

City Staff Report

Original signed by: City Manager Johnson

Report Date: February 8, 2021

Meeting Date: February 16, 2021

To: City Manager

From: Kyle Aben, Carbon Review Coordinator

Subject: Municipalities for Climate innovation Program (MCIP) funded carbon emissions review and mitigation planning for the City of Quesnel. Milestone #5 – Monitor Greenhouse Gas Reduction Project Update.

Purpose

Provide a final report on the Municipalities for Climate Innovation Program (MCIP) Grant Funded Staff Person funding received from the Federation of Canadian Municipalities to complete an assessment of the 'Maturity scale for municipal greenhouse gas emission reductions' for the City of Quesnel. This is the milestone 5 report.

Summary

- An assessment of the maturity of greenhouse gas mitigation strategies in the City was undertaken.
- A climate action plan was developed as well as a climate action engagement plan.
- This report details the climate actions identified in the plan and identifies their status to assist in the further analysis and implementation.
- The engagement processes were limited by Covid19 restrictions however the results of work done are summarized in a separate report Council.

Recommendation

None - brought forward for informational purposes.

Statutory Requirements

All efforts for greenhouse gas reductions made through the MCIP Milestone process must align with those requirements under the Climate Action Charter of British Columbia and Climate Action Revenue Incentive Program (CARIP). CARIP requires the City to measure and report on emission levels and list actions to reduce emissions annually in order to have any carbon tax paid by the City rebated back each year. By signing the Climate Action Charter the City has also agreed to work towards carbon neutrality in its corporate operations.

Council Policy

- 1) Council set City corporate and community target on October 2019 as follows:

City corporate GHG emission reduction target - 3.5% annually for the years 2020, 2021 and 2022 with new targets set in 2022 for future years.

Community GHG emissions reduction target - a 40% reduction in emissions from 2007 levels by 2030, 60% below by 2040, and 80% below for 2050.

This community target is set in concert with those established by the Province of British Columbia with the Climate Change Accountability Act in 2007.



The Federal Government of Canada has set a national reduction target with an even more aggressive goal for 2050. The target is to reduce emissions by 30% compared to 2005 levels by 2030 and be net-zero by 2050. A carbon tax of \$170/tonnes by 2030 and this dramatic cut in carbon emissions in less than 30 years is a challenge we will all have to rise to.

The Provincial and Federal targets are also aligned with those recommended through international negotiations on Climate Change and the Paris Agreement to attempt to limit global warming to well below 2 degrees (with an aspiration of 1.5 degrees) compared to pre-industrial levels. This treaty is legally binding, the targets are backed by sound and tested science, and over 196 countries have agreed to participate.

- 2) Council approved the Quesnel Climate Action Plan for community engagement on June 2, 2020.

Financial Implications

Many greenhouse gas reduction projects will require capital to implement. There are grants and funding bodies available for climate action and emission reduction projects but a percentage of funding is usually required of the City by funding agencies. The development of the carbon reserve fund will be essential for almost any level of climate action. The rebate in the carbon tax (approx. \$40,000 annually) will only allow for modest projects if allocated to a carbon reserve fund once again. In 2021 that funding has already been identified to support the development of a feasibility study to look into a district energy system for the City of Quesnel. If emissions reductions are to happen in our community and targets for emission reductions are to be met, funding for these projects must be budgeted for. The financial implication of each individual climate action will be reviewed below.

Background

The Municipalities for Climate Innovation Program has provided funding to the City of Quesnel to hire a staff person to assess the maturity of greenhouse gas mitigation strategies in the City. The Maturity scale promotes 5 milestones to be achieved.

Milestone 1 – Create a GHG inventory for City corporate and the community.

Milestone 2 – Set a GHG emissions target for City corporate and the community.

Milestone 3 – Develop a local GHG emission reduction action plan.

Milestone 4 – Fund and implement the top GHG emission reduction projects identified in the action plan.

Milestone 5 – Monitor progress of emission reduction projects.

The FCM maturity scale assessment requires Council approval for: 1) Setting a greenhouse gas reduction target for both the City and community. 2) Approving the local action plan for greenhouse gas emission reductions.

Engagement under Covid19 restrictions has been challenging but a report overviewing that process and the feedback received from the community will be provided as a separate report at the February 16th 2021 regular Council Meeting.

Milestone 5 is the final milestone required of FCM and is meant to assess the climate actions that have been implemented at the City. The majority of the climate plan implementation was to take place in 2021 so are listed as options below. The following review has three sections: Climate Actions at the City of Quesnel, Climate Actions to be considered at the City of Quesnel, and Climate Actions to be considered in the Community of Quesnel.

