2020 | CASE STUDY
ECONOMIC IMPACT OF COMMUNITY ENERGY PLANS
SUSSEX, NB

INTRODUCTION

The project ran from June 2019 to March 2020.

The goals were to:

- Create a compendium of research
- Apply economic development impact analysis to three New Brunswick municipalities
- Develop a model for other New Brunswick municipalities to determine the local economic impact of their Community Energy Plans

Sussex was one of several municipalities identified to work with QUEST to align the initial project research with Sussex's Community Energy Plan and related local economic development objectives.

THE SITUATION

ABOUT SUSSEX

Sussex is a town in Kings County with a population of 4,282 (2016). Sussex is located in south-central New Brunswick, between the province's three largest cities, Saint John, Moncton, and Fredericton. As the heart of Kings County with its 16 covered bridges, Sussex is known as the Covered Bridge Capital of Atlantic Canada.

Today, Sussex is primarily a regional service centre for the surrounding agricultural communities of the upper Kennebecasis River valley. The town is a highway service centre on Route 1, the primary highway between Moncton and Saint John, as well as being the most heavily travelled route in the Maritimes to the United States.

Since 2003, natural gas has been available from the McCully field near Sussex. The potential local natural gas supply and the energy opportunities resulting from the recently closed Potash Company of Canada mine both support the goals of the town's Community Energy Plan and its economic development objectives.

COMMUNITY ENERGY PLANS

The Sussex Community Energy Plan, developed in July 2018, is formally called the Community GHG & Energy Action Plan. The plan has several high-level objectives that seek to reduce energy and GHG emissions, transition to low-carbon technologies and infrastructure and increase local renewable energy production.

Five Key Objectives of the GHG & Energy Action Plan

1. Reduce dependency on fossil energies.
2. Curb down energy use, expenses and reduce GHG emissions.
3. Foster a shift towards low carbon transportation solutions integrating EV infrastructure, and promoting alternative fuel vehicles.
4. Generate income with local renewable energy production.
5. Expand transportation alternatives by setting up a community van service.

The **Community GHG & Energy Action Plan** eight key goals that support the plan's vision of achieving a low carbon and smart energy community in an economically viable way.

Key goals of the GHG & Energy Action Plan

1. Foster a shift toward low carbon technologies.
2. Increase energy efficiency for new and existing buildings.
3. Foster a shift toward low carbon transportation that integrates EV infrastructure, promotes alternative fuel vehicles, low carbon fuel options, as well as public transit and active transportation as mechanisms to reduce the number of vehicles on the road.
4. Create or help adaptive, sustainable, affordable, and reliable local renewable and clean energy supply.
5. Design, build and revitalize neighbourhoods as complete communities that offer multi-modal transportation options.
6. Create new market opportunities for innovative energy solutions that are attractive for local and new businesses, and through high quality, affordable, clean energy services foster retention and growth of existing businesses and industries.
7. Build awareness about energy investment and create a culture of energy conversation amongst residents, businesses, institutions, and industries.
8. Build knowledge, skills, and technical capacity through partnerships that deliver innovative energy solutions at the local scale.

The goal #6 provides a strong link to pursue positive economic impact through the implementation of the **Community GHG & Energy Action Plan** and to be consistent with one of the key principles of the Plan which is to "*create a competitive and economic advantage for the Community*".

ECONOMIC DEVELOPMENT

In February 2017, The Greater Sussex -Hampton Region Economic Development Strategy was developed after considerable consultation with the community.

The Strategy is based on seven key priorities.

7 Priorities of the Hampton-Sussex Economic Development Strategy

- Priority 1: Tourism and Arts & Culture
- Priority 2: Geothermal Energy Development
- Priority 3: Food Production and Processing
- Priority 4: Low-Cost Energy (from existing natural gas sources)
- Priority 5: Warehousing/Distribution
- Priority 6: Targeted and Aligned Retail Development
- Priority 7: Targeted and Aligned Training/ Education

Most notably, priorities #2 and #4 have identified two major energy-related economic development opportunities:

- Using the flooded mines of the close potash plants to develop a geothermal-based heating and/or cooling systems for high-demand applications at a cost substantially below alternative sources.
- There is a natural gas well field that has operated in the Sussex area for over 20 years that had previously provided the potash mines with a reliable energy supply. The local ability to produce and transport natural gas may attract industries and businesses with high-energy requirements and may be a complementary/synergistic offering to the geothermal opportunity.

THE RESULTS: THREE POTENTIAL ECONOMIC IMPACTS

QUEST's research shows that economic impact, through the implementation of Community Energy Plans, is manifest in three key ways:

1. Keeping more energy dollars in the pockets of consumers as a result of significant energy efficiency and spending those dollars in other sectors of the local economy
2. Attracting investment and the resulting job creation from local energy infrastructure that

drives reduced energy use, such as solar system installers, combined heat and power designers and technicians, etc.

