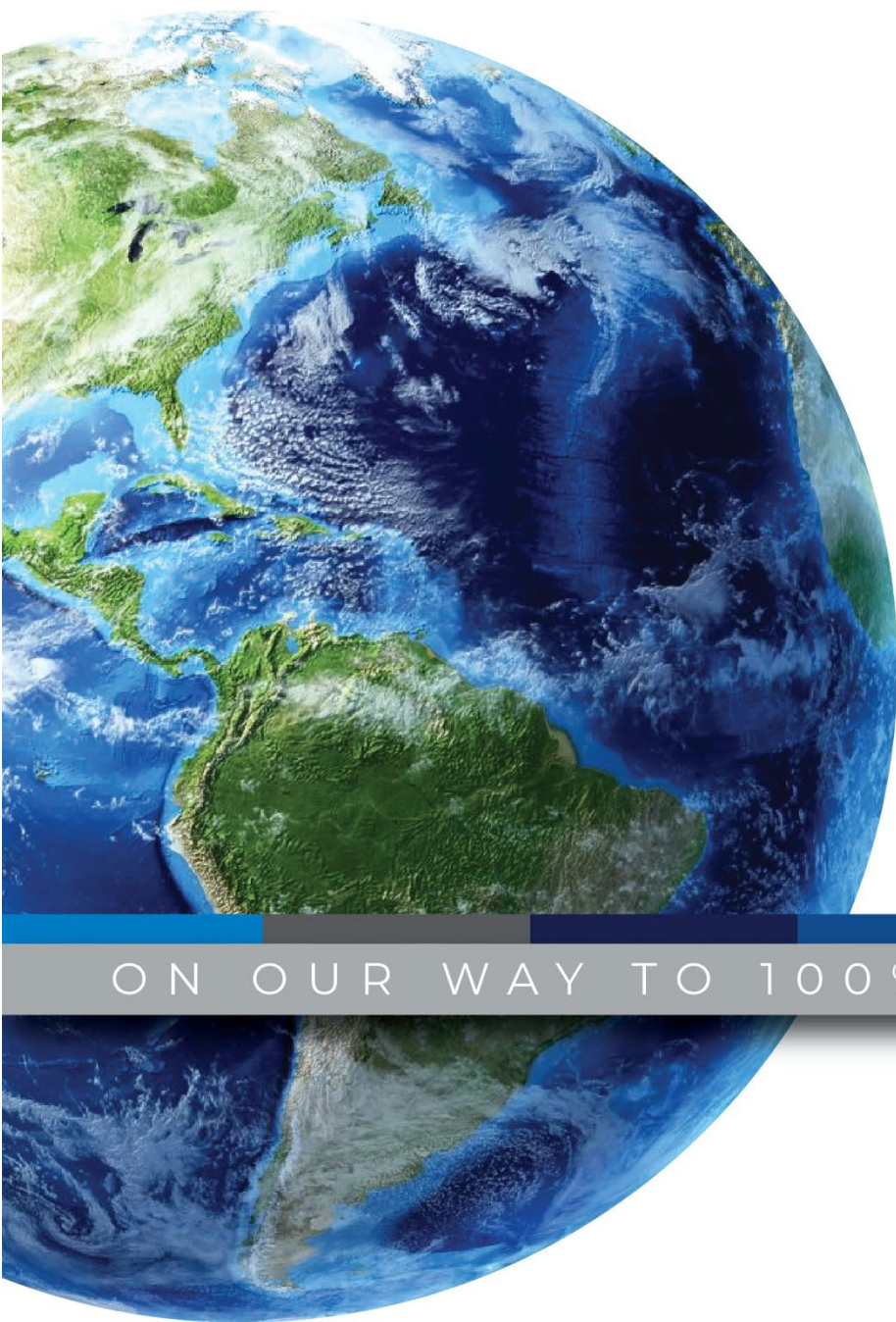




Creston Climate Action Plan

ON OUR WAY TO 100% RENEWABLES

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Executive Summary

The Creston Climate Action Plan (CCAP) is a commitment made by the Town of Creston to mitigate climate change, with the aim of creating a community that is environmentally sustainable, resilient, and emissions-free. This plan is also created to aid in the transition to 100% renewable energy use by 2050, as outlined in the West Kootenay 100% Renewable Energy Plan.

The CCAP is primarily focused on reducing greenhouse gas emissions (GHGs), promoting equitable climate action, and generating environmental, economic, and health benefits for individuals, families, and businesses throughout the community.

The actions in the plan are meant to provide clear direction and help prioritize efforts and resource allocation. The CCAP reconciles past climate action documents and creates a practical path leading toward concrete action. The plan leverages municipal resources to reduce emissions, while also seeking opportunities to collaborate with other levels of government and First Nations and capitalize on resources from the Regional District, Province, Federal Government, and international organizations.

The CCAP provides a snapshot of where we are now and an implementation plan for Creston's climate action goals and targets in keeping with the Town's Strategic Priorities.

Introduction

Purpose

In 2021, the Town committed to the West Kootenay 100% Renewable Energy Plan, a roadmap outlining the opportunities and obstacles for the region to achieve 100% of energy used from renewable sources by 2050. This commitment requires that the Town of Creston aim to transition to 100% renewables in all energy use sectors in the community, including heating and cooling, transportation, electricity, and waste management, no later than 2050. The CCAP is our first step in making this transition. The adoption of the West Kootenay 100% Renewable Energy Plan provides the framework for the Town of Creston moving forward and is a foundational part of the Town's decision-making process.

The CCAP is a stepping stone towards a continually evolving and robust, long-term strategy. It establishes key goals such as awareness and education, sourcing funding, and utilizing energy more efficiently. This plan also provides key performance indicators to measure progress and keep us on track in addressing climate change.

Territory Acknowledgment

The Town of Creston recognizes, acknowledges, and respects that the lands covered by this plan are located on the unceded traditional territory of the yaqan nu?kiy within the k'tunaxa Nations. Since time immemorial, the yaqan nu?kiy stewarded this valley. It is with gratitude that the Town of Creston plans on these lands.

Reconciliation

The Town of Creston will proactively engage with the yaqan nu?kiy to build trust and support a respectful relationship. Importantly, the Town of Creston acknowledges that reconciliation is an active process that can continually be improved upon. The Town of Creston is committed to developing strong and fair working relationships and partnerships, ensuring respectful and open communication.

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Balancing Progress and Community Needs

The following table describes the core principles of what this plan represents for Creston and its residents.

What this plan is ✓	What this plan is not ✗
A proactive approach for community improvement by focusing on enhancing practices that use less energy or create fewer GHG emissions	Designed to enforce punitive measures or restrict individual freedoms, such as requiring people to: ➤ purchase electric vehicles ➤ remove wood stoves ➤ renovate their homes ➤ install solar panels
A collaborative effort with local partners to achieve common goals	A one-size-fits-all solution; this plan recognizes the unique challenges and opportunities that Creston faces
A forward-thinking strategy to encourage innovation, keeping in mind future energy needs, and aiming for resilience	A quick fix: the CCAP acknowledges that meaningful change takes time, and it is committed to gradual improvements rather than overnight transformations

By focusing on realistic steps and gradual improvements, this plan intends to bring about change that is both meaningful and manageable for the community. Through clear communication and collaboration, the Town aims to implement this plan without imposing hardship on Creston residents.

This plan is a guiding document and not a bylaw, meaning there will be no enforcement measures resulting directly from this plan. Initiatives brought forward as a result of this plan will be considered by Town Council.

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Scope

The CCAP identifies five main areas important for climate action. These areas include **Transportation, Buildings & Infrastructure, Waste, Adaptation & Resilience, and Leadership & Education**. The areas are further broken down into short-term, medium-term, and long-term **actions**. The goal to complete short-term actions is 0-2 years, medium-term actions is 2-5 years, and long-term actions is 5-15 years. By setting these goals, the Town of Creston is taking concrete steps towards achieving the targets outlined in this plan and the West Kootenay 100% Renewable Energy Plan.

The CCAP focuses on mitigating the effects of climate change by reducing GHGs. While adaptation and resilience are mostly outside the plan's scope, the plan includes some high-level adaptation and resilience measures as supplementary guidance to the mitigation strategies.

Municipal Commitment

The Town of Creston supports the Province of British Columbia's goal to reduce overall GHGs in BC by 40% below 2007 levels by 2030, 60% by 2040, and 80% by 2050. The Town of Creston is a signatory to the Province's Climate Action Charter, and Council has committed to reducing GHG emissions in the community. Provincial legislation requires municipal governments to develop climate targets, plans, and actions to contribute to reducing negative climate-related impacts.

In 2021, the Town of Creston Council passed the following resolution to further advance Climate Action in Creston:

THAT the Town of Creston aims to transition to 100% renewable in all energy use sectors in the community including heating and cooling, transportation, electricity, and waste management not later than 2050; AND FURTHER, THAT Mayor and Council DIRECTS Town of Creston staff to collaborate with experts and residents, as well as consult the West Kootenay 100% Renewable Energy Plan, to develop a plan for the Town of Creston's transition by 2022.

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This plan establishes practical steps for the Town of Creston to continue working in tandem with Provincial and Federal Governments, First Nations, Corporations, and our community toward climate action.

The following plans provide the policy direction and foundation for the listed actions within this document:

- RDCK's Strategic Community Energy and Emissions Plan (SCEEP)
- Integrated Community Sustainability Plan (ICSP)
- Creston's Official Community Plan (OCP)
- Multi-Modal Transportation Plan (MMTP)
- Trails Master Plan (TMP)
- Housing Action Plan (HAP)

The CCAP is cohesive with the Town's Strategic Plan priorities, which include community safety, livability, economic health, and service excellence. The Strategic Plan emphasizes enhancing quality of life, demonstrating strong leadership, and fostering pride in arts, culture, heritage, and lifestyle amenities. In alignment with these strategic goals, the CCAP upholds principles such as environmental sustainability, innovation, equitable partnerships, and transparency. The strategic plan's emphasis on equitable partnerships and alliances highlights the importance of collaborative and inclusive approaches to address climate change impacts. The principles of transparency and accountability within the strategic plan align with the aim of regular reporting and community engagement through the implementation process of this plan.

Current Situation

The International Panel on Climate Change states, “It is unequivocal that human influence has warmed the atmosphere, ocean, and land”¹. In general, we are seeing more extreme weather events, hotter average temperatures, and melting sea and land ice.

In Creston, we can observationally attest to these changes. Throughout the past few years, Creston experienced extreme heat events with temperatures surpassing 40°C and our neighbouring communities experiencing significant drought. In the future, Creston can expect higher average temperatures, more hot days, shifts in precipitation patterns, and likely an overall increase in precipitation in the shoulder seasons, with less snowpack. These changes are predicted to have damaging impacts such as increased wildfire events, flooding, drought, and negative water quality impacts².

“The effects of climate change are not distributed equally, and certain populations are more vulnerable to its impacts. Extreme weather and climate-related disasters are expected to continue, and they will create new risks and worsen existing vulnerabilities in communities. Vulnerable populations include older adults, children, pregnant women, individuals experiencing homelessness, persons with behavioral health conditions, people with lower incomes, individuals with limited English proficiency, migrants or refugees, racialized communities, and tribes and Indigenous peoples. Climate change disrupts many areas of life and may lead to increased violence and crime, decreased community unity, and increased social instability. Individuals who contemplate the magnitude of climate change may also experience anxiety and grief about climate change, general despair, or hopelessness”³.

