



COMMUNITY ENERGY PLAN

March
2010

Town of Inuvik



Community Energy Plan

TOWN OF INUVIK



Prepared for:
The Town of Inuvik



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Stantec

March 2010



EXECUTIVE SUMMARY

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The Town of Inuvik has developed a Community Energy Plan (CEP) to reduce energy consumption and greenhouse gas (GHG) emissions throughout the community. The CEP defines the community's long term goals for energy use and GHG emissions, outlines strategies for meeting those goals and recommends actions to move the strategies forward. This plan completes the requirement to develop a Community Energy Plan, as part of the NWT ICSP process. By fulfilling the ICSP process requirements, the Town becomes eligible for infrastructure funding, as part of the federal New Deal for Cities and Communities.

Inuvik's CEP has four components:

1. **A Community Profile:** Key aspects of the community profile that influence the community's energy use,
2. **A Vision:** A description of the relationship between the community vision that was defined in the broader ICSP process and this CEP.
3. **Goals, Strategies and Suggested Actions:**
 - a. **Goals:** A series of goal areas and statements were developed to provide high level guidance for the strategies of the CEP. These goals were developed to describe what will be necessary to achieve to have the greatest impact on energy consumption and GHG emissions within the community. They are:
 - ❑ Land Use,
 - ❑ Buildings,
 - ❑ Transportation,
 - ❑ Alternative Energy Supply, and
 - ❑ Energy and Sustainability.
 - b. **Strategies:** A number of strategies were developed to help Inuvik get started on its path toward meeting the CEP goals. In total there are 14 strategies, which include a series of suggested actions for the Town to consider. Actions consider a range of levers – such as outreach and awareness; incentives and pricing, and; policy and regulation – in an effort to ensure broad participation from the

community and ultimately, real reductions in energy consumption and GHG emissions.

- 4. Next Steps:** Suggested actions outlined in the CEP will serve as a starting point for improving the community's energy efficiency. Actions will undoubtedly change over time to address community priorities and to seize opportunities as they arise. The next step is for the Town to identify the key actions that will be implemented and opportunities to secure financing and assistance.

Strategies Summary

LAND USE

- Strategy E-1: Encourage mixed use development
- Strategy E-2: Maintain a compact town centre

BUILDINGS

- Strategy E-3: Set energy efficiency standards for new buildings
- Strategy E-4: Encourage energy retrofits of existing buildings
- Strategy E-5: Increase local capacity around building energy efficiency

TRANSPORTATION

- Strategy E-6: Increase active transportation opportunities
- Strategy E-7: Encourage use of alternative fuel vehicles
- Strategy E-8: Promote idling reduction
- Strategy E-9: Encourage best practices for vehicle energy efficiency

ALTERNATIVE ENERGY SUPPLY

- Strategy E-10: Develop local energy supply
- Strategy E-11: Increase knowledge and awareness of alternative energy options

ENERGY AND SUSTAINABILITY

- Strategy E-12: Create a culture around energy conservation



INTRODUCTION

INTRODUCTION

What is a Community Energy Plan?

A Community Energy Plan (CEP) is a strategic document to assist a community in reducing its energy consumption and greenhouse gas (GHG) emission and in planning for energy resilience. The purpose of creating a plan for Inuvik is to provide guidance for future decision-making in the community. The CEP defines our community's long term goals for energy use and GHG emissions, outlines strategies for meeting those goals and recommends actions to move the strategies forward.

Why is it Important?

The earth's abundance of conventional energy resources continues to decline and the costs of fossil fuel (e.g., oil, coal and natural gas) keep rising. Even in Inuvik, where conventional energy reserves are found, residents continue to pay high costs for their energy. Reducing our dependence on these energy sources helps to decrease our vulnerability to fluctuating energy supply and pricing and is a key strategy for ensuring long-term sustainability.

