

31 mai 2021

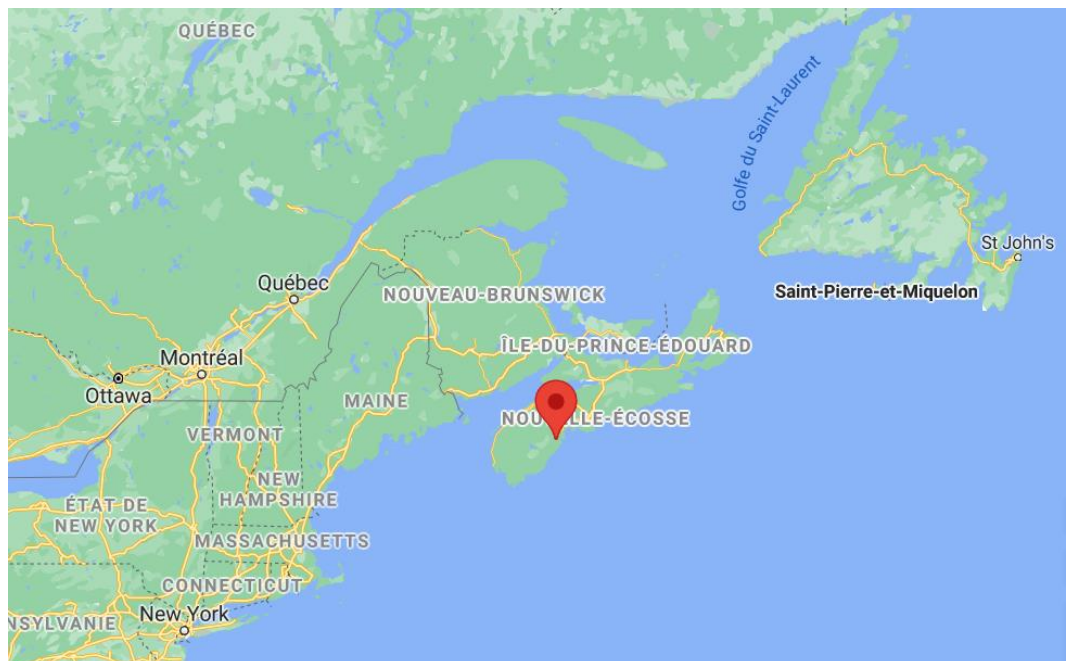
The City of Bridgewater

First information

Bridgewater is a Canadian town located in Lunenburg County, Nova Scotia, Canada. Bridgewater is the largest city on the south shore of Nova Scotia. As of the 2011 census, it had a population of 8241 .

It is located at the navigable boundary of the LaHave River. Bridgewater is one of three communities in Nova Scotia that has experienced steady population growth since the 2001 census.

This very active city, despite its average size, has the reputation of being very committed to sustainable development and is multiplying its action plans in terms of environmentally friendly municipal practices. Specialized in the energy field, many of its facilities are actively reducing their energy consumption. As a very green and community-oriented city, it was named the best community for young families in Atlantic Canada in 2014.



The circular economy in Bridgewater



LaHave river in Bridgewater

How is the municipality planning its changes to address climate change?

In 2005, the City of Bridgewater signed the Federal Gas Tax Transfer Municipal Funding Agreement with the Province of Nova Scotia. This allowed Bridgewater to receive its share of \$145.2 million in federal funds to invest in eligible municipal infrastructure projects from 2005 to 2010.

In March 2010, Bridgewater City Council approved the Integrated Community Sustainability Plan (ICSP). The ICSP defined Bridgewater's goals for becoming a more sustainable community and provided ongoing direction for the City's spending of gas tax funds.

The completion of the ICSP allowed the city to continue to receive gas tax funding from 2010 to 2014, which increased to a total value of \$223 million over 4 years for Canadian municipalities.

In order to continue to participate in the Municipal Funding Agreement for 2014 and beyond, all municipalities in Nova Scotia are required to join the ICSP.

As of 2014, all municipalities in Nova Scotia are required to prepare and submit to Service Nova Scotia and Municipal Relations (SNSMR) a Municipal Climate Change Action Plan (MCCAP) report by December 31 of each year.