Environmental damage, such as biodiversity loss, ecosystem degradation, and natural disasters like floods, droughts, and wildfires, can have far-reaching consequences on both humans and wildlife. Climate change can affect human health by increasing the

¹ IPCC. (2021). AR6 Climate Change 2021: The Physical Science Basis. <https://www.ipcc.ch/report/ar6/wg1/>

² Pacific Climate Impacts Consortium. (2018). Climate Summary for the Kootenay Boundary Region. Retrieved from https://pacificclimate.org/sites/default/files/publications/Climate_Summary-Kootenay-Boundary.pdf

³ Substance Abuse and Mental Health Services Administration. (2022, March 28). Climate Change and Health Equity. Retrieved April 18, 2023, from <https://www.samhsa.gov/climate-change-health-equity>

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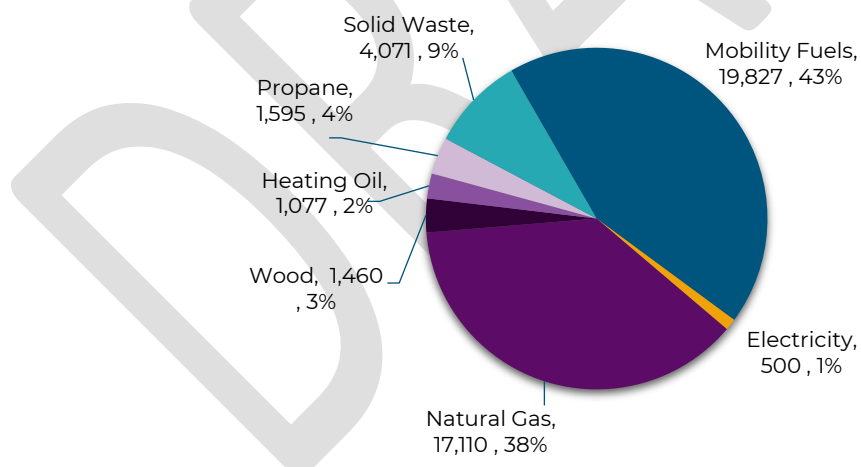
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risk of heatstroke, respiratory and cardiovascular illnesses, and the spread of infectious diseases. Between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year, from malnutrition, malaria, diarrhea, and heat stress. Climate change can exacerbate social inequalities and trigger new ones, leading to the displacement of communities, loss of livelihoods, and social unrest. Areas with weak health infrastructure – mostly in developing countries – will be the least able to cope without assistance to prepare and respond. Furthermore, climate change can pose risks to global security by exacerbating conflicts over resources, migration, and territorial disputes. The costs of climate change are likely to be widespread, profound, and difficult to quantify, affecting various aspects of human society and the natural world⁴.

Business as Usual (BAU)

In 2021, Creston's community GHGs were 45,640 tCO₂e. Mobility fuels and natural gas were responsible for the majority of these emissions, contributing 81% combined. Solid waste was the 3rd largest contributor (9%), while other heating fuels (propane, wood, and heating oil) and electricity were responsible for the remaining 10%.

Community Emissions (tCO₂e), 2021

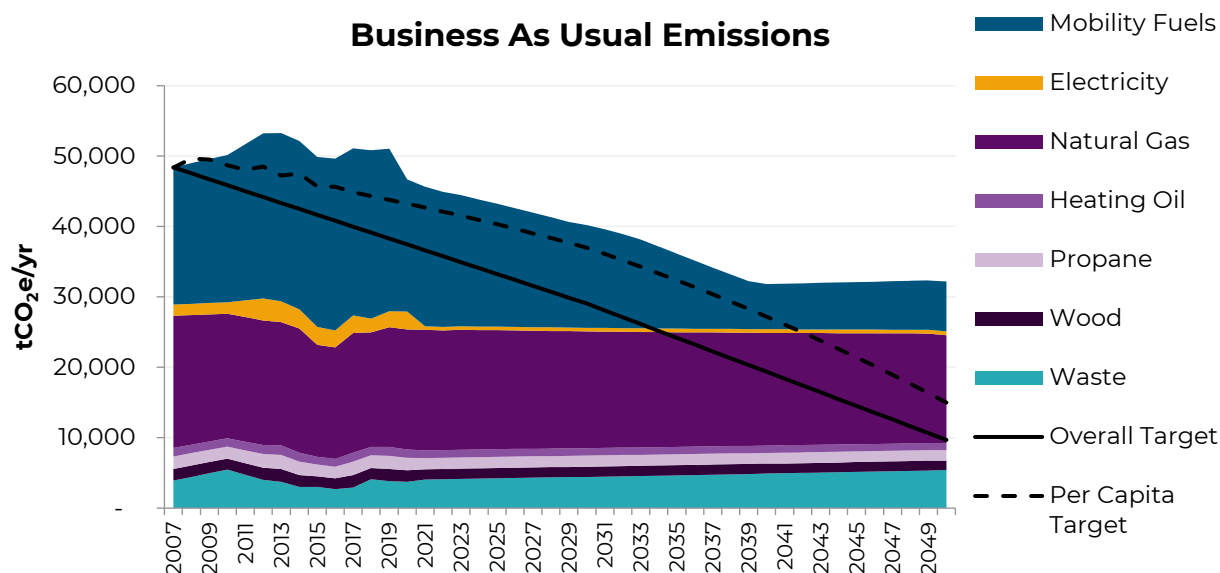


⁴ World Health Organization. (2018). Climate change and health. Fact Sheet. <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>

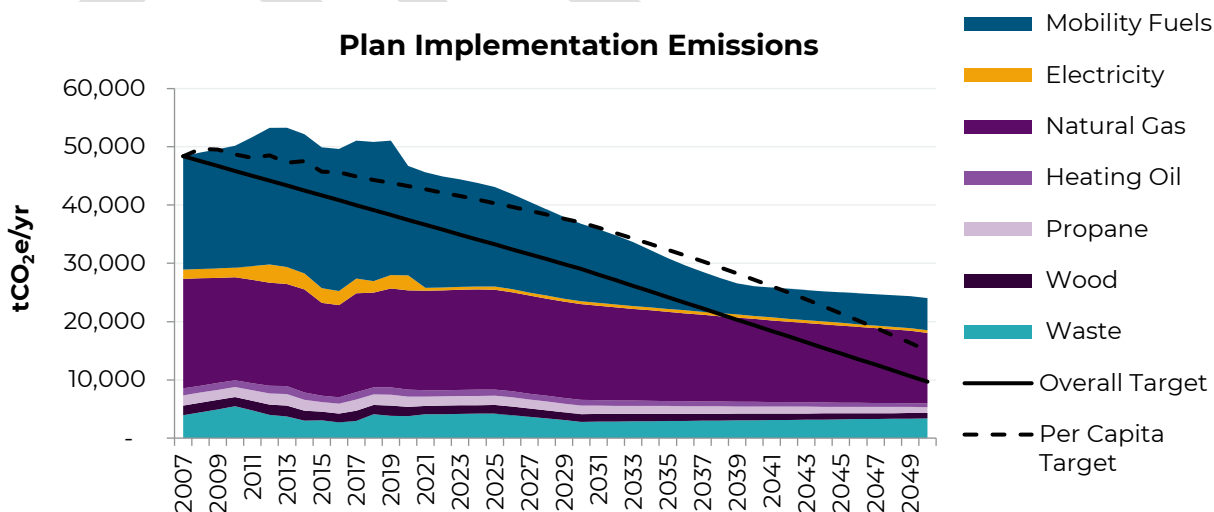
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If Creston does not take action, the Business As Usual (BAU) emissions are estimated to decrease only 17% below 2007 levels by 2030 and 33% by 2050, falling short of the Provincial GHG targets.



Implementing the steps outlined in this plan will help Creston reduce emissions further and meet the 2030 per capita target, reaching a 40% per capita decrease below 2007 levels by 2030 and 68% by 2050. As for the 2050 target, Creston is on the right trajectory, and it is anticipated that new technologies will become available in the future, which will enable Creston to achieve the long-term target.



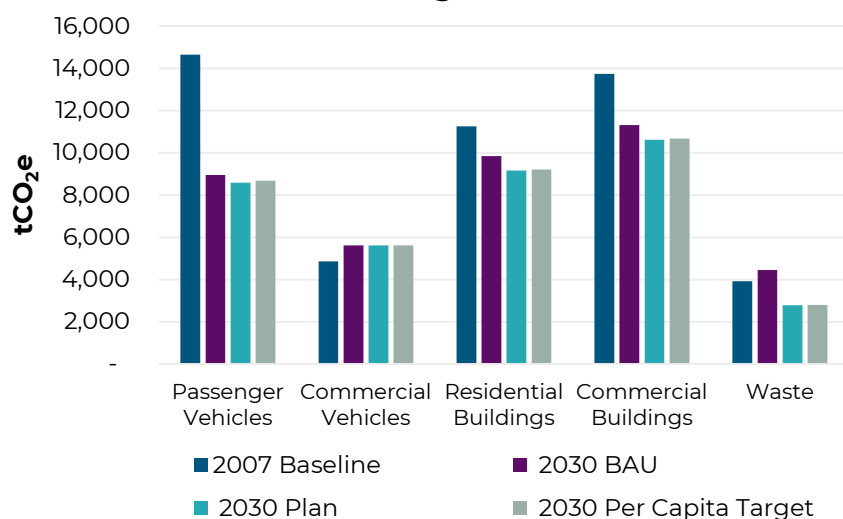
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In order to reach Creston's 2030 target, each sector will need to reduce emissions significantly. The following per capita targets were determined based on the priorities outlined in this plan, the level of influence that Creston holds over each sector's emissions, and the current rate of change and availability of technology. E.g. there is great scope for change with passenger vehicles by 2030, but only limited scope with commercial vehicles.

Sector	2030 Per Capita Target vs 2007 Levels
Residential Buildings	-36%
Commercial Buildings	-39%
Passenger Vehicles	-53%
Commercial Vehicles	-9%
Solid Waste	-44%

Sector GHGs: Baseline, BAU, Plan, & Target



Emission Costs

The Town of Creston community spends a significant amount on energy. In 2021, Creston's energy costs were approximately \$17,000,000. If business were to continue as usual, by 2031, Creston's energy costs would be roughly \$19,000,000⁵.

With a 2015 baseline, it is estimated that climate change will have cost Canadians \$25 billion of national GDP by 2025, \$35 billion by 2030, and between \$80 and \$103 billion by 2080 if continuing with business as usual. These figures represent the accumulation of impacts from each year of climate change since 2015, such as from storms, floods, and fires⁶.

A study published by the Institute for Sustainable Finance modeled the physical risk to Canada, and specifically how much capital output might be lost, over various warming scenarios between now and the end of the century. It was found that under a BAU scenario, with no new international GHG mitigation measures taken and allowing the climate to warm 5°C by 2100, the cumulative cost to Canada would be \$5.5 trillion⁷. These financial impacts could be incredibly detrimental to Canada, without yet considering the damages and costs to the rest of the world.

To help address this issue and meet Canada's climate targets, a shift from using fossil fuels to using clean energy is necessary. This shift would involve generating more clean electricity in all regions, phasing out energy sources that emit GHGs, and using clean electricity to power homes, vehicles, businesses, and industries.