In addition to uncertainty around energy supply and pricing, we must face the reality that our use of energy is resulting in drastic increases in atmospheric concentrations of GHGs, which is the most significant contributor to global climate change. In Canada, the impacts of global climate change are felt most acutely in the North. Inuit and First Nation cultures, with their close connection to the natural environment, have been first hand observers of these ecological impacts – including melting permafrost, thinning sea ice, receding glaciers, threatened and new animal species – and the associated socio-economic impacts on traditional cultures and livelihoods.

Similar observations have been made by the scientific community, leading to the following consensus of scientific opinion¹:

- ❑ Global GHG emissions due to human activities increased 70% between 1970 and 2004;
- ❑ Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level;

¹ Intergovernmental Panel on Climate Change (IPCC) 4th Assessment Report (2007). http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf

- Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in human-caused GHG concentrations.

To paraphrase, our impact on the climate system is real and we must go beyond what we are currently doing – both individually and collectively – if we are to avoid the significant and potentially dangerous consequences of global climate change.

How Does it Relate to the Integrated Community Sustainability Plan?

In November 2005, the New Deal for Cities and Communities (NDCC) between Canada and the Government of the Northwest Territories (GNWT) was signed to transfer federal gas tax funding to NWT community governments. Through this funding mechanism, local governments in the NWT have the opportunity to maintain or enhance economic, social and cultural opportunities, while protecting and improving the quality of the environment.

As part of this agreement, local governments are required to develop an Integrated Community Sustainability Plan (ICSP) by March 31, 2010. NWT local governments are required to develop and implement ICSPs that, at a minimum, include the following components in exchange for new multi-year funding allocations and new decision making abilities under the New Deal:

1. Community Strategic Plan: Planning for long term priorities of the community
2. Capital Investment Plan: Preparation of a multi-year capital investment plan
3. Community Energy Plan: Taking stock of existing energy consumption and developing a plan to reduce energy and improve efficiency
4. Human Resource Plan: Planning to make manage and promote human resources and build capacity.

This document completes the requirements for the development of a Community Energy Plan, as part of the ICSP process. This report is produced with the assistance of the ICSP Toolkit, developed by the Northwest Territories Association of Communities (NWTAC) and Municipal and Community Affairs (MACA), a department of the GNWT. It provides a plan of action to reduce energy consumption and greenhouse gas (GHG) emissions, that will contribute to a more sustainable and resilient future for Inuvik.

How was it developed?

The CEP was developed through a community-based process that included:

- Developing a community profile to establish the key factors that influence the community's energy use.
- Gathering input from the community. In November 2009, the Town organized a number of activities for Council, residents, Town staff and stakeholders to participate and provide input and feedback into CEP. The engagement for the plan included:
 - Community Energy Committee Workshop
 - Council Workshop
 - Public Open House
 - Community Survey
 - Interagency Committee Meeting
 - Gwich'in Tribal Council interview
 - Inuvialuit interview
 - High School Session with Northern Studies Class
 - Compiling the community input and developing key goals and strategies.

The **baseline research** was developed from previous Town documents, Statistics Canada, along with other documents related to energy planning in the North.

The **engagement** for this project has held as part of the engagement process for the Town's Integrated Community Sustainability Plan (ICSP). The main goals of the engagement sessions were to:

- educate and develop awareness around sustainability issues;
- collect people's ideas and insights for the plan, and
- empower the community, developing a sense of ownership over the plan.

The engagement included collecting data from surveys, interviews, focus groups, workshop sessions, and open houses. Stakeholders participating in the engagement sessions varied from Town Council, Town staff, the schools, Inter-agency committee, Recreation committee as well as Gwich'in and Inuvialuit people. Each session became a unique opportunity as participants committed to the process, got involved in the engagement and took ownership of the results. The first win of this ICSP process was the engagement as many participants committed to the process whole-heartedly.

The engagement results were compiled, grouped, and ranked based on repetitions. Responses were used to define the CEP goals and ideas were incorporated, where appropriate into the strategies.

This document includes brief descriptions of the **community profile, the vision, along with goals and strategies** that reflect the community's priorities.