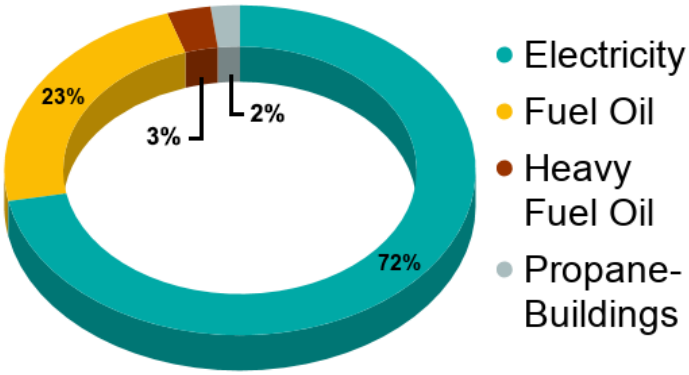
3. Attracting major corporate actors in the transitioning energy economy that are seeking to enter regional, national and North American markets

KEEP THE MONEY LOCALLY

To determine the impact resulting from items #1 and #2, QUEST provided a high-level analysis of potential job creation impact from a key recommendation of the **Community GHG & Energy Action Plan**:

"At least half of residential and commercial [buildings] *improve their energy efficiency"*

Residential and ICI Consumption Breakdown Energy Supply (%)



Based on unit fuel estimates prices generally available, it is estimated that total energy annual costs are approximately $9.1 million. If we assume that a 25% reduction in these costs can be achieved through the targets of the Community GHG & Energy Action Plan then we are able to determine that, at today's estimated energy prices, **approximately $2.3 million could remain annually in the community** as a result of energy conservation and the related costs.

CREATE JOBS

Jobs are created from this economic impact in three ways:

- **Direct Jobs** (Investment Phase) - These are jobs created directly as a result of the activities that drive energy cost reduction - for example, home insulation companies, residential solar installers, etc.
- **Indirect Jobs** (Savings Phase) - These are the jobs created in the supply chains that deliver goods and services to the direct job category.
- **Induced Jobs** (Savings Phase) - These are jobs that are created when the newly hired workers in the direct or indirect categories re-spend their new earnings on local goods and services.

Calculating job impacts is determined by using known typical multipliers[1] for job creation in the status-quo local economy. For example, in a typical multi-faceted local economy, 17 jobs are created per million of spending. Energy-related activity has a higher job-creation effect at an estimated 20 jobs per million of spending. In the saving phase, dollars that are no longer going to utilities (estimated nine jobs per million) are then being spent in the general economy at 17 jobs per million.

Phase	Investment Phase	Savings Phase
Pre-CEP Implementation Multiplier (Jobs/$M)	**17** (Average)	**9** (Utility)
Post Implementation Multiplier (Jobs/$M)	**20**	**17** (Average)
Net Job Creation Benefit (Jobs/$M)	**3**	**8**

To achieve the goal of a $2.3 million reduction in energy costs will drive an estimated investment of $18.6 million (based on an estimated 8-year simple payback).

Applying the estimated investments and the estimated energy cost reductions we have a local impact of 5**6 jobs during the investment phase and 19 person-years of employment for at least 20 years** during the savings phase.

[1] These multipliers are made available by the American Council for an Energy Efficient Economy: *Fact Sheet How Does Energy Efficiency Create Jobs?*. Specific sector-based multipliers for Sussex are not available. The figures shown are provided to illustrate order of magnitude and comparisons among economic sectors.

ATTRACT MAJOR CORPORATE ACTORS

Aligning energy, climate and economic development policy and strategy can have a very positive impact on attracting resources and investment to the community. This is strongly reflected in the alignment of the **Community GHG & Energy Action Plan** and the **The Greater Sussex -Hampton Region Economic Development Strategy**. Specifically, the recommended Economic Development priority of taking advantage of two local opportunities in the closed potash mines and the local natural gas fields.

The flooded mine shafts of the closed potash plant present a unique economic development opportunity. This infrastructure could be repurposed to provide geothermal-based heating and/or cooling for high-demand applications at a cost substantially below alternative sources. Geothermal opportunity at this scale could provide the basis for an economically viable district energy system that could service a number of new developments in the area such as large-scale greenhouses or any other application requiring a large source of heating/cooling.

This economic objective aligns extremely well with the specific recommendation of the **Community GHG & Energy Action** Plan which calls for "the generation of income from local renewable energy production - geothermal district energy".

The natural gas being produced in the Greater Sussex-Hampton area has the potential to ensure a cost-competitive supply to potential customers, and job creators, in the community and region. In addition, the availability of cost-competitive natural gas in the region can directly serve several goals of the **Community GHG & Energy Action Plan**, specifically:

1. Reducing the dependency on fossil fuels - at least 25% of residential heating oil
2. Promoting alternative fuel vehicles

CONCLUSION

Sussex has demonstrated significant policy and strategy alignment that recognizes the economic development potential of implementing Community Energy Plans through the community-involved development of both their **Community GHG & Energy Action Plan** and the **The Greater Sussex-Hampton Region Economic Development Strategy**.

As Sussex continues to pursue its energy, climate and economic development goals it would benefit further from developing energy efficiency strategies programs for their homes, businesses and institutions that keep energy dollars in the local economy.

Attracting investment into the community through strong policy and strategy alignment is a key signal to investors and product and service providers. This is very evident in the economic priorities related to the local natural gas fields and the closed potash mines.

Sussex has done an excellent job of understanding their local situation and turning them into very scalable opportunities that will economically benefit the citizens of Sussex.