⁵ Community Energy Association. (n.d.). Climate Action Planner. Retrieved April 18, 2023, from <https://www.communityenergy.ca/climate-action-planner/>

⁶ Climate Institute. (2018, October 2). The GDP Costs of Climate Change for Canada. Retrieved April 18, 2023, from <https://climateinstitute.ca/the-gdp-costs-of-climate-change-for-canada/>

⁷ Institute for Sustainable Finance. (2021, February 25). Study Models Climate Change Damage to Canada's Economy. Retrieved April 18, 2023, from <https://smith.queensu.ca/centres/isf/news/climate-change-damage.php>

Compounding Factors

Creston's population continues to grow, resulting in greater infrastructure needs. From 2006 to 2016, Creston's population grew 11%, reaching 5351 individuals, and from 2016 - 2021 Creston's population grew 4.1%, reaching 5583 people⁸. Overall, this represents an average annual increase of 1% from 2006 to 2021. In 2021, buildings accounted for approximately 47% of Creston's GHG emissions. Between 2010 and 2020, over 270 residential units were created, with development significantly increasing in the last four years. In addition, Creston's total emissions increased from approximately 40,000 CO₂e tonnes to about 46,000 CO₂e tonnes from 2010-2021⁹.

A growing population translates to more paved roads and pathways, more vehicles on the road, and other services that contribute to emissions through their use, development, or both. Creston will continue to develop more resilient and energy-efficient infrastructure to support environmentally sustainable habits while searching for new avenues to decrease overall emissions.

Lifecycle Costs

Our consumption choices have a significant impact on the environment, contributing to GHG emissions through the production of goods and services, and our use of energy for heating, transportation, and food choices. Using a lifecycle cost lens is important for evaluating the environmental impact of products and services. A lifecycle cost lens will consider a product's environmental impact throughout its entire lifecycle, from production to disposal, and provide a more accurate picture of its environmental impact.

When applying a lifecycle cost lens, embodied carbon should be considered. Embodied carbon refers to the GHGs associated with the production, transportation, and disposal of a product or material, including both direct and indirect emissions. By considering

⁸ Statistics Canada. (2017). Census Profile, 2016 Census: Creston [Population centre], British Columbia and British Columbia [Province]. Retrieved April 18, 2023, from <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=POPC&Code1=0212&Geo2=PR&Code2=62&Data=Count&SearchText=Creston&SearchType=Begins&SearchPR=01&B1=All>

⁹ <https://www2.gov.bc.ca/gov/content/environment/climate-change/data/ceei?keyword=community-energy-emissions-inventory>

embodied carbon in lifecycle costing, decision-makers can evaluate the environmental impact of comparative options.

Equitable Transition

In developing the CCAP, several factors have been taken into account to ensure its effectiveness and equity for all community members. The plan recognizes the distinct resource and economic challenges that confront our small, rural community, and the possible impact they may have on achieving GHG reductions in a relatively short period.

The geographical location of Creston, for example, is a crucial factor in determining the viability and efficiency of certain GHG reduction strategies. The rural setting and topography of the area may present challenges in implementing renewable energy technologies like solar and wind power.

A consideration in developing this plan is the socioeconomic factors affecting the community. Barriers to accessing energy-efficient technologies with limited financial resources may be faced by low-income residents. High-income residents may have higher GHG emissions as they are financially able to consume more overall, but they may also have access to more energy-efficient resources and technology.

It is important to recognize that the impacts of climate change may disproportionately affect certain people, including indigenous communities, who have a deep connection to the land and its resources. Cultural values and traditions will be considered, as applicable, when implementing individual actions in this plan.

We must also consider members of the community with specific needs, such as those who are elderly or have disabilities, and are particularly vulnerable to the impacts of climate change. Extreme weather events and other consequences of a changing climate can have a significant impact, and adapting to the changes may be more difficult for vulnerable populations.

Sustainability Objectives

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The Town of Creston developed sustainability objectives in its Integrated Community Sustainability Plan (ICSP), which provides a foundation for the CCAP to build upon. The sustainability objectives are to reduce and eventually eliminate our contribution to:

1. The ongoing build-up of materials extracted from the Earth's crust.

- This means favouring activities that support energy efficiency, renewable energy, recycled materials, and reusing what we have.

2. The ongoing build-up of synthetic materials produced by society.

- This means favouring activities that support natural materials, reusable and recyclable contents, and materials that are managed in tight technical cycles.

3. The ongoing physical degradation of nature.

- This generally means favouring activities that support using materials and energy sources from well-managed ecosystems, fast growing crops without the use of chemicals, and using previously developed lands.

4. Socio-cultural and economic conditions that undermine people's ability to meet their basic needs.

- This means favouring activities that support safe and vibrant living and working conditions, sufficient resources for livelihood, political freedoms, inclusive and transparent decision-making, and sourcing affordable products and services.

Looking Ahead

While commitment at the municipal level plays an important role in climate action, governments of all nations and at all levels need to make bold moves to create the necessary changes to have meaningful results. While we will not solve the climate crisis on our own, we plan to be part of the solution.

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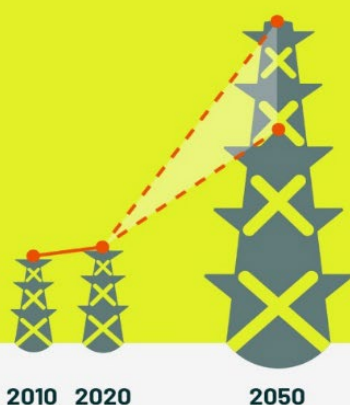
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Canada's electricity systems need to get ...



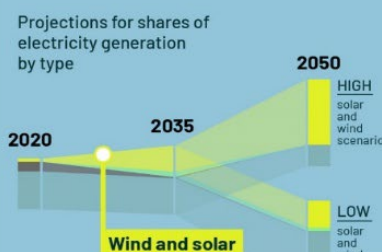
BIGGER

Electricity generation capacity needs to grow **2.2 to 3.4 times bigger** than today



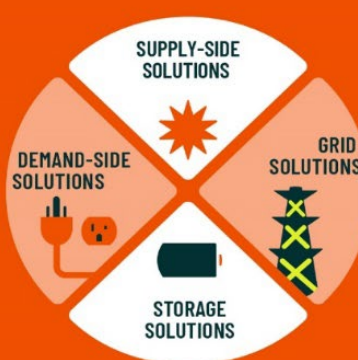
CLEANER

By 2050, wind and solar will make up **31-75%** of generation compared to only 6% today



SMARTER

Canada needs to deploy a range of solutions to build smarter, more flexible systems



Big Switch: How Canada can use renewables and energy efficiency to move from fossil fuels to a low-carbon future.

Source: Climate Institute. (2018).

Reaching Canada's climate targets requires a big switch from fossil fuels to clean energy. This switch involves producing more clean electricity in every region, phasing out GHG-emitting sources, and using clean electricity to power more of our homes, vehicles, businesses, and industries.

The transition to 100% renewable energy by 2050 will require a united effort by individuals, communities, businesses, and governments across Canada. While it may seem daunting, this switch presents an opportunity to not only mitigate the impacts of climate change, but to become more resilient, learn from our lessons, grow our culture, and bond together for a common purpose.

Measuring Progress

This plan presents actions targeted toward major reductions in GHG emissions in the areas of transportation, buildings & infrastructure, waste, and leadership & education. The CCAP is a step towards a fulsome and evolving strategy to mitigate the impacts of climate change in Creston.

To measure progress, two types of key performance indicators will be used. Primary indicators measure community energy consumption and GHG emissions, while secondary indicators quantify the indirect success of various actions. These indicators will not only allow us to track our progress, but they will also help determine additional measures needed to meet our GHG emission reduction targets and transition to 100% renewable energy.

Transportation

Transportation requires energy to move people and goods from one place to another. Cars, buses, trains, and planes are, in large part, all powered by fossil fuels, which contribute significantly to GHGs and air pollution.

Reducing transportation-related emissions is crucial to mitigating the impacts of climate change and improving air quality. Shifting towards more environmentally sustainable transportation options, such as electric vehicles, public transportation, biking, and walking, can help reduce GHG emissions and promote healthier communities. The Town of Creston will promote and support these changes, recognizing the impact the transportation sector has on climate change.

Current Situation

In 2021, transportation accounted for 43% (19, 827 CO₂e tonnes) of emissions generated in the Town of Creston, with gasoline being the largest expense¹⁰.

British Columbia (BC) had an annual per capita electricity consumption of 11.8 megawatt-hours (MWh) in 2019, which placed it seventh among all Canadian provinces. However, the province consumed 21% less electricity than the national average. About 87% of electricity in B.C. is produced from hydroelectric sources, with the remainder coming from biomass, wind, natural gas, refined petroleum products, solar, and other sources¹¹.

Creston residents and businesses are primarily dependent on fossil fuel vehicles as their primary mode of transportation to support rural living. This plan supports a shift towards more energy-efficient and active transportation.

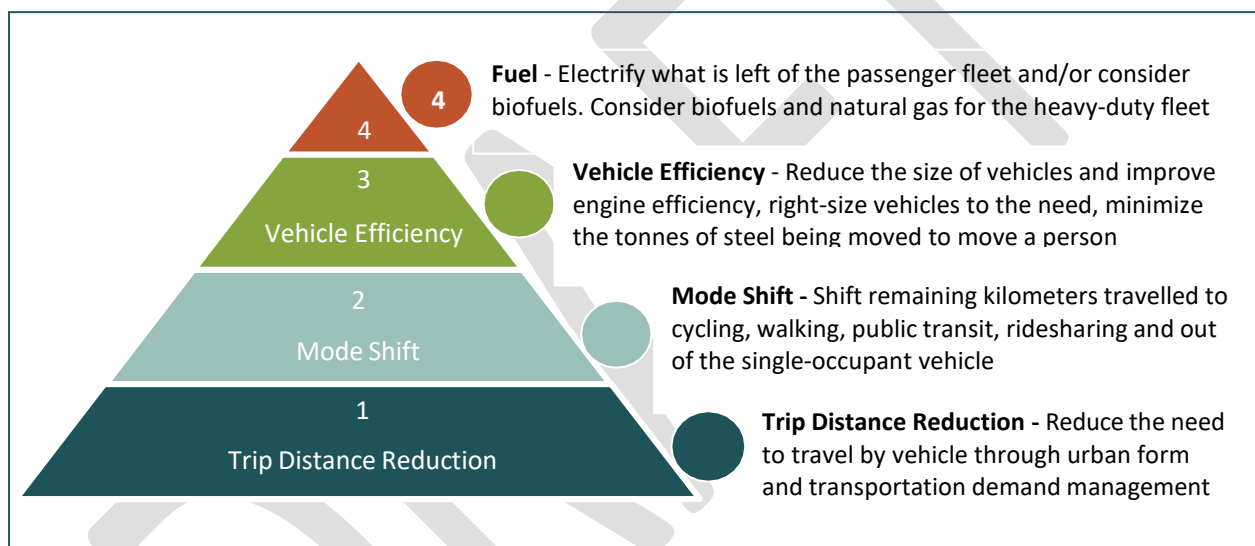
¹⁰ Town of Creston. (2025) Creston Climate Action Plan. Pg.9

¹¹ Canada Energy Regulator. (2021, March 3). British Columbia Energy Profile 2019. <https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/provincial-territorial-energy-profiles/provincial-territorial-energy-profiles-british-columbia.html>

Transportation Objectives

The following transportation objectives encompass trip distance, mode shift, vehicle efficiency, and fuel considerations.

1. **Encourage the development of compact and walkable neighborhoods that provide access to essential services and amenities, reducing reliance on automobiles**
2. **Increase vehicle sharing opportunities, expand public transportation options, and implement active transportation-oriented planning**
3. **Shift towards vehicle electrification**



Source SCEEP 2016

Getting There

Encourage the development of compact and walkable neighborhoods that provide access to essential services and amenities, reducing reliance on automobiles.

Creston spans 815 hectares, with about 30% of the land remaining undeveloped and lacking essential services. Overall, the Town's land use is reasonably well distributed, with residential, commercial, and industrial zones dispersed throughout the community. This

approach to land use planning fosters a cohesive and interconnected community, with convenient access to employment opportunities, shopping centers, and other essential amenities within a reasonable proximity to residents' homes.