As stated in the Municipal Climate Change Action Plan Guidebook (Fisher, 2011), a document published by the province that sets out the ground rules for preparing a climate change action plan. This document is published by the province that sets out the mandatory requirements for the municipal climate change action plan. The municipal action plan focuses on climate change adaptation and mitigation.

Sector 1

Social

Health impacts & social vulnerability

Sector 2

Economic

Economic sector impacts

Sector 3

Environmental

Natural environmental impacts

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Their main work : Energy

How to reduce the city's involvement in global warming ?

The MCCAP seeks to answer the following question, "How might Bridgewater be affected by a changing climate and how might the community respond?" The mandatory requirements of the MCCAP state that this document must take a risk management approach.

We can't stop everything, but we can change production and consumption patterns in a much more responsible and sustainable way. Today's investments will be beneficial for decades to come because they are reusable, recyclable, and adaptable.

As the mayor Caroll Publicover said last year “*We are the first generation to be able to end poverty, and the last generation that can take steps to avoid the worst impacts of climate change. Future generations will judge us harshly if we fail to uphold our moral and historical responsibilities.*”

Bridgewater : the smart city challenge.

Reporting to the Energize Bridgewater Project Manager, the Energize Bridgewater Project Coordinator will be the program’s subject matter expert in project performance reporting, task tracking and document organization. The Energize Bridgewater Program is comprised of several integrated initiatives (projects) which will deliver solutions to reduce energy poverty in the municipality.

This role ensures that project deadlines are met on time, assists the project manager by suggesting solutions consistent with the updated status action plan, monitors resource allocations,

reviews and tracks expenditures, arranges meetings with stakeholders and monitors results.

The Project Coordinator is responsible for ensuring effective procurement of the project, including being the main point of contact for the project with the City's procurement function.



Energize program in Bridgewater - Started in 2016



Explanations of solutions in Bridgewater (with a circular economy)

Canada is one of the countries with the greatest progress in the circular economy.

There are many benefits to Bridgewater in undertaking planning processes. Most importantly, many of the impacts and hazards associated with climate change translate into local issues that directly affect the community, residents and businesses of Bridgewater.

Climate change adaptation strategies also allow for the protection of municipal investments (such as municipally owned and operated infrastructure and facilities) because climate change can seriously damage expensive infrastructure and affect the delivery of municipal services.

However, successful adaptation does not mean that negative impacts will not occur, only that they will be less severe than if they had not occurred.

Adaptation strategies are being planned by all municipalities in Nova Scotia and many municipalities in Canada, demonstrating the value of this work to local and regional communities. With funding from these communities, municipalities can make a commitment to sustainability.

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Opportunity analysis Sector 1 – Social

We will now look at how Bridgewater operates on a circular economy model from the 3 axes of study (social, economic and environmental).

The social and solidarity economy can be included in a circular economy process. It refers to a set of enterprises organised in the form of cooperatives, associations or foundations, whose internal functioning and activities are based on a principle of solidarity and social utility.

These enterprises adopt democratic and participatory management methods. They strictly control the use of the profits they make: individual profit is prohibited and the results are reinvested. Their financial resources are generally partly public.

This is totally the case for the town of Bridgewater. For example there are 2 community gardens :

The Hodge Podge Garden is Bridgewater's first community garden. It was built in 2010 through a collaboration between the City of Bridgewater and volunteers, and donations from many businesses companies.

- There are 20 raised beds that are rented for each growing season by individuals, families, associations or individuals. Anyone can join the garden, and grow what they want for one season. It works on a first come, first served basis.

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Otherwise there are public beds that are not rentable and can be used by anyone. If visitors take care of them then they can enjoy the vegetables/fruits/flowers and herbs that grow there.

The second one, **The Bee Needs Garden**, is Bridgewater Community Gardens' first pollinator garden. It was established in 2014 and has grown with the support of community volunteers. The garden is designed to maintain an entire ecosystem. Work parties are held there four times a year.

In summary, the **Foodscapes project** is located 62 in the parks of the city of Bridgewater. It aims to showcase the range of perennial crops that can be grown in our climate.