Acknowledgement should be made of the hard work that was completed by the Energy Planning Committee in establishing the implementation of the recommended actions.



COMMUNITY PROFILE

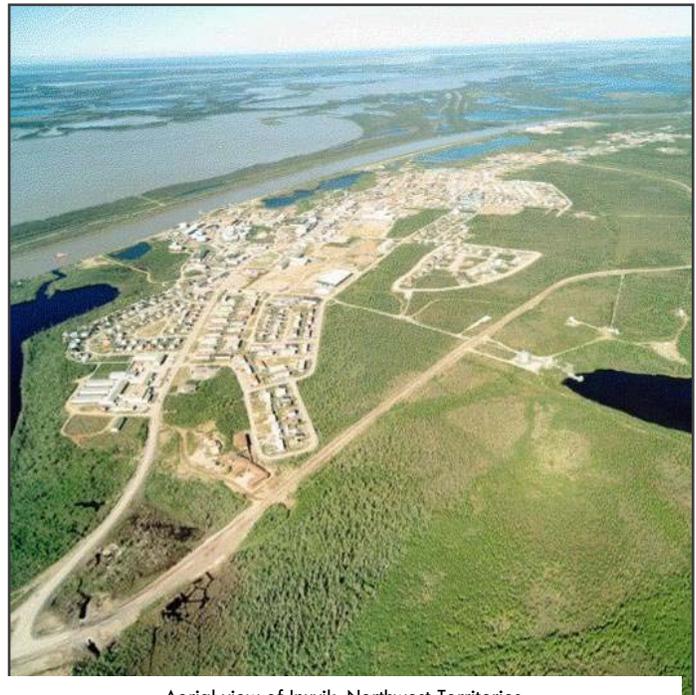
COMMUNITY PROFILE

Geography

Inuvik is located in the Northwest Territories, near the coast of the Beaufort Sea, approximately 1 100 kilometres northwest of Yellowknife on the East Channel of the Mackenzie River Delta.

The town was built by the federal government in 1958 to be the administration centre of the north. Since that time, it has become a major transportation and service centre of the Western Arctic. Prior to the 20th century, the region was primarily inhabited by the Inuit (Inuvialuit) and the Gwich'in, and Inuvik is designated as falling within both the Gwich'in and Inuvialuit Settlement Areas.

Due to its location in the Arctic tundra region, most of the land remains frozen year round. Only the top layer thaws during the short summer, which produces vegetation that is characterized by shallow-rooted plants, lichens and shrubs. It is also a stark and beautiful landscape that is rich with mountains, plains, rivers and a rugged coastline.



Aerial view of Inuvik, Northwest Territories
Source: MACA website

Climate

Due to its northerly latitude (approximately 200 kilometres north of the Arctic Circle), Inuvik experiences short daylight hours in the winter and long daylight hours in the summer. On average, there are 1600 mean annual total hours of sunshine², and 56 consecutive days of 24-hour daylight during the summer months³. Inuvik has an arctic climate, including frigid winters where temperatures regularly fall below minus 20 degrees Celsius, and mild summers with temperatures ranging from 10 – 20 degrees Celsius. As shown in Figure 1, Inuvik also experiences mild wind speeds, which are generally insufficient to support wind turbines.