According to Statistics Canada's 2016 report, the majority of commute distances in Creston were relatively short. More specifically, over half of the trips taken for commuting purposes were between 1 and 3 kilometers, while approximately 30% were less than 1 kilometer¹².

Infill developments, which utilize existing municipal services such as water, sewer, roads, and trails, can result in financial savings and a smaller environmental footprint compared with new development. In addition to these benefits, infill development can also increase the municipal tax base without expansion or added infrastructure, while simultaneously reducing residents' reliance on gas-powered vehicles for commuting.

Creston is the service hub for Wynndel, Erickson, Canyon, Lister, the East Shore of Kootenay Lake, Kitchener, and Yahk. Creston's economy is largely supported by people who commute to Creston for school, work, shopping, entertainment, and services. Creston must continue to support these individuals by providing a one-stop destination to limit the number of trips people must take to meet their needs.

Increase vehicle sharing opportunities, expand public transportation options, and implement active transportation-oriented planning

Based on the 2016 Commuter data from Statistics Canada, the majority of individuals (82%) who commute for work within Creston rely on driving as their mode of transportation. Of those who drive to work, the overwhelming majority (86%) are solo drivers. Less than 16% of those who drive to work use sustainable transportation options such as active transportation or public transit. Approximately 13% of residents regularly

¹² Statistics Canada. (2016). Commuter data. <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/dt-td/Rp-eng.cfm?TABID=2&LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=0&GID=1261913&GK=0&GRP=1&PID=111334&PRID=10&PTYPE=109445&S=0&SHOWALL=0&SUB=0&Temporal=2017&THEME=125&VID=0&VNAMEE=&VNAMEF=&D1=0&D2=0&D3=0&D4=0&D5=0&D6=0>

walk, while less than 1% of people regularly bike or use public transit, and around 2% use alternative modes of transportation, such as mobility aid scooters¹³.

The Town of Creston currently has over 20km of sidewalks and trails; however, due to the Town's topography, it can be challenging for many individuals to cycle or walk. Additionally, many of the trails are made of gravel, which makes them inaccessible or difficult for road cyclists and people using mobility aids. Most residential neighbourhoods lack sidewalks or trails, and there is a lack of connectivity between neighbourhoods and services. In 2016, during public engagement for the Official Community Plan (OCP) at Town Hall, the public expressed that the Town's infrastructure does not meet the needs of youth or those with mobility challenges. Multi-modal transportation requires safety and accessibility to be effective.

To encourage a shift away from single-occupancy vehicles, the Town of Creston should create safe and accessible alternatives, such as multi-use pathways, low-barrier and well-maintained sidewalks, and alternative vehicle transport modes, including carpooling and transit. The Town's Multi-modal Transportation Plan (MMTP) identifies locations where crossing lights should be added, such as the 18th Ave N/Canyon St intersection and NW Boulevard/Cavell Street, to improve pedestrian visibility and safety when crossing the highway.

During the OCP public engagement, Creston residents expressed a desire for a well-connected community that promotes physical activity. The Town's OCP contains several policies that support an integrated approach to active transportation planning, and the MMTP outlines strategies to meet Creston's active transportation goals for the next 30 years.

The Town has also developed a Trails Master Plan (TMP). The TMP provides a long-term strategy for creating a connected and walkable community that encourages active transportation and outdoor recreation. The TMP identifies key routes that align with

¹³ Statistics Canada. (2016). Commuter data. <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/dt-td/Rp-eng.cfm?TABID=2&LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=0&GID=1261913&GK=0&GRP=1&PID=111334&PRID=10&PTYPE=109445&S=0&SHOWALL=0&SUB=0&Temporal=2017&THEME=125&VID=0&VNAMEE=&VNAMEF=&D1=0&D2=0&D3=0&D4=0&D5=0&D6=0>

Creston's cycling, public transit, and private vehicle networks and provides essential connections to activity hubs throughout the community.

Building multi-modal transportation infrastructure comes at a significant capital cost. Savings can be made by including active transportation infrastructure at times of road replacement and restoration. Active transportation tends to be a 'lighter' use of Town infrastructure compared to traditional vehicle traffic. The infrastructure projects required to achieve the commitments in the MMTP and TMP will require ongoing and multi-year construction, combined with working with the BC Ministry of Transportation and Infrastructure (MoTI) to create safe spaces for active transportation along provincially-owned roads. In addition, the Town of Creston will work with the Ministry to evaluate BC Transit in Creston and advocate for a plan that better meets the community's needs.

Shift toward vehicle electrification

BC has more than 5,000 public charging stations available for electric vehicles. The electrification of personal and fleet vehicles is a critical component of renewable transportation. The Province has set out several targets pressuring manufacturers to create a greater supply of electric vehicles. As part of the Roadmap to 2030, B.C. will require 30% of all new, light-duty vehicles sold to be zero-emission vehicles by 2030, rising to 100% by 2040¹⁴. B.C. already has the highest electric vehicle uptake in North America, with more than 10% of new light-duty vehicle sales being electric as of June 2021¹⁵.

While transitioning to electric vehicles in Creston may present challenges, it's worth noting that technological advancements are increasingly making them a more practical and attractive option for drivers. Improvements in battery technology have led to increased range, enabling drivers to travel longer distances without needing to recharge. Additionally, advances in cold resilience have made electric vehicles more reliable in cold weather conditions. Meanwhile, charging times continue to decrease, making it easier and more convenient for drivers to charge their vehicles on the go.

¹⁴ Province of BC. (n.d.) Roadmap to 2030. https://www2.gov.bc.ca/assets/gov/environment/climate-change/action/cleanbc/cleanbc_roadmap_2030.pdf

¹⁵ Government of British Columbia. (2022, February 7). B.C. to Build Canada's Largest Renewable Energy Battery Storage Project. <https://news.gov.bc.ca/releases/2022EMLI0018-000468>

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The table below lists some of the pros and cons of electric vehicles:

Electric Vehicles	
Pros	Cons
Reduced GHG emissions	Long charge times
Approximately 5 times more energy-efficient ¹⁶	Lower kilometers reached before needing to recharge
Zero tailpipe emissions	Parts can be difficult to get
Quiet, smoother operation	Battery replacements are currently expensive
Less maintenance than internal combustion engines	Sometimes, poor mining practices
Government incentives	Lithium is energy and water-intensive to extract
Home charging options	Less cold/ hot temperature resilient
Recyclable batteries	Limited charging infrastructure
Reduced noise pollution	More pressure on the electric grid

When considering EVs, we also must consider infrastructure and charger costs. There are multiple types of EV Chargers (Level 1, 2, 3), and costs vary considerably for purchase and installation. It's important to know your car's charging requirements before choosing a charging station, as different EVs may require different types of connectors. The Town of Creston owns and operates four Level 2 public charging stations and one Level 2 charging station for fleet vehicles. To date, all of Creston's EV charging stations have been installed using grant money.

The OCP contains several policies related to vehicle electrification. Shifting to electric vehicles will have one of the greatest positive impacts on GHG reduction. Over time, the

¹⁶ Natural Resources Canada. (2023). Buying an electric vehicle. Retrieved from:

<https://natural-resources.canada.ca/energy-efficiency/transportation-alternative-fuels/personal-vehicles/choosing-right-vehicle/buying-electric-vehicle/21034>

Town envisions shifting towards electric municipal fleet vehicles, purchasing used vehicles, and providing infrastructure to support personal electric vehicles.

Actions

In order to achieve the West Coast 100% Renewable Energy Plan's targets, the following short-term, medium-term, and long-term transportation actions have been established:

Current/ Ongoing

- Revise the OCP and related zoning bylaws to promote reduced reliance on cars by designing walkable neighborhoods with services nearby
- Focus on active transportation planning and include active transportation design standards in street restoration, replacement, and new projects.
- Continually explore new technologies for use as they advance, such as hydrogen-powered vehicles

Short-term (0-2 years)

- Evaluate speed limits for safety – ensure people feel safe utilizing another active transportation method
- Explore partnerships with other governments to create inter-community trails for walkable/bikeable long-distance trips
- Launch Town-wide anti-idling initiative
- Conduct spatial analysis of amenities, healthcare, public transportation, and other essential services as they relate to locations of residential units and transportation networks
- Consider installing public bike lock-ups and hitching posts in the downtown commercial zone
- Implement an E-mobility/bike-sharing program
- Explore options for expanding the E-bike loan program to include Town residents
- Promote residents playing locally by activating public spaces and programming civic amenities with “zero-impact” activities that engage all ages and abilities
- Explore free public transit to promote transit ridership

Medium-term (2-5 years)

- Create an interactive map with trails, multi-use paths, and low-traffic roads for those interested in active transportation

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- Leverage grant opportunities to build out EV charging infrastructure and support goals outlined in the Zero Emissions Vehicles Act
- Consider EV-ready building requirements for multi-unit residential buildings
- Electrify the Town of Creston's fleet vehicles

Long-term (5-15 years)

- Implement the Trails Master Plan, Parks Master Plan, and Multi-modal Transportation Plan
- Encourage businesses to adopt commercial EV charging/refueling infrastructure

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Buildings & Infrastructure

Buildings that serve as our homes, workplaces, and recreational spaces require energy to regulate indoor temperatures, light, and provide power for daily activities like cooking and laundry. Over the past few years, extreme temperatures have highlighted the importance of household temperature control for our comfort and our health, which requires large amounts of energy. It is important to find ways to reduce energy consumption while maintaining safe living spaces for the community. Creating energy-efficient buildings can increase building resiliency in the face of climate change and result in long-term savings for residents and businesses.

The Town of Creston aims to shift towards more environmentally sustainable buildings by encouraging energy efficiency, residential infill development, and densification within currently serviced areas. The Town will also encourage the design and construction of energy-efficient new buildings and retrofits.

Current Situation

By sector (Waste, Transportation, Buildings), Creston's buildings accounted for approximately 44% (21,388 CO₂e) of emissions in 2021. Under the BAU scenario, by 2030 it is estimated that buildings will contribute 21,167 CO₂e tonnes of emissions, as the BC Building Code, BC Step Code, and other factors improve efficiency¹⁷.

Increasing building efficiency and reducing building energy consumption are essential for reducing overall GHG emissions. In Creston, most buildings rely on electricity for heating and cooling needs. Because electricity is produced predominately in hydroelectric facilities, it contributes very little to Creston's GHG pollution. Approximately 0.3% of Creston's residential building heating energy is supplied by wood, another lower-carbon and renewable energy source. The Town has implemented a Wood Stove Exchange Program in partnership with the RDCK that provides a rebate for residents to exchange their old (pre-1994), uncertified wood stove with a new, EPA- or CSA-certified wood, pellet, or gas heating appliance.

¹⁷ Town of Creston. (2025) Creston Climate Action Plan. Pg.9

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In 2021, natural gas in Creston contributed to approximately 38% of emissions. The extraction, processing, and transportation of natural gas can lead to significant GHG emissions. Natural gas leaks during extraction, transportation, and distribution, can release methane - a potent GHG - into the atmosphere. Production of natural gas can result in environmental harm such as water pollution, land degradation, and wildlife habitat destruction. Furthermore, the combustion of natural gas in power plants and buildings releases carbon dioxide, nitrogen oxides, and other air pollutants that contribute to smog, acid rain, and respiratory diseases. Finally, natural gas is a non-renewable resource, which means it will eventually be depleted, and its extraction can cause social, economic, and environmental issues in communities where it is produced¹⁸. Reducing energy waste through energy-efficient building designs, insulation, and weatherization can reduce the need for natural gas heating.