Climate Actions underway at the City of Quesnel



- 1) **LED lighting replacement policy.** This policy covers City buildings as well as street lighting. This policy has resulted in considerable energy savings and LED lights need to be changed far less than traditional bulbs (last up to 25 times longer) greatly reducing staff time changing them. The Downtown Business Association also chose LED Christmas Lights for downtown Quesnel to save energy even know the initial purchase cost was greater.

Emission reduction possible – up to 80% reduction in emissions per project

Budget – project dependent but LED lights are still more costly than incandescent bulbs

- 2) **Trenchless technology.** In contrast to traditional trenching (cut and cover), which involves digging a trench, hauling extracted material to a disposal site and replacing with new material, trenchless technologies involve drawing a new pipe (or pipe lining) along the path of an existing pipe or boring for new constructions. Trenchless technology can reduce costs by 20-50%, reduce carbon emissions by 70-90%, reduce the disturbance to the public and environment, and helps keep asphalt strong. The Director of Infrastructure and Capital Works says that trenchless cannot always be used but is the first choice of the City of Quesnel as it can actually speed up construction also. If fact, the question is asked of contractors “why trenchless was not chosen” if another method is suggested. There are currently no trenchless service providers in Quesnel so this increases the costs to bring them in to our community.

Emission reduction possible – up to 70% reduction in emissions per project

Budget – project dependent but can be a cost savings

- 3) **City Hall Energy Reductions.** The increased use of heating control systems, the addition of variable speed distribution pumps, staff effort to turn lights off in rooms and when they leave, and the computer and technology energy savings policy underway are all examples of how City Hall has become up to 25% more efficient in the last decade. The next step would be to implement a nightly setback in the temperature and has been suggested for November 2021. The Facilities Director has said he has the staff available even know he would prefer the easy-to-use Wi-Fi option available as would save a lot of manual staff time but the IT Department is working towards that for the future. The thermostats will need to be covered (min cost) and monitored by staff. There will need to be a process for not setting back the temperature on evenings City Hall is in use such a Council Meetings. Both the Director of Community Services and the Facilities Manager are in support of this initiative.

Emission reduction possible – 2 -4.5 tonnes of CO₂e annually

Budget 2021 – In Facility Manager’s budget for 2021

- 4) **District Energy investigation.** A district energy system will allow our commercial downtown low or zero emission heating with the expansion to other commercial buildings and areas possible. If successful with our funding request to FCM for the feasibility study costs and West Fraser is successful through IFIT for their portion of the costs then the City will pay the final 10% required. This funding was approved from the 2021 CARIP rebate by Council on January 26, 2021.

Emission reduction possible – 2000 tonnes of CO₂e annually

This year - \$40,000



- 1) **Telematics.** To track and reduce fuel use and identify inefficient vehicles or drivers. Putting telematics on fleet vehicles will allow the City to be able to identify inefficient vehicles and could result in substantial fuel savings. By educating drivers on fuel efficient driving techniques and implementing telematics other jurisdictions have saved as much as 20% on fuel. Fuel can also be saved by maintaining and tuning City vehicles for the highest fuel efficiency possible by inspecting fuel filters, O₂ sensors, air filters and checking tire pressures often.

The Director of Public Works will see other benefits from telematics as well and is supportive of this initiative. To maximize the climate and fuel savings there will be some staff time required to interpret and act upon the data gathered. This may be the top climate initiative in this review.

Emission reduction possible – 42 – 53 tonnes of CO₂e annually
Budget for 2021 - \$50,000 plus annual fee \$15,000 (estimate), staff time

- 2) **Electric vehicles.** Purchase an electric vehicle for use by the City staff and management and utilize the vehicle as much as possible. In the City fleet, it is recommended to start with cars that come up for replacement (next is Bylaw Services in 2022) to exchange with electric vehicles. The lower cost of ownership of these vehicles due to the less expensive energy source and significant reduction in maintenance and service requirements make these vehicles extremely cost competitive over their life spans. Electric trucks can dramatically reduce the GHG emissions created by the City fleet when available (late 2022).

Funding was applied for in 2020 through NRCAN to replace a Bylaw Services vehicle but this funding request was not successful. There is a \$12,000 - \$20,000 premium initial cost for an electric vehicle (including charging infrastructure). These costs may be fully recouped over the life of the vehicle in lower fuel costs and lower maintenance costs.

Emission reduction possible – 3.5 – 7 tonnes of CO₂e annually per vehicle
Budget required - \$20,000 over replacement value of ICE option vehicle.

- 3) **Electric small equipment.** Electric options for small equipment are increasing and where possible (leaf blowers, portable heaters, lawn equipment, small yard vehicles, forklifts, etc.) should be investigated for use by the City. There are even electric Zambonis available for ice resurfacing now available.

The Director of Public works and Public Works Supervisor had the opportunity to test some electric equipment supplied by Greenworks. These devices are very capable and quiet. The increase costs to purchase these electric equipment options should be budgeted for during replacement of current equipment as it ages out. The savings in fuel costs and lower maintenance should recoup this additional upfront investment in 3 years!