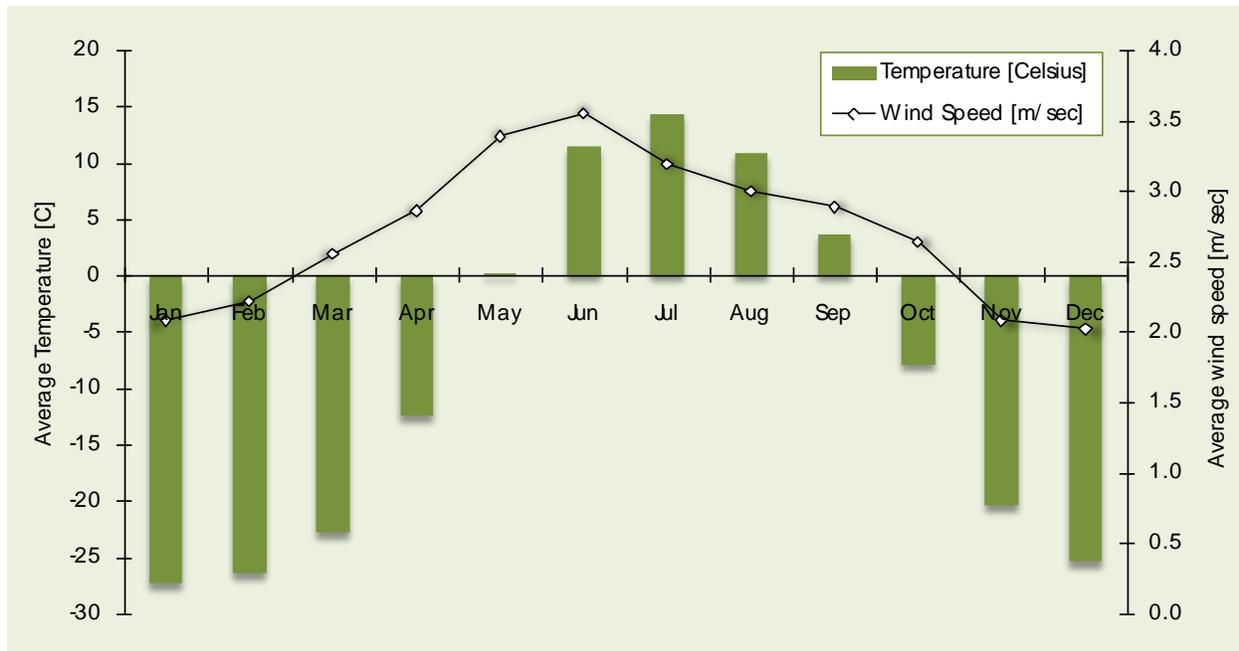


FIGURE 1: MONTHLY TEMPERATURE (DEGREES CELSIUS) AND AVERAGE WIND SPEED (METRES PER SECOND) FOR INUVIK

INUVIK EXPERIENCES 9,767 HEATING DEGREE DAYS⁴ AND 24 COOLING DEGREE DAYS (

TABLE 1), AND HAS A DESIGN TEMPERATURE OF -48C. EXTREME TEMPERATURES HAVE A SIGNIFICANT IMPACT ON BUILDING ENERGY USE, AND ALSO UNDERSCORE THE CRITICAL NEED FOR RELIABLE ENERGY SYSTEMS TO ENSURE THE SAFETY OF INUVIK RESIDENTS.

² Atlas of Canada <http://atlas.nrcan.gc.ca/site/english/maps/archives/3rdedition>

³ Town of Inuvik Tourism <http://www.inuvik.ca/tourism/faq.html>

⁴ A heating degree day is essentially the number of degrees of heating required over the course of 24 hours, and is compared to a reference temperature of 18°C. For example, if the average daily outside temperature is 10°C, then the number of heating degree days for that day is 18°C - 10°C = 8 HDD.

TABLE 1: HEATING AND COOLING DEGREE DAYS FOR INUVIK AND OTHER JURISDICTIONS⁵

Location	Heating Degree Days (Annual)	Cooling Degree Days (Annual)
Inuvik, NT	9,767	24
Yellowknife, NT	8,256	16
Vancouver, BC	2,926	44
Edmonton, AB	5,708	28
Toronto, ON	4,066	252

⁵ National Climate Data and Information Archive, Canadian Climate Normals and Averages, 1971 – 2000
http://climate.weatheroffice.gc.ca/climate_normals/index_e.html

Population and Dwellings

In 2006, Inuvik had a total population of 3,484⁶. Of that, the Aboriginal identity population was 2,170⁷.