Improving building efficiency results in cost savings for businesses and residents. Creston has been observing an escalation in temperature extremes every year, and it is crucial to equip buildings for extreme weather events and increasing temperatures without exacerbating negative climate impacts.

As of May 1st, 2023, per the BC Building Code regulations, builders are required to comply with Step 3 of the BC Energy Step Code. The BC Building Code is a set of minimum requirements and standards for the construction, renovation, and occupancy of buildings in BC. The BC Energy Step Code provides a common pathway that local governments may use to ensure BC delivers on its energy goals. It does so by establishing a series of measurable, performance-based energy-efficiency requirements for construction that communities may choose to adopt when ready. The BC Energy Step Code requires progressively greater levels of energy efficiency. In 2022, the base building code required 20% more energy-efficient buildings. The final two steps are as follows:

- 2027 - Buildings are 40% more efficient than 2018 BC Building Code requirements (Step 4 – Part 9 buildings, Step 3 – Part 3 buildings); and,

¹⁸ Union of Concerned Scientists. (2021, March 30). The Environmental Impacts of Natural Gas. <https://www.ucsusa.org/resources/environmental-impacts-natural-gas>

- 2032 - Buildings are 80% more efficient than 2018 BC Building Code requirements (Step 5 – Part 9 buildings, Step 4 – Part 3 buildings).

Net-zero energy buildings produce as much or more clean energy as they consume. They are up to 80 percent more energy-efficient than a typical new building and use on-site (or near-site) renewable energy systems to produce the remaining energy they need¹⁹. A net-zero energy-ready building is designed and built to a level of performance such that it could, with the addition of solar panels or other renewable energy technologies, achieve net-zero energy performance. The BC Energy Step Code will be an important part of improving building efficiency in Creston.

Buildings & Infrastructure Objectives

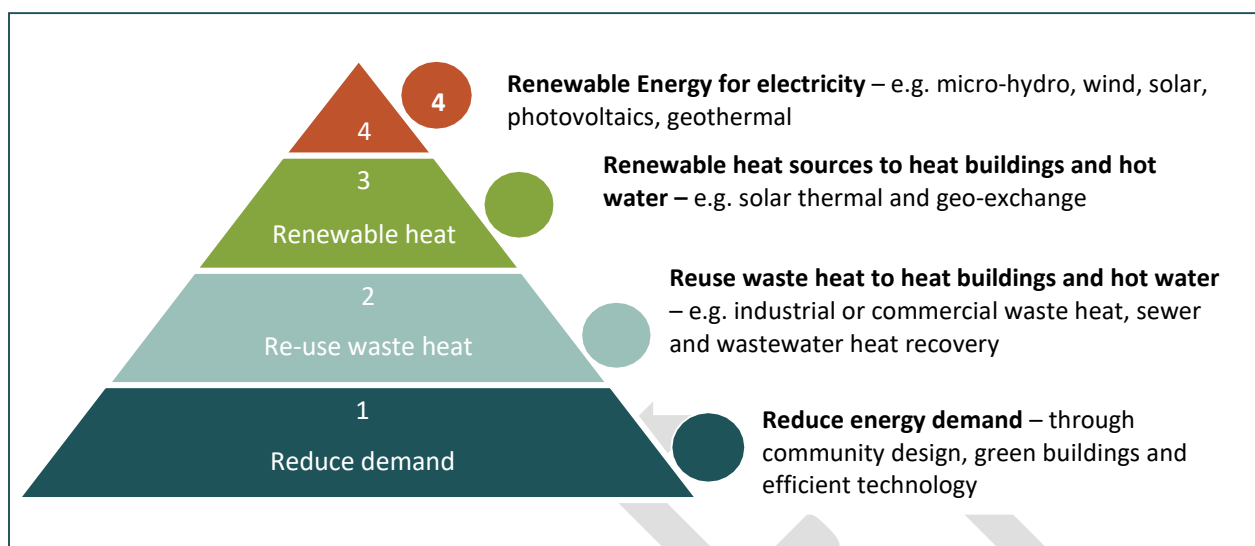
The following buildings & infrastructure objectives encompass reduced energy demand, reusing waste heat, renewable heat sources, and renewable energy for electricity.

- 1. Increase the use of renewable energy sources in new and existing buildings and infrastructure**
- 2. Reduce energy demand in buildings and infrastructure through community design, green buildings, and energy-efficient technology**
- 3. Increase heat recovery to heat buildings and water**

¹⁹ Canadian Home Builders' Association. (n.d.). Net Zero Homes. Retrieved May 8, 2023, from <https://www.chba.ca/netzero#:~:text=Net%20Zero%20Homes,the%20remaining%20energy%20they%20need.>

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Source SCEEP 2016

Getting There

Increase the use of renewable energy sources in new and existing buildings and infrastructure

The Town of Creston is committed to increasing the use of renewable energy sources in new and existing buildings and infrastructure. It will be important to incentivize the adoption of renewable energy systems such as photovoltaic panels, geo-thermal systems, wind, and hydro-energy in buildings and infrastructure.

While many of the buildings and infrastructure in the community are aging and may not have been designed with energy-efficiency in mind, there may be opportunities to retrofit and upgrade these structures to incorporate renewable energy sources. To support this goal, the Town will support outreach and education programs to homeowners and businesses interested in renewable energy options. Regulatory measures that can incentivize the adoption of renewable energy systems, such as development cost charge decreases or zoning allowances for renewable energy installations will also be explored.

Renewable energy technologies can come with a high price tag, and affordable housing is a growing challenge for many residents and newcomers. For these reasons, the Town will work to identify funding and financing options for the public to help make renewable energy options more accessible and affordable regardless of household income.

Reduce energy demand in buildings and infrastructure through community design, green buildings, and energy-efficient technology

Creston is home to a mix of ageing buildings and new development. More than 1/4 of the residential buildings were constructed prior to 1960, and 1/3 of Creston homes were constructed between 1961 and 1980²⁰.

Housing costs are many individuals' greatest expenses. In addition, renters typically do not have control over energy efficiency within their homes, even though many renters would highly benefit from a reduced utility bill. Increasing home efficiency will decrease costs in the long term, and there are several incentive and rebate programs provided through Fortis, BC Hydro, and different levels of government for individuals looking to improve their building energy performance. Increased building efficiency will likely lessen the burden of heating and cooling costs and other energy needs.

Smaller, energy-efficient buildings, or clustered developments with shared walls, can reduce the demand for (and cost of) space heating and cooling, increasing building efficiency. Supporting infill development in existing neighbourhoods, where existing services are provided, can help reduce GHGs. Denser development also supports small home development or multi-family development, reducing the energy requirements per household and adding to the attainable housing stock.

Creston's Official Community Plan and Building Bylaw support the implementation of the BC Step Code and contain several other policies to develop energy-efficient buildings. The Town of Creston will continue to support environmentally sustainable new

²⁰ RDCK Housing Needs Report: Town of Creston Community Summary (2020)

https://www.rdck.ca/assets/Government/Documents/01_Creston_Community_Summary.pdf

development; however, a particular focus will be paid to existing buildings by looking for avenues to support equitable energy-efficient upgrades.

Increase heat recovery to heat buildings and water

Improving heat recovery to heat buildings and water will be a key strategy in the efforts to increase energy efficiency and reduce GHG emissions.

Heat recovery is the process of capturing and reusing heat that would otherwise be lost, typically through exhaust gases or waste heat from industrial processes. In buildings, heat recovery can be achieved by installing a heat recovery ventilation (HRV) system, which recovers heat from exhaust air and uses it to heat incoming fresh air. Similarly, waste heat from industrial processes can be captured and used to heat water. Heat recovery is energy-efficient, which means reduced energy costs and GHGs.

Actions

To achieve the West Coast 100% Renewable Energy Plan's targets, the following short-term, medium-term, and long-term building & infrastructure actions have been established:

Current/ Ongoing:

- Promote incentives and funding programs for energy-efficient building upgrades
- Update zoning bylaws to promote infill development
- Adopt a high-efficiency accessory dwelling unit design to speed up infill development
- Partner with an expert to promote sustainable landscaping practices and create a native and drought-resistant plant guide for use in a future tree planting initiative
- Help the construction industry meet Steps 4 and 5 of the BC Energy Step Code through educational tools, similarly, aiding in meeting the requirements of the BC Zero Carbon Step Code
- Expand urban tree canopy and community garden space, and plant more native species in unused grass spaces such as boulevards

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Short-term (0-2 years)

- Encourage the use of renewable energy technology such as Air Source Heat Pumps
- Provide educational resources to support the increased use of local, renewable resources while decreasing the use of non-renewable resources
- Advocate for the use of current financing options and rewards to lower carbon emissions in buildings, including the Federal interest-free loan and benefits from various government levels and utilities.
- Continue to support the Woodstove Exchange Program and consider amending the rebate structure
- Research ways to bring lower-carbon-footprint building materials to Creston
- Provide an energy advisor rebate for developments that meet Step 4 or 5 of the BC Energy Step Code
- Develop a cost-effective checklist for making houses in our area more energy-efficient, and create a list of incentives and rebates available to homeowners
- Explore Community Efficiency Financing Programs, including determining current energy demands of local housing stock; consider joining a regional program if available
- Change zoning bylaw floor area ratio to exempt the extra area for wall insulation in homes that achieve Step 4 or 5 of the BC Energy Step Code
- Relax building heights for homes that use extra insulation in the roof and foundation, especially if they meet the high standards of Steps 4 or 5 of the BC Energy Step Code
- Consider reducing permit fees for zero/low-carbon or energy-efficient retrofit and new construction
- Collaborate with building officials to integrate Step Code and Better Homes BC information into the permitting processes for new buildings and renovations
- Research land use planning tools to preserve and support multi-family development
- Look at electrifying small-scale public works equipment such as mowers, weed-whackers, hedge trimmers, and leaf blowers
- Monitor energy usage at Town facilities with energy dashboards
- Support that will lead to less GHG emissions overall, such as deconstruction instead of demolition, creating less waste, and reusing building materials
- Consider a revitalization tax exemption program for zero/low carbon, or energy-efficient, new or renovated buildings
- Explore opportunities to offer Development Cost Charge reductions for exceptional zero/low carbon or energy-efficient developments

Medium-term (2-5 years)

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- Retrofit Town-owned Infrastructure to improve energy efficiency, guided by the results of a feasibility study
- Complete a Town-wide retrofit needs assessment for commercial buildings and develop a corresponding support program and implementation plan
- Lobby for provincial asbestos removal rebates to reduce a major barrier to deep energy retrofits
- Consider completing a study in Creston to see if other energy sources beyond solar could work here - may include neighbourhood-wide energy systems, small water-powered energy, using plant materials, underground heat, and more

Long-term (5-15 years)

- Incorporate infrastructure that requires less energy, such as green roofs, rain gardens, and permeable pavements, into urban design
- Work towards identifying and mending water leaks in Town-owned infrastructure
- Encourage the building of energy-efficient homes in areas that already have services, especially in the Residential Growth Containment Area (RGCA)
- Identify opportunities for eco-industrial park development
- Support the creation of energy systems that serve many buildings from one main location to provide heat, cool air, and hot water

Waste

Waste is related to climate change in several ways. Firstly, when waste is sent to landfills, it decomposes and releases methane, a potent GHG, into the atmosphere. By diverting waste from landfills through reduction, reuse, and recycling, the amount of methane released into the atmosphere can be reduced.

Secondly, the embodied carbon of products and materials used in construction and other industries contributes to the community's carbon footprint. Promoting the use of low-carbon materials can reduce the embodied carbon of new development in the community.

