that could serve as further encouragement for homeowners and developers. This step will also be the time that other partners are significantly involved in the project. Likely partners include BC Hydro, Pacific Northern Gas, the Ministry of Energy and Mines, the Ministry of Community Services, the Ministry of Environment, Natural Resources Canada, the Union of BC Municipalities, and the Federation of Canadian Municipalities.

4. ***Developing a monitoring program:*** This step will develop a monitoring program so that the City and its partners can understand how effective the program is at encouraging renewable energy and energy efficiency improvements, and how effective those improvements are at reducing greenhouse gas emissions.
5. ***Training contractors and auditors:*** To ensure that the program is successful once launched, it will be critical to have an adequate number of trained contractors and energy auditors. This step will assess the capacity of current contractors and auditors to handle the expected work and develop training plans as needed.
6. ***Coordinating equipment purchases: buying to bring down costs:*** Being a relatively small and remote market, Dawson Creek tends to pay higher than average prices for many goods and services. Given that the market for renewable energy and energy efficiency equipment is not large, this step will explore opportunities for coordinated purchasing to see if any economies of scale can be obtained.
7. ***Developing communications:*** A considerable amount effort from a broad set of partners will be needed to develop this program, so it will be critical to ensure that there is sound communications plan in place so that those efforts are rewarded. This step will develop communications tools for local homeowners and developers and also for other communities that may be interested in Dawson Creek's experience.
8. ***Launching local improvement charge program:*** This step will launch the program, with late 2008 anticipated for the start date. The monitoring program will also commence at that time.

Moving forward with wind energy

Based on the pre-feasibility analysis completed in 2008 and the knowledge that the Bear Mountain project is moving forward, Dawson Creek has strong potential for wind energy projects. However, the current analysis is not robust enough to justify a potentially multi-million dollar investment, and it is also likely that the City would need to find a premium price for the electricity in order to generate a reasonable payback.

To overcome these two hurdles, the City is moving forward with a two-pronged approach that will hopefully result in a community owned power project by 2010.

1. ***Moving beyond pre-feasibility:*** As recommended in the pre-feasibility study, the feasibility study will consist of two main parts. First, the study will scan for additional sites that may be better suited than the initial Leer site based on local geography and wind exposure. This scan will be informed by the findings from the Leer site and the Bear Mountain project. Second, once the site has been finalized an 80-meter monitor will be used to record an additional year's worth of data. This exercise will help resolve some of the data irregularities and uncertainties that were the result of only have 30 and 50-meter

monitoring equipment. The feasibility study will also need to produce a more detailed analysis of project financing and debt servicing issues.

2. ***Supporting the development of provincial feed-in tariffs:*** Feed-in tariffs provide a guaranteed rate for electricity projects so as to encourage renewable energy projects. B.C.'s new standing offer program is a starting point for this discussion, but the price on offer is unlikely to be sufficient to finance the medium scale project Dawson Creek is considering. This component of the action plan will work towards a sufficient feed-in tariff policy in B.C. so that Dawson Creek has access to the revenue needed to make a local wind project viable. These ideas will offer benefits for communities throughout the province, and as such, they will be collaboratively developed with other interested municipalities, environmental groups, and independent power producers. Once a sound policy proposal has been developed the City will work with its partners to encourage the provincial government and BC Hydro to adopt the idea. Although the initial focus of this effort will be on renewable electricity, the scope may expand to community-generated heat as well depending on the final results of the bio-resources study. The advantage of a combined heat and power approach is that it would offer greater potential to reduce greenhouse gas emissions.

Energy House

Dawson Creek is a partner in the Energy House project being advanced by the Northern Lights College.[2] Once complete in late 2008, the Energy House will provide two key benefits to the community. First, it will serve as a hands on laboratory for students at the college as they learn how to implement renewable energy and energy efficiency projects. Second, it provides an opportunity to engage with the broader community and teach how green projects can be done well in the community.

A Greener Air Show

The City has decided to leave the flying portion of the air show unchanged, but two important commitments have been made to reduce the event's overall greenhouse gas footprint. First, the emissions from the show will be offset using gold standard, CDM certified emissions offsets. Second, spectators will be encouraged to take transit, bike or carpool to the event. The City will also continue to look at additional mechanisms to support greener transportation options such as increased parking fees and discounts for spectators traveling via less greenhouse gas intensive options.

4.2 Getting the Message Out

In addition to getting good projects happening, talking about those projects and other possibilities is an important plank of Dawson Creek's overall action plan. This includes engaging with constituencies within Dawson Creek, other municipalities, and the provincial government.

Engaging with constituencies in Dawson Creek

Within the community, the City has been actively reaching out to a variety of constituencies to help explain why climate change is an important issue for the City and what the City is trying to do to take action. The discussions are also an opportunity to get feedback on planned initiatives

[2] More information on the Energy House project is available in *Energy House: An Alternative Energy Demonstration, Research, and Training Project*.

and consider new opportunities. Some examples of the discussions that have already happened (and will continue to happen) are:

- Meeting with local contractors to understand current building practices and assess the costs of building to a higher standard.
- Working with the Northern Lights College to develop trades programs for solar hot water systems. Additional programs are under development for wind turbine maintenance and geo-exchange systems.[3]
- Presentations to local community groups and associations such as local fleet operators, the school district, and the rotary club.