The goal of its community gardens is to educate the public about the benefits and beauty of edible landscaping, and to provide healthy crops of fruits, berries and nuts without chemical fertilizers. Schools come to work in its spaces, as do the elderly. Parties, meals and meetings are held there. It is a real space of exchange possible thanks to the investment of everyone.



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Opportunity analyses

Sector 2 – Economic

Economically, the municipality has been investing money in minimising the energy costs of the city and its infrastructure over the last decade. As a result, it produced impressive results with a valuable return on investment.




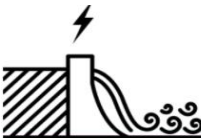
Indeed, no buildings have been destroyed, but 11 facilities have benefited from insulation work. A reduction in electricity as well as a reduction of approximately \$50,000 per year in fuel oil has been saved.

A project was launched in 2016 called "retrofit existing building". Its promise is that by 2015, the efficiency of the envelope of all housing and commercial businesses is reduced by 50% and industrial businesses operate 50% more efficiently. A measure of Total cost and return from 2017 to 2050 was calculatted : 84 million to 382 million (353% return).

Michelin since its installation in 1970 has largely outgrown the lumber and sawmill industry that supported Bridgewater. It invests in employment, local business development, safety, mobility and education.

Bridgewater has invested in a community bus system that travels from the outlying areas to the city centre every hour.

To stimulate innovation and for its commitment to the circular economy, the town of Bridgewater has been awarded \$5 million Canadian to reduce energy poverty as part of the Sustainable Cities Challenge.

				
Type	Wind	Solar	Bio-energy	Hydro
How it works	Turbines are powered by wind to make electricity	Panels harness sunlight to make electricity	Combusts plant matter or animal waste to make electricity	Water flows through a dam to make electricity
Why choose it	<ul style="list-style-type: none">• Fastest growing source of electricity in Nova Scotia• Low cost to build and moderate cost to maintain	<ul style="list-style-type: none">• Generates no noise, appropriate for urban areas• Many local suppliers• Fairly low cost to build and maintain	<ul style="list-style-type: none">• Accounts for 1.8% of electricity generation in Canada• Considered CO₂ neutral when harvested from sustainable sources	<ul style="list-style-type: none">• Accounts for 60% of electricity generation in Canada• One of the oldest and most well-known renewable energy generation methods in Canada
Potential for Bridgewater	For a 2 MW system: <ul style="list-style-type: none">• produces 5.8 million kWh/year• 475 homes powered every year• 21 jobs created (1 long-term)• Same as taking 1,200 cars off the road each year	For a 2 MW system: <ul style="list-style-type: none">• produces 2.5 million kWh/year• 325 homes powered every year• 58 jobs created (1 long-term)• Same as taking 500 cars off the road each year	For a 2MW system: <ul style="list-style-type: none">• produces 8.7 million kWh/year• 725 homes powered every year• 66 jobs created (7 long-term)• Same as taking 1,800 cars off the road each year	For a 1.85 MW system: <ul style="list-style-type: none">• produces 9.2 million kWh/year• 750 homes powered every year• 35 jobs created (1 long-term)• Same as taking 1,900 cars off the road each year

Opportunity analyses

Sector 3 – Environnemental

This environment section will outline the results that energy improvements have achieved but also the available renewable energy fields to build on (see summary table).

Impressive results have already been achieved: in the space of 7 years the buildings have become very energy efficient (-270%). The new community-wide energy systems reduce overall consumption by -113%. A clean and active transport system (electric bus) resulted in a consumption of -218%.

3 investment options have been put in place (by 2050):

- Solar panels/hot water: 80% of buildings will have solar panels and 50% of buildings will have hot water heated by solar panels.
- Net zero and pass rehouse performance standards: all buildings will have the best possible energy performance.
- Heat pump: finally 60% of all residential buildings and 85% of commercial buildings will be equipped with heat pumps.

As we have seen before, this city is sustainable and green. Energy transition is one of their main policies. Everything is done to optimise the city's energy performance.

According to the testimonies of this city, a lot of people ride bicycles, the implementation of gardens has allowed an even greener city.