Lastly, waste diversion can help recover valuable materials like organic waste (e.g. agricultural waste, food waste, yard waste, and forestry residues), which can be transformed into biofuels or other bio-based products through processes like anaerobic digestion or gasification. This provides renewable energy sources, reduces reliance on fossil fuels, and decreases GHGs.

Overall, waste diversion is an important strategy in mitigating climate change and reducing our carbon footprint. To move towards zero waste, the following 5R pollution prevention hierarchy is a useful planning tool, where opportunities for reduction and reuse of materials should be exhausted before exploring opportunities for recycling (reduce, reuse, recycle, recovery, residuals management).

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Photo by Province of BC



“The pollution prevention hierarchy supports a circular economy approach which can create jobs, promote innovation that provides a competitive advantage and help to protect people and the environment. In circular economy resources are never tossed, but instead are reused, recycled and reintroduced as new products. All with a focus on clean technology and energy efficiency²¹.”

²¹ Government of British Columbia. (n.d.). Zero waste. Government of British Columbia. Retrieved June 7, 2024, from <https://www2.gov.bc.ca/gov/content/environment/waste-management/zero-waste>

Current Situation

By sector (Waste, Transportation, Buildings), waste accounted for approximately 9% (4,071 CO₂e) of emissions in 2021. Under the BAU scenario, by 2030, it is estimated that waste will contribute 4,445 CO₂e tonnes of emissions²². The Creston landfill (which supports the East sub-region) received approximately 6,700 tonnes of solid waste each year, with approximately 2,600 tonnes being diverted²³. 700 tonnes of waste was collected in Creston.

The Town collaborates with the RDCK and neighbouring communities to develop innovative services and solutions for waste reduction in the greater Creston Valley. The RDCK Resource Recovery Plan is designed to prioritize the repurposing, reuse, or recycling of waste, to minimize the amount of waste that ends up in landfills.

The Creston landfill is expected to close in 2050 with an anticipated cumulative waste volume of 801,664 m³²⁴. Continued use of the site is dependent on receiving approval from the Province. The RDCK hopes to acquire additional land around the site to extend the buffer between the landfill operation and surrounding land uses. It is important to keep our waste to a minimum because once the landfill reaches capacity, Creston will likely have to divert waste to surrounding communities such as Castlegar. At 125km away, this is not only significant in terms of emissions output, but also in terms of cost.

The Province has a target to lower the municipal solid waste disposal rate to 350 kg per person to reduce waste on land and in the marine environment. In 2021, in the Central Kootenays, the waste disposal rate was 501 kg/person of municipal solid waste²⁵.

Garbage at the Creston Landfill is primarily made up of:

²² Town of Creston. (2025) Creston Climate Action Plan. Pg.

²³ Regional District of Central Kootenay. (n.d.). *Resource recovery facilities*. Regional District of Central Kootenay. <https://www.rdck.ca/environmental-service/environmental-services/waste-recycling/rrfacilities/>

²⁴ Regional District of Central Kootenay. (n.d.). *Resource recovery facilities*. Regional District of Central Kootenay. <https://www.rdck.ca/environmental-service/environmental-services/waste-recycling/rrfacilities/>

²⁵ Government of British Columbia. (2022). *Municipal Solid Waste: Sustainability Indicators*. Retrieved from <https://www.env.gov.bc.ca/soe/indicators/sustainability/municipal-solid-waste.html>

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- **Compostable Organics:** 23% (includes avoidable food waste, yard waste, and unavoidable food waste)
- **Paper:** 18% (includes various types of paper like food-soiled paper and recyclable packaging)
- **Plastic:** 17% (mainly plastic film and rigid packaging)
- **Household Hygiene:** 15% (includes personal hygiene items and pet waste)
- **Non-Compostable Organics:** 11% (includes textiles, treated wood, and rubber)

These five categories make up 84% of the garbage from single-family homes in Creston.

The total diversion **potential** for the garbage stream at the Creston Landfill is 62%, which breaks into:

- **30% Compostable Materials:**
 - Avoidable food waste: 10.5%
 - Yard and garden waste: 9.0%
 - Compostable and food-soiled paper: 6.6%
 - Unavoidable food waste: 3.4%
- **21% Recyclable Materials:**
 - Plastic film and flexible packaging: 6.0%
 - Recyclable paper packaging: 5.7%
 - Recyclable rigid plastic packaging: 3.8%
 - Fine paper: 1.8%
 - Glass containers: 1.3%
 - Metal containers: 1.1%
 - Old Corrugated Cardboard: 1.1%
- **7% Building/Bulky Materials:**
 - Treated wood: 3.6%
 - Gypsum and drywall plaster: 2.5%
 - Other building materials: 1.0%
- **4% Product Stewardship Materials:**
 - Various electronic waste managed by EPR programs: 2.5%

Over half of the waste Creston residents throw away could be recycled or composted.

The more waste that is diverted (compost or recycle), the lower garbage disposal costs are. Currently, it costs:

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- \$166.50 per tonne to dump garbage
- \$106.50 per tonne for organics (compost)
- \$0 to recycle

In 2024, Creston collected 700 tonnes of garbage. If waste were properly sorted, landfill waste could be cut in half and Creston could save \$37,000+ a year on landfill costs, leading to a 10% reduction in Solid Waste Collection Fees.

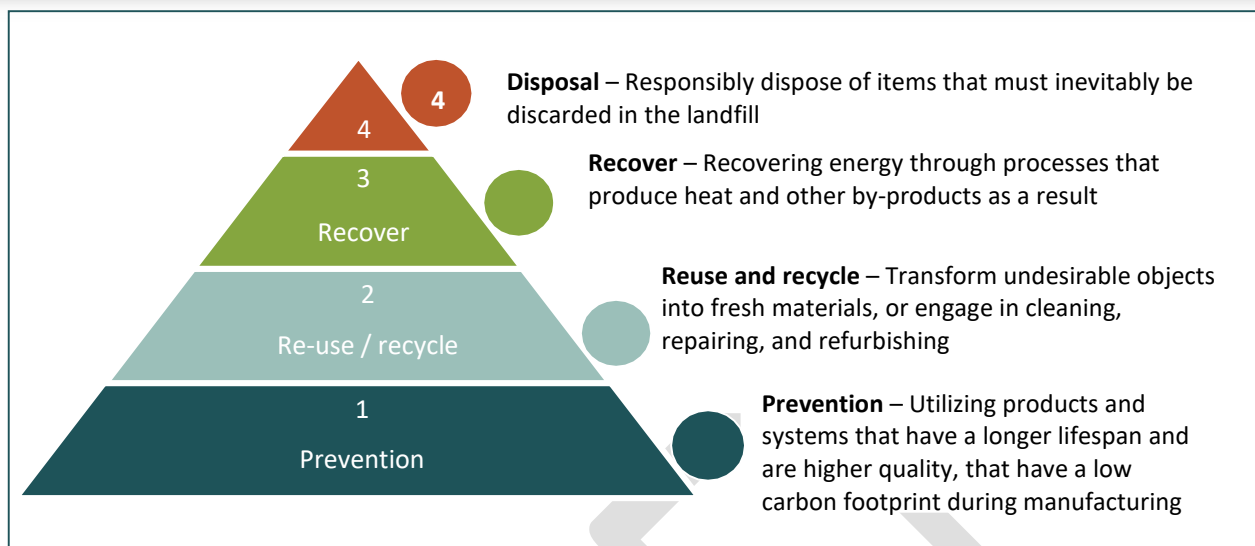
Waste Mitigation Objectives

The following waste mitigation objectives encompass reduced energy demand, reusing waste heat, renewable heat sources, and renewable energy for electricity.

- 1. Utilize products designed for a longer and higher quality of life and that have a lower carbon footprint through production processes**
- 2. Promote a circular economy by supporting a system where resources are used for as long as possible, and waste is minimized through reuse and recycling**
- 3. Recover energy from waste through processes that produce heat and other, harnessable by-products**

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Source SCEEP 2016

Getting There

Utilize products designed for a longer and higher quality of life, and that have a lower carbon footprint through production processes

One way to reduce waste and GHG emissions is to promote the use of products that are designed to last longer and have a lower carbon footprint during production. Manufacturers can achieve this by adopting practices such as reducing water usage in production, utilizing green energy sources such as solar or wind power, and incorporating recycled materials in their processes.

By working with the community to support education and outreach efforts, the Town plans to raise awareness of the benefits of choosing low embodied carbon products that will reduce the negative impact on climate change.

Promote a circular economy by supporting a system where resources are used for as long as possible, and waste is minimized through reuse and recycling

The goal of a circular economy is to create a closed-loop system in which resources are continually cycled back into the economy. This reduces waste and minimizes the need for new resources, ultimately reducing emissions.

To create a circular economy, it is important to utilize practices that prioritize reuse and recycling. This can be done at both an individual and an institutional level. Individuals can support a circular economy by choosing to buy products that are made from recycled materials or that have a longer lifespan. They can also participate in recycling programs and support businesses that prioritize environmental sustainability. Institutions, such as governments and corporations, can support a circular economy by implementing policies and practices, such as incorporating environmental considerations into procurement practices.

As waste management becomes more complex, the RDCK and the Town's capital and operating costs increase. The RDCK will continue to make capital investments in the Resource Recovery system to meet regulatory requirements and service expectations. It will take longer to fill the landfill if we continue to divert waste where we are able.

Recover energy from waste through processes that produce heat and other, harnessable by-products

Recovering energy from waste through processes that produce heat and other, harnessable by-products is becoming an increasingly popular method for reducing waste and generating electricity. This process involves using various technologies to convert waste into usable energy, which can then be used to power homes, businesses, and other facilities.

The Town utilizes a process called anaerobic digestion to capture methane from the organic matter in wastewater. The methane gas is then used to heat the boilers at the treatment plant, which is one way to recover energy from waste. Instead of allowing the methane to escape into the atmosphere, it can be captured and used as a fuel source. It is important to ensure that the anaerobic digestion process is carefully managed to minimize emissions of other harmful gases, such as hydrogen sulfide.

Recovering energy from waste through processes that produce heat and other by-products can reduce the amount of waste that goes to landfills while also generating renewable energy.

Actions

To ensure that the Town of Creston aligns with the West Coast 100% Renewable Energy Plan and meets municipal emissions targets, the following short-term, medium-term, and long-term waste mitigation actions have been established:

Current/Ongoing

- Continue the curbside collection program
- Collaborate with the RDCK to reduce contamination of organics so they don't end up in the landfill
- Educate on appropriate waste disposal practices
- Report annual statistics of the waste diversion program
- Work toward paperless practices; digitize Town practices
- Practice hot-in-place asphalt recycling
- Recycle winter aggregate collected during spring street sweeping
- Land apply de-watered Class B bio-solids through an approved engineered Land Application Plan from the Ministry of Environment and explore other alternatives for disposal of this waste
- Continue utilizing bio-gas from the bulk volume fermenter to power the Town boiler and explore additional options for biogas capture and use

Short-term (0-2 years)

- Consider environmentally sustainable alternatives to single-use items at staff and public events where possible
- Work with food businesses to explore food waste prevention strategies
- Encourage and explore incentives for the reuse of building supplies
- Investigate additional and alternative recycling options
- Investigate options for outdoor waste diversion bins in public spaces
- Explore pros and cons of waste-to-energy facilities for use or in collaboration with the Regional District

Medium-term (2-5 years)

- Explore ways to encourage waste diversion from commercial sectors, including regulatory options
- Support the Regional District in exploring opportunities for landfill gas capture

Long-term (5-15 years)

- Foster a culture of waste reduction, where waste is seen as a valuable resource and efforts are made to minimize waste generation, promote resource recovery, and support sustainable waste management practices
- Create and execute a "Deconstruction Strategy" in collaboration with regional partners that promotes the reuse and recycling of construction and demolition waste
- Explore waste heat utilization methods and technologies for integration into Town practices

Adaptation & Resilience

Resilience refers to the capacity to withstand or recover quickly from difficulties such as climate change impacts. This can include both natural and built systems, as well as social and economic systems. Resiliency efforts in terms of climate change focus on preparing for and responding to the impacts of climate change to minimize damage, save lives, and maintain the functioning of critical systems. Adaptation, on the other hand, refers to the process of adjusting to or becoming better suited to the environment.