THERE ARE CURRENTLY 1,245 DWELLINGS IN THE TOWN OF INUVIK, WITH 425 DWELLINGS OWNED AND 820 DWELLINGS RENTED, RESPECTIVELY. OF THE TOTAL NUMBER OF EXISTING DWELLING UNITS, 900 UNITS WERE BUILT BEFORE 1986 AND 345 WERE CONSTRUCTED BETWEEN 1986 AND 2006. ADDITIONALLY, 18% OF ALL DWELLING UNITS ARE IN NEED OF MAJOR REPAIR, COMPARED TO THE NATIONAL AVERAGE OF 7.5%. THE PERCENTAGE OF FIRST NATIONS THAT LIVE IN HOUSING REQUIRING MAJOR REPAIR TENDS TO BE MUCH HIGHER.⁸ 42% OF DWELLINGS IN INUVIK ARE SINGLE FAMILY HOMES, WHEREAS ROW HOMES COMPRISE 22% OF DWELLINGS AND LOW-RISE APARTMENTS COMPRISE 18% (

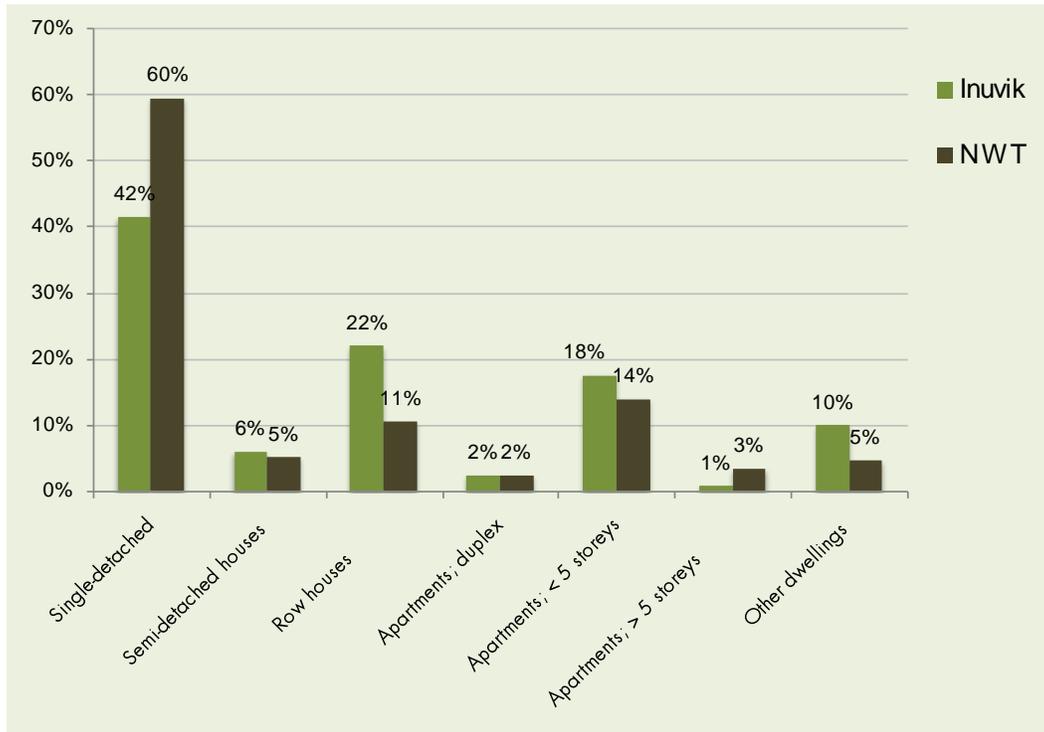
FIGURE 2). SINGLE FAMILY HOMES TEND TO BE LESS ENERGY EFFICIENT THAN OTHER TYPES OF HOUSING. FOR EXAMPLE, ROW HOMES CONSUME ABOUT 50% LESS ENERGY OF SINGLE FAMILY HOMES.