Emission reduction possible – 1.25 – 2 tonnes of CO₂e annually
Budget – per item replaced. 15-20% initial cost premium with savings recouped in 3 years.

- 4) **Renewable natural gas (RNG).** Renewable Natural gas is bio-methane that is similar in structure to fossil fuel but is carbon neutral. Purchasing a portion of natural gas as renewable the City will reduce annual emissions and help to support this developing renewable energy option. As one of the more popular emission reduction strategies within municipal governments in British Columbia FortisBC is currently fully subscribed and is sold out of RNG for use. Until the Fortis supply in increased this option is not viable.



Emission reduction possible – 33 tonnes of CO₂e annually @ 10%

Budget – when available, a 10% purchase of the NG used by the City as RNG would cost \$4,676 annually at current published Fortis RNG rates.

- 5) **Step Code.** Use on all new planned City owned construction. If the City is to ask local builders to embrace Step Code one day, then the City should lead by example. This first step (Step 1) is often achieved through better planning (avoiding thermal bridges, using smaller window spaces, etc.) without any additional costs whatsoever.

Modelling on Energy Step Code suggests that builders and designers can achieve Step 4 (the highest step) for less than a 3% capital cost premium, and achieve Step 3 for less than 2.4%. To provide context for this number, it is not uncommon for construction costs to vary by 2% a year due to market forces.

Emission reduction possible – project dependent (20% feasible)

Budget – project dependent but between 2-5% depending upon Step

- 6) **Green procurement process enhanced.** The City of Quesnel has a policy around sustainability in Purchasing and Disposition Policy – CF1. The policy asks staff to consider the long-term goals outlined in the OurQuesnel Integrated Community Sustainability Plan. Staff are directed to seek environmentally acceptable products i.e. more energy efficient, lower waste generation, and does not contain toxic chemicals. After speaking with the Purchasing Department, Director of Community Services and others who make purchases it is suggested to add the following to the current purchasing policy under the sustainability section (perhaps section 1.6.5):

For any product that consumes energy or fuel the following will be asked:

- 1) *Is your product Energy star rated or compliant?*
- 2) *Do you have an energy consumption rating for your product? If so, please include it here.*

This change is simple and clear to understand and could be a 'default' included on all purchasing forms. If all else is equal in the determination of a product, then purchase the item that is energy star compliant or the one with the lower energy use and/or cleaner energy use.

Emission reduction possible – procurement dependent

Budget – procurement dependent

Community Climate Actions to be considered by the City of Quesnel

- 1) **Step code marketing towards implementation.** To increase the efficiency of our building stock the City and builders need to understand this is coming. In meeting with local builders and viewing a local net-zero home it has been suggested by a builder himself to implement Step Code as soon as possible. Showcase energy efficiency homes in Quesnel by means of communications brochure or town hall meeting. Costs are for printing, staff time, and providing information.
Budget - \$5,000 + staff time



- 2) ***Thermal camera home image program.*** This program will encourage the most efficient renovations possible by seeing the actual heat loss of a home. The City can extend the environmental ambassador program or utilize other City staff to help with the organization of thermal pictures to be taken and send to the homeowners who request one. Kamloops has developed and implemented such a program with much success.
Budget - \$2,000 thermal camera + staff time
- 3) ***Organics diversion and zero waste initiatives.*** The provincial goal of a 95% organics diversion from landfill cannot be avoided forever. If composting is not chosen as an economic option, then renewable natural gas may be considered. Smaller efforts and backyard compost training are valuable, but an iterative leap like curbside pickup is needed to attain the 95% reduction goal. Continue to investigate all composting options and curbside pickup costs. A concept must be developed in order to apply for the 2/3 funding that historically has been provided by the Province for both composting and curbside pickup initiatives.
Budget – consulting fees (compost facility, private entrant EOI), staff time
- 4) ***Community Engagement opportunities.***
 - a) Promote active transportation. Active transportation means using your own power to get from one place to another. Most residents speak with pride about the number and quality of trails Quesnel currently has but perhaps there is more that can be done to encourage active transportation and increase the utilization of our walking and cycling infrastructure.
 - b) Staff can encourage more electric car charging infrastructure in the City as funding opportunities arise and the demand for these vehicles grows. They can also speak with auto dealers about selling and servicing electric vehicles right here in Quesnel. Electric trucks will change the Quesnel landscape when available.
 - c) Show support for PACE to the BC Government. PACE stands for Property Assessed Clean Energy and these programs offer financing for home energy improvements. The loan amount stays with the house and is paid out over time with property taxes. If the Province passes legislation to enable this type of program it would encourage significant home renovations towards efficiency. Provincial pilot underway now!Budget - staff time