The section provides a general idea of some measures that can be taken to build resilience to the impacts of climate change, but it is not intended to be a comprehensive guide. Resilience and adaptation are significant measures to be considered in the face of the potential impacts of climate change, which include extreme weather events such as droughts and flooding, rising temperatures, and changing ecosystems.

Current Situation

There is an abundance of examples that illustrate the necessity of incorporating resilience planning at the community level. Listed below are a few recent events of note:

- **Jasper Wildfire:** In July 2024, a wildfire developed in Jasper National Park, AB. Fires formed north and south of the resort town of Jasper and grew out of control, forcing a mass evacuation of 25,000 residents, workers, and visitors.
- **Atmospheric River BC:** In November 2021, an atmospheric river event brought two days of intense precipitation to southwestern BC. This event and associated antecedent conditions caused several landslides in the region, resulting in at least five fatalities, environmental damage, loss of property and livestock, and economic hardship.
- **Lytton Wildfire:** In June/July 2021, the Village of Lytton, BC, was engulfed by a wildfire that destroyed nearly the entire Village and claimed two lives following record-breaking temperatures and strong winds.

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- **Fort McMurray Wildfire:** In May 2016, a massive wildfire swept through Fort McMurray, Alberta, destroying more than 2,400 homes and buildings and forcing the evacuation of nearly 90,000 people. The wildfire was fueled by a combination of high temperatures, low humidity, and strong winds, all of which are expected to become more frequent and severe due to climate change.
- **Calgary Flood:** In June 2013, heavy rainfall caused severe flooding in Calgary, Alberta, damaging thousands of homes and businesses and causing billions of dollars in damage.
- **Toronto Ice Storm:** In December 2013, a severe ice storm hit Toronto, Ontario, causing widespread power outages and damage to trees and infrastructure.
- **Coastal Erosion Tuktoyaktuk:** Coastal erosion is an ongoing issue in Tuktoyaktuk, a community in the Northwest Territories that is facing the impacts of climate change, including sea level rise and melting permafrost. The community has been working to build resilient infrastructure, such as shoreline protection systems, and to adapt to the changing environment to protect their homes and way of life.
- **Montreal Heat Wave:** In July 2010, a heat wave hit Montreal, Quebec, causing dozens of deaths and overwhelming emergency services.
- **Drought in Saskatchewan:** Drought has become an ongoing issue in Saskatchewan, where farmers and communities are facing the impacts of changing precipitation patterns and increasingly arid conditions.

The devastating impacts of natural disasters, such as wildfires, floods, and heat waves, are felt by communities across Canada. The best path forward to help deal with the impacts of climate change and natural disasters is collaboration with organizations and individuals to leverage resources, expertise, and ideas.

Adaptation & Resilience Objectives

1. **Develop and implement adaptation and resilience plans to withstand the impacts of climate change**

Getting There

Develop and implement adaptation and resilience plans to withstand the impacts of climate change

Adaptation and resilience strategies involve proactive measures that communities can take to prepare for and adjust to climate change hazards. These measures include redesigning infrastructure, altering land use planning, and enhancing emergency management. For instance, the Town of Creston may need to redesign buildings and infrastructure to cope with the already occurring extreme weather events or invest in more robust stormwater infrastructure to withstand the increased risk of flooding from extreme weather events.

The Town of Creston is surrounded by abundant water sources. A changing climate makes this finite resource far less predictable. During the summer months, water consumption increases by up to 50%, and during arid times, water can be used faster than the Arrow Creek system can refill it. The Town of Creston, the Regional District of the Central Kootenay, and the Columbia Basin Trust established a water conservation strategy. This program aims to reduce basin-wide water consumption by 20% based on 2009 water consumption. The Town of Creston was able to not only reach this target by 2018, but to exceed it by decreasing water consumption by 23% in 2018 and has been consistently exceeding the 20% target since. In 2022, water consumption was 27% less than the 2009 baseline. This is a tremendous success achieved by the Town of Creston and its residents. In addition to reduction, the Town has ensured there is backup groundwater pumping capacity to replace the gravity system if Arrow Creek were ever unable to keep up with demand.

By reducing water consumption, the Town delayed the need for costly infrastructure upgrades, minimized the impact on energy bills, and continues to ensure the sustainable use of this finite resource. The water conservation strategy was a crucial step towards building resilience, but more actions need to be taken to withstand climate change hazards.

Actions

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To ensure that the Town of Creston aligns with the West Coast 100% Renewable Energy Plan and meets municipal emissions targets, the following short-term, medium-term, and long-term adaptation & resilience actions have been established:

Current/Ongoing

- Develop a stormwater plan to reduce flooding, minimize the negative impacts of stormwater runoff, and maximize benefits such as groundwater recharge, improved water quality, and maintaining streamflow
- Develop an Extreme Weather Response plan to be prepared in the event of extreme weather
- Conduct FireSmart Home Assessments and allocate provincial rebates to residents to conduct fire mitigation work on their personal properties
- Implementation of the Community Wildfire Resiliency Plan

Short-term (0-2 years)

- Explore ways to motivate organizations and individuals to participate in the development of resilient infrastructure
- Develop a flood management plan to reduce the potential for flooding and to minimize the negative impacts of floods on people, property, and the environment
- Develop a recovery plan to restore normal operations and recover from a disruptive event or crisis, such as a natural disaster caused by climate change
- Explore ways to promote water use reduction (e.g., rain barrel rebates)
- Conduct a local and/or collaborative regional assessment of wetland capacity
- Ensure that the most up-to-date risk, vulnerability, and emissions data are easily accessible to all employees for incorporation into organization-wide policies, plans, and bylaws.
- Develop or update drought, floodplain, erosion, and wildfire risk mapping, and update best practice procedures in the case of an emergency
- Develop a Critical Infrastructure Plan to ensure resilient processes, systems, facilities, technologies, networks, assets, and services.

Medium-term (2-5 years)

- Implement stormwater, flood management, extreme weather, critical infrastructure, and recovery plans.

Leadership & Education

In addition to reducing our footprint by increasing our energy efficiency in transportation, buildings, and waste, Creston can take other measures to reduce GHG emissions and support 100% renewable energy. These actions include integrated sustainable development, carbon sequestration, and water conservation. These organizational moves demonstrate leadership and set a precedent for future projects, community development, and place-based solutions.

Current Situation

The Town has taken a leading role with initiatives such as the Curbside Collection Program and Water Reduction Program, but there is still work to be done. To further advance climate action efforts, new strategies and partnerships to accelerate the transition to a low-emissions future will be explored. The Town is actively seeking funding opportunities to support innovative projects and initiatives that promote renewable energy and energy-efficiency. The Town is also working closely with neighbouring communities and the RDCK to develop regional solutions and strategies to reduce GHG emissions and promote energy-efficient and active transportation. Through collaborative efforts and a commitment to climate action, Creston is well-positioned to achieve its climate goals.

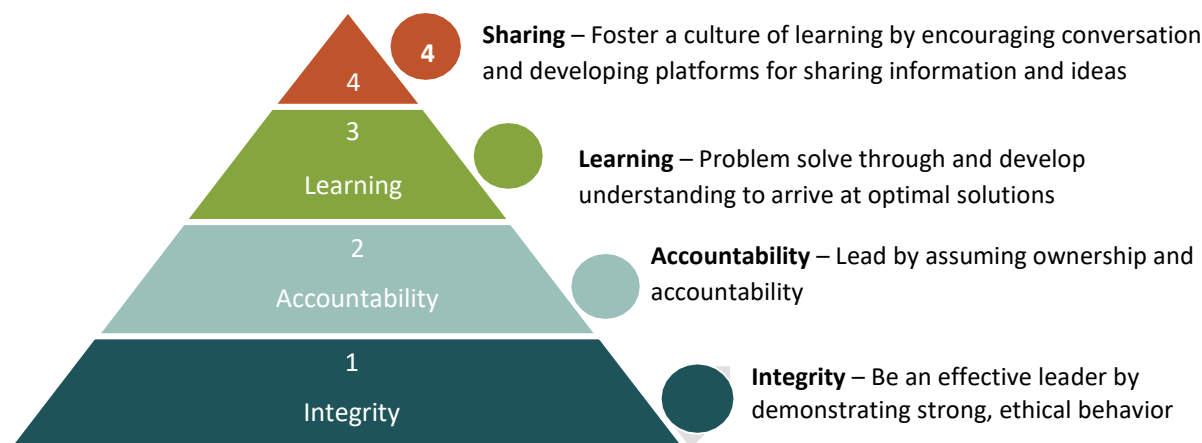
Leadership & Education Objectives

The following leadership & education objectives encompass integrity, accountability, learning, and sharing.

- 1. Foster collaborative efforts with strong ethical behaviour and a culture of learning**
- 2. Promote truthful and reliable information while working to increase awareness among diverse community groups**
- 3. Demonstrate accountability by monitoring and reporting climate action progress**

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Getting There

Foster collaborative efforts with strong ethical behaviour and a culture of learning

Now more than ever, the Town's collaboration with other levels of government, First Nations, community groups, and the public is necessary for addressing climate change. By working together, resources, expertise, and ideas can be pooled to develop more effective and comprehensive solutions. The effects of climate change, including trauma from natural disasters, have far-reaching implications on the economy, culture, health, and well-being. This is not just an immediate concern, but a concern far into the future if nothing is done.

Municipalities play a critical role in addressing climate change because they are responsible, in whole or in part, for managing many of the systems and services that contribute to GHG emissions, such as transportation, waste management, and energy production. However, municipalities often lack the resources and capacity to address these issues on their own. By collaborating with other organizations and individuals, the Town can leverage its strengths and expertise to develop more effective and innovative solutions. Collaboration can also help ensure that solutions are more equitable and inclusive, including marginalized communities that are disproportionately impacted by climate change.

Promote truthful and reliable information while working to increase awareness among diverse community groups

The Town of Creston aims to prioritize transparency by making sure that all information concerning the Creston Climate Action Plan (CCAP) is easily accessible to the public and is both accurate and reliable. Information will be made publicly available through various media such as the Town's website, social media, and public forums. The Town plans to collaborate with local community groups and organizations in the implementation of this Plan.

The Town will aim to share the CCAP in an inclusive and accessible way to a wide range of community members, including those who may have limited access to technology. This may include offering plain-language summaries of technical information and using diverse communication channels to reach different audiences.

To build trust with organizations and individuals, the Town is open to feedback during the ongoing implementation of this Plan. Participation is encouraged from diverse voices in the community to ensure that the CCAP reflects the needs and priorities of all residents. The Town has partnered with credible experts to validate the information and ensure that it is supported by scientific evidence.

Demonstrate accountability by monitoring and reporting climate action progress

To ensure accountability for actions taken, a clear framework has been established for monitoring and reporting progress towards the targets and goals outlined in the CCAP. This will include evaluating the effectiveness of individual actions and strategies.

To track progress towards climate goals and pinpoint areas for improvement, available existing data on GHG emissions can be utilized while also collecting new information. By examining both old and new data, the Town can identify emission patterns and assess the effectiveness of previous and future efforts towards mitigating climate change. This

analysis can be valuable for devising new strategies and measures aimed at achieving further reductions in emissions.