Several additional items that are planned for 2008 and 2009 are:

- Offering green learning workshops with local teachers to help them develop the skills and techniques needed to integrate sustainability issues into standard curriculum. The workshops will be delivered by the Pembina Institute and Destination Conservation.
- Offering carbon neutral workshops for local businesses to help the commercial sector better understand their climate footprint and the opportunities available to reduce it. The workshops will be given by Ecotrust Canada and the Pembina Institute, and they will be modeled on a series of workshops given in Vancouver and Tofino.

Engaging with other communities

Dawson Creek believes it is important to be talking with other communities to communicate what the City is up to and learn about the initiatives underway elsewhere in B.C. and across Canada. The City is also actively engaged with the Union of B.C. Municipalities (UBCM) and the Federation of Canadian Municipalities (FCM).

The list of activities falling under this category is broad, and the City intends to continue on all fronts of these fronts. Although specific examples for the future are not yet planned, several of the key areas from 2007 and 2008 illustrate the types of activities:

- Helping to craft and sponsor resolutions for the UBCM annual convention on energy efficient housing and net-zero housing.
- Working with the City of Vancouver to help them understand the potential for solar energy in their community.[4]
- Giving presentations to various municipal forums. Presentations in 2007 and 2008 included: Northern Central Municipal Association (May 2007), Local Government and the Environment (June 2007), Keepers of the Water (September 2007), UBCM Annual Convention (3 presentations in October 2007), Saskatchwan Urban Municipal Association (November 2007), FCM Sustainable Communities Conference (February 2008), Getting to Carbon Neutral (March 2008), North Central Municipal Association (March 2008), and the Energy Matters Summit (April 2008).

Engaging with the provincial government

Without a close partnership with the provincial government, Dawson Creek would be unable to achieve the greenhouse gas reduction targets that it is aiming for. The provincial government controls a number of key policy levers that the City does not have access to, and it is critical that they exercise these. To ensure that this happens in as coordinated a manner as possible, Dawson

[3] More information on the Northern Lights College can be found at: http://www.nlc.bc.ca/.

[4] See *Residential Solar Opportunities in Vancouver*.

Creek is actively engaged with the provincial government and provincial policy issues. As with the municipal engagement, the specific areas of future focus for the provincial government are not mapped out, but the following were priorities in 2007 and 2008:

- Advocating for strong energy efficiency standards and solar-readiness requirements in the B.C. Green Building Code.[5]
- Participating in the province's Green Cities Working Groups which are working on tools and policy change that will help small and medium sized municipalities to become more sustainable.
- Supporting the implementation of B.C.'s carbon tax by attending the budget lock-up and voicing support for the policy at the North Central Municipal Association meeting.[6]
- Co-chairing B.C.'s 100,000 solar roofs taskforce to develop a strategy for dramatically increasing the deployment of solar thermal and solar PV in the province.[7]

[5] See *Input to Public Review of Proposed Green Code Changes*.

[6] See *Dawson Creek Carbon Tax Briefing Note*.

[7] See *100,000 Solar Roofs Taskforce: Final Report*.

5 Taking Action – Further Planning

The previous section outlined a number of actions intended to lead to direct reductions in greenhouse gas emissions. Although these represent significant steps, there is much more that will also need to happen if Dawson Creek is to embark on a path of deep reductions in emissions. This section outlines some of the additional opportunities that will be examined in greater detail in the near term so that some of them can lead to new programs and policies in the medium term.

Commercial Buildings

The City has already looked at the potential for solar energy in commercial buildings, but minimal consideration has been given to policies that will be needed to realize that potential (plus the possible improvements in energy efficiency). To remedy this, Dawson Creek will consider a range of policies that could help new and existing commercial buildings become more efficient. These could include incentives, local improvement charges, and green rating systems. This item will also need to link in with the district energy options being considered below.

Transportation and Land-use

Land use planning can play an important role in reducing emissions in both the transportation and building sectors. The City is undertaking some land-use planning for one new neighbourhood, but going forward, the process needs to be integrated more fully with the climate action plan. The process and research will have to broaden out to the entire community and provide significant focus to the existing neighbourhoods. Having an effective land-use plan that works in concert with the City's greenhouse gas reduction goals is particularly important because many residents have highlighted as improved walking and cycling options as a top priority.

Idle-Reduction

Idle-reduction has been a part of the City's Green Vehicle Policy, and it has had some success at raising awareness and reducing unnecessary idling. The City plans to extend that policy to the entire community, but more consideration needs to be given to the outreach, education, and enforcement that will be required to make the policy successful. To develop this strategy, Dawson Creek will talk with municipalities that have implemented idle-reduction policies.

District Energy Assessment

Results from bio-energy study are not yet finalized, but once complete, they will provide a wealth of information on the available bio-resources and a preliminary scan of the technologies that could convert those resources to energy. Assuming these results show some promise, Dawson Creek will conduct a complete feasibility study on the potential for a district energy system for both municipal buildings and other large buildings. As part of this effort, the City will be producing a heat map to show where the large demands are in the community and where a system may be most cost-effective. Progress on this item will be closely linked with the wind energy project and the accompanying policy work, which may be easily adapted to support district heating projects.