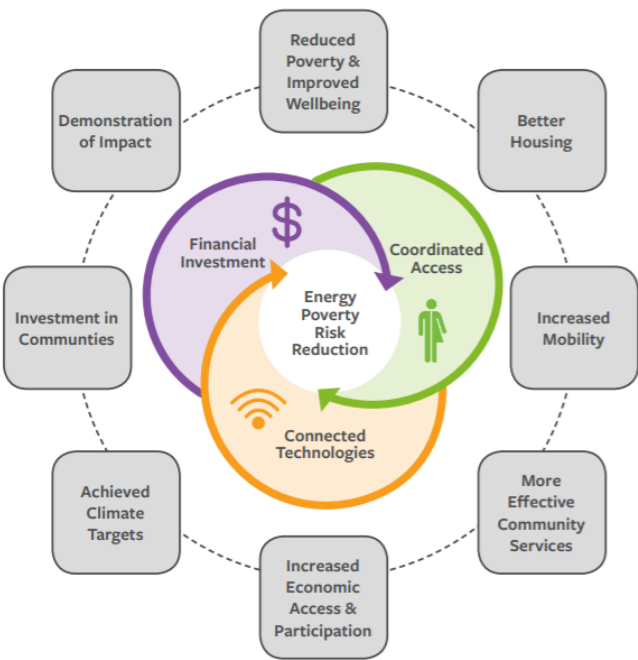
As can be seen in the Bridgewater table, priority could be given to exploiting hydropower. It would provide better returns.

After presenting these solutions for a sustainable city in a circular economy, it seemed important to recall why all these energy improvements had been put in place. Indeed, inspired by the work of the British over the last 20 years, a new form of poverty has emerged: energy poverty. This is the difficulty or even the inability to heat one's home properly and at an acceptable cost.

In the case of Bridgewater a fuel poverty reduction programme using data and connected technologies has been put in place to gather and stimulate possible energy savings to benefit households rather than property owners.

This provides access to community support for these struggling households. Finally, banks will be lenient when it comes to major investments in energy efficiency solutions. Unfortunately, 38% of households are still in energy poverty. The Energy Poverty Reduction Program is part of the Smart Cities Program, supported by the City of Bridgewater and the Energize Bridgewater Program.

The city is very aware of the problems of energy accessibility and rising energy prices and is very keen to improve energy systems for these households. It can ensure that those who benefit from the best schemes become the primary beneficiaries of this energy transition. An energy poverty rate of 20% is expected in 2025.



SWOT ANALYSES

<p>Strengths: The real strength of Bridgewater is its municipality. It is very innovative and does not hesitate to engage in all aspects of a sustainable city based on a circular economy system. In addition, it operates on a very strong and powerful community scheme. The many sustainable initiatives (solidarity/community gardens) are run with the help of volunteers who carry the project to the maximum. The phrase "together we are stronger" is really the spirit to keep in this community city.</p>	<p>Weaknesses: When we talk about Canada, the weaknesses that Canada might face are moderate. Temperatures are often cold in the winter (-15°C) and this may be a disaster for households experiencing energy poverty as seen above. On the other hand, the town of Bridgewater also remains limited by its small (only 8200 people). Public authorities are not unlimited. For example, there is no secondary education in this city; you can only study there until the age of 18.</p>
<p>Opportunities: In terms of opportunities, the city benefits from its geolocation. At the gateway to the Atlantic Ocean along a river it benefits from both industry and the port sector. In addition, 90% of its production is imported into the United States and is low cost. Finally, its ecological transition did not start yesterday, so this city is already reaping the benefits of its past efforts (considerable reduction in energy consumption in public infrastructures).</p>	<p>Threats: This town has no particular threat. If it continues to function on this community system, it is only right that households should always have the same desire to invest in the sustainable development of their city. In this case of circular economy, it remains very dependent on the actors who will benefit from it, if we have to worry about something it would be the human factor. If the human behaves in a selfish and amorphous manner, then the city may suffer from this situation.</p>



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Webography

- Website of the city : bridgewater.ca/our-town
- EnergizeBridgewater.ca
- Municipal climate change (2013) - Town of Bridgewater
- Energy poverty reduction program - Smart city challenge & al.

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