Actions

To achieve the West Coast 100% Renewable Energy Plan's targets, the following short-term, medium-term, and long-term leadership & education actions have been established:

Current/ Ongoing:

- Apply a climate lens to the Town's Strategic Priorities, which will subsequently inform the decisions made by Staff and Council
- Promote the use of renewable energy technologies

Short-term (0-2 years)

- Update applicable Official Community Plan policies to align with this plan
- Consider updating the procurement policy at the Town of Creston to consider a lifecycle cost lens when purchasing
- Display the CCAP on multiple platforms for accessibility
- Engage with youth in the community on environmental and climate initiatives
- Encourage community involvement in climate action through public forums and workshops
- Facilitate discussion with local environmental or climate action organizations
- Track progress of CCAP actions in the Town of Creston's Annual Report
- Partner with local organizations for joint education, outreach initiatives, and climate action
- Recognize and reward individuals and organizations who demonstrate leadership in climate action
- Examine the Town's current and future policies and procedures to determine if incorporating a climate perspective can enhance their effectiveness.
- Provide information on media platforms on climate change data, ways to be climate stewards, and energy rebates
- Provide an annual climate workshop for municipal staff
- Advocate to the Province of BC to negotiate lifecycle carbon costing into the New West Trade agreement
- Advocate for and educate the public on electric technology rebates and incentives
- Explore opportunities to divest municipal pension plans from fossil fuels

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- Investigate ways to promote healthy pollinator environments
- Promote local food security by supporting residents and businesses to connect with locally grown food
- Investigate ways to further define how the Town's Strategic Plan will consider climate action

Medium-term (2-5 years)

- Incorporate a Climate-guided Development Permit Area into the Official Community Plan

Long-term (5-15 years)

- Create a supportive environment for the growth of green jobs and the development of a green economy
- Renew the Creston Climate Action Plan

What's Next?

Climate action is a pressing matter that requires attention and action. The good news is, it's not only a responsibility, but also an opportunity to drive positive change and improve our community. From reducing energy consumption to adopting environmentally friendly practices, every small effort, when combined, can make a big impact.

There are already many existing works of innovation and collaboration, locally and globally, that can inspire us to move forward toward climate action. Some of these initiatives include:

- **The Kimberley Solar Farm:** A community-led project in Kimberley, BC that is helping to reduce GHGs. The solar farm was built through a partnership between the City of Kimberley, EcoSmart, and Teck Resources Ltd., and it generates enough clean energy to power approximately 250 homes.
- **The Ocean Cleanup:** A project that is developing advanced technologies to remove plastic pollution from the world's oceans. The project uses a passive drifting system that collects plastic debris using ocean currents. The Ocean Cleanup now has technologies to intercept plastic in rivers before it reaches the ocean, and technologies to remove the plastic that is already out there.
- **Vertical Farming:** Vertical farming is a method of growing crops in vertically stacked layers, using artificial lighting and climate control systems. This technology can significantly reduce land use and water consumption while increasing food production in urban areas.
- **Solar-Powered Desalination:** Solar-powered desalination is a technology that uses solar energy to power the desalination of seawater, providing a sustainable source of freshwater in regions with limited access to water.

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- **Carbon Farming:** Carbon farming involves using land management techniques to increase carbon sequestration in soils and vegetation. This can help to mitigate GHGs and improve soil health and productivity.
- **The Powerhouse Kjørbo:** The Powerhouse Kjørbo is a building in Norway that produces more energy than it consumes, using a combination of solar panels, geothermal energy, and energy-efficient design features.

It's important to acknowledge the flexibility of this Plan. New information and technologies will emerge, and circumstances may change, so this Plan will remain flexible and modify strategies as needed to meet climate goals. With the evolution of this plan may come new opportunities for growth and imagination.

Appendix A. Inventory and Modelling Methodology

Inventory

Creston's inventories were created using data for buildings, transportation, and waste obtained from the Province of BC. Full inventory years are: 2007, 2010, and 2012-2021. Emissions factors for inventory years are shown in the following table and are sourced from the Province of BC. Emissions factors represent the amount of emissions (tCO₂e) in each gigajoule (GJ) of energy. Even though many of the emissions factors have stayed relatively stable since 2007, Creston's annual emissions have changed due to fluctuating energy usage.

tCO ₂ e/GJ	2007	2010	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Gasoline	0.068	0.067	0.066	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065
Diesel	0.069	0.069	0.068	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067
Electricity	0.010	0.010	0.011	0.011	0.010	0.010	0.009	0.009	0.007	0.008	0.011	0.003
Natural gas	0.050	0.050	0.053	0.053	0.052	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Wood	0.024	0.024	0.024	0.024	0.025	0.027	0.026	0.025	0.024	0.024	0.024	0.024
Heating oil	0.068	0.068	0.076	0.074	0.072	0.068	0.068	0.068	0.068	0.068	0.068	0.068
Propane	0.061	0.061	0.068	0.066	0.065	0.061	0.061	0.061	0.061	0.061	0.061	0.061

As can be seen, some of the emission factors have changed over time. The emission factors for gasoline have decreased as a result of the Renewable and Low Carbon Fuel Requirements Regulation. The emissions factor for electricity has decreased as a result of ongoing efforts to decarbonize the electricity grid.

The Province of BC made assumptions, which are outlined on the Provincial Inventory webpage²⁶.

The following are not included in the inventory:

- Emissions from Agriculture, Forestry and Other Land Use (AFOLU)
- Emissions from large industry
- Consumptive emissions (e.g. food, services, consumer goods)

²⁶ <https://www2.gov.bc.ca/gov/content/environment/climate-change/data/provincial-inventory>

Modelling

The Climate Energy Association's (CEA) QuickStart model was used both to calculate the BAU trajectory and to estimate the potential GHG reductions that could be achieved. Developed in 2010 on behalf of BC Hydro and used by approximately 65 communities to date, the model builds on information including population and community energy and emissions inventory data.

The model uses formulas both to calculate the BAU trajectory and to estimate the impacts of implementing actions.

The BAU trajectory was calculated by using available inventory data and then projecting forward using a population forecast provided based on census data. There are inventory years that describe the community's emissions profile from 2007-2021. From 2022 onwards, all the data is an estimate as a BAU projection.

For the BAU projection modelling, the assumption is that energy consumption and emissions will increase proportionally with population increases, although the impact of policies from higher levels of government is also incorporated with other assumptions. Only policies that have already been adopted and that will have quantifiable impacts are incorporated. Assumptions are:

- The Province's incremental steps to net zero energy ready buildings by 2032.
- Tailpipe emissions standards.
- Renewable & low carbon transportation fuel standards.
- BC Zero-Emissions Vehicle Act and Federal mandate, requiring every new LDV sold in B.C. to be a zero-emission vehicle by 2035 (with a ramp up in advance of that date).
- An annual decrease in natural gas consumption per residential connection is included, as per Fortis BC 2017 [Long Term Gas Resource Plan](#).
- How the impacts of a changing climate will affect building energy consumption, as outlined below.

The final assumption had the following methodology:

- Climate change data for the region obtained from ClimateData.ca.
- Projected global emissions to 2030 currently places the world in the range for the IPCC's Fifth Assessment Report's Representative Concentration Pathway (RCP) 6.0 scenario.
- RCP 6.0 scenario is not available on ClimateData.ca, therefore, RCP 4.5 (median impact scenario) is used as a (conservative) proxy.
- Decreases in residential heating oil and propane consumption are assumed to be proportional to projected decreases in Heating Degree Days (HDDs).
- Decreases in residential and commercial natural gas consumption are assumed to be proportional to decreases in HDDs and the proportions of natural gas consumed for space heating for each sector, and that proportion is obtained from the Navigant 2017 Conservation Potential Review for FortisBC Gas.
- Decreases in residential and commercial electricity consumption are assumed to be proportional to decreases in HDDs and the proportions of electricity consumed for space heating for each sector. However, proportions of electricity consumed for space cooling for each sector and how this will increase proportionally to projected increases in Cooling Degree Days (CDDs) are also included. These proportions were obtained from the Navigant 2016 Conservation Potential Review for FortisBC Electric.

Although CEA's model assumes that projections will be linear, there will be annual variability due to factors such as economic conditions (on mobility fuels and building energy consumption) and climatic variations (particularly on building energy consumption). These variations mean that it may often be necessary to collect several years of data before one can see the success or lack of it in the implementation of an action, in the primary indicators.

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Appendix B. Key Performance Indicators

Two types of indicators will be used to track progress. Primary indicators measure community energy consumption and GHG emissions, while secondary indicators can quantify the indirect success of various actions. The following table describes these indicators, the measures of success, and data sources for each indicator.

	Indicators	Measures of Success	Data Sources
Overall	1. Community GHG emissions	Compared to 2007 levels: 40% reduction by 2030 60% reduction by 2040 80% reduction by 2050	Community Energy and Emissions Inventory produced by the province ²⁷
Overall	2. Per capita energy usage	Average household and commercial energy use declines over time to 2050	Community Energy and Emissions Inventory produced by the province
Overall	3. Corporate GHG emissions and energy consumption	Reducing Corporate GHG emissions at least as much as community targets	Billing data collected from Finance Dept, converted to emissions using Province of BC methodology
Overall	4. Integration with other plans, policies, bylaws	No. of plans/policies/bylaws with climate action embedded	Municipal staff
Overall	5. Outside grants, funding, and support received for climate action	Dollar contribution received, or in-kind	Municipal staff

²⁷<https://www2.gov.bc.ca/gov/content/environment/climate-change/data/ceei?keyword=community-energy-emissions-inventory>

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	Indicators	Measures of Success	Data Sources
Transportation	6. Infrastructure to promote active transportation	Progress towards outcomes of the Multi-Modal Transportation Plan and the Trails Master Plan	Municipal staff
	7. VKT replacement with transit, active transportation, and e-mobility	Increase in the number of trips completed and/or vehicle trips replaced with e-scooters/e-bikes through the micro e-mobility sharing program, transit, and active transportation.	Municipal staff Municipal staff can request ride data from micro e-mobility sharing program (e.g. Lime, Bird, Roll, etc.) BC Transit ridership data and Census data Go By Bike BC logged rides
	8. New homes constructed to be EV-ready	Increase in # of homes constructed to be EV-ready	Permit applications
	9. Corporate fleet	Increase in #/% of EVs in the corporate fleet and measure of tCO ₂ e avoided	Municipal staff
Existing buildings	10. # of energy-efficiency incentives distributed for building efficiency upgrades	Average increase in incentive use	Summary data from FortisBC and other entities as applicable (e.g. Province)
New buildings	11. # of buildings at each level of the BC Energy Step Code	Increase in number or percentage of new buildings constructed to various levels of the Step Code	Permit applications

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	Indicators	Measures of Success	Data Sources
Renewable Energy	12. # of renewable energy building installations	Increase in percentage of buildings adding solar and other renewable energy sources	Distributed Generation Program applications <i>(Note: this only covers renewable energy systems that generate electricity. Others will not be possible to track.)</i>
Waste	13. Amount of organics diverted from landfill	Increase in organics at composting facility	Town of Creston or Regional District of Central Kootenay
	14. Recycling rates	Increase in recycling rates	Town of Creston or Regional District of Central Kootenay
	15. Tonnes of waste per capita to landfill	Decrease in waste per capita sent to landfill	Regional District of Central Kootenay
Other	16. Urban tree canopy cover	Increase in canopy	Development applications; Public Works tree planting data
	17. Pipe reparations to reduce leakage	Decline in water loss	Reservoir drawdown measurement
	18. # of participants at building community & citizen educational events/workshops	High participation levels at events	Registration/Attendee lists for events