FIGURE 2: DWELLINGS BY STRUCTURAL TYPE IN INUVIK, 2006

⁶ Statistics Canada 2006 Census of Canada Community Profile

⁷ Statistics Canada 2006 Aboriginal Population Profile

⁸ *Sustainable Housing in the North*. Canada Housing and Mortgage Corporation (CMHC), 2006.



Industrial, Commercial and Institutional Buildings

Industrial, commercial and institutional (ICI) buildings are mostly located in the Town Centre (along Mackenzie Road) and along the Dempster Highway. Being the administrative centre for the territorial government in the Western Arctic, Inuvik has several institutional facilities. Institutional facilities are owned by the government or have their operating costs paid for by the government. As such, they may present the best opportunity for building energy improvements in the ICI sector.



Commercial buildings along Mackenzie Road, Inuvik

Source: A. Savelson



Transportation

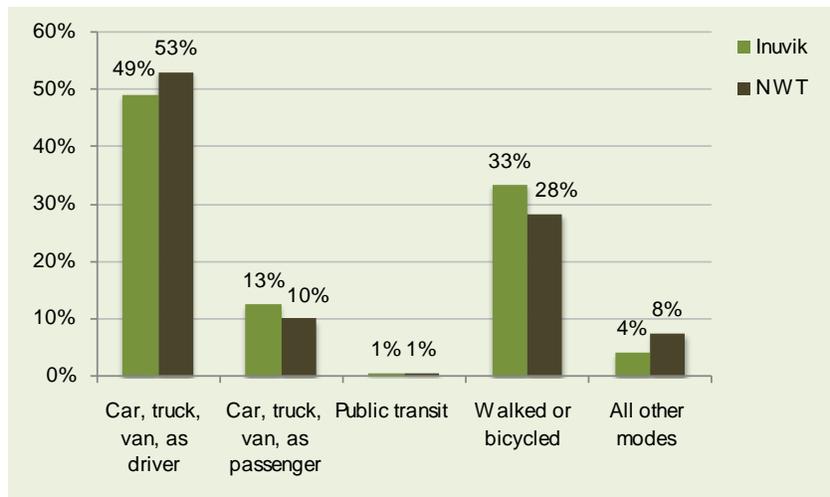
Inuvik is accessible by air and by road (the Dempster Highway from Dawson City) year round with the

exception of Spring Break-up and fall freeze-up. Ice roads also link the communities of Aklavik and Tuktoyaktuk to Inuvik in the winter months.

Transportation options within the Town include automobiles, cycling and walking. Despite the cold temperatures and snow, a large percentage of Inuvik residents walk or bike to work. The percentage of commuters that walk or bike to work is 5% higher than the territorial average and much higher than the Canadian average, which is only 8%. However, there are limited opportunities for walking and cycling in the winter season, due to snow and cold temperatures. As shown in Figure 3, single occupancy vehicles account for the largest percentage of commutes (49%) in Inuvik, but this is followed closely by walking/cycling at 33%.

Inuvik Ice Road Access

**FIGURE 3:
TRANSPORTATION MODE TO PLACE OF WORK FOR RESIDENTS OF INUVIK, 2006**



Source: Statistics Canada Community Profile for Inuvik, 2006

Local Economy

Inuvik is the regional government centre of the Western Arctic and government jobs account for about 12% of occupations in Inuvik’s employed labour force. In addition, oil and gas exploration features prominently in the local economy and a strong service community exists to support this industry. In particular, the Mackenzie Gas Pipeline project (a \$16.2-billion natural gas pipeline through the NWT) created a boom in Inuvik’s local economy. More recently, Inuvik became home to one of three regional campuses of Aurora College, which offers developmental studies as well as certificate, diploma and degree programs to mostly Aboriginal students from small, remote

communities in the North. It also hosts the Great Northern Arts Festival, a gathering of NWT artists, every summer.

Challenges and Opportunities for Energy and GHG Management

Challenges	Opportunities
Cold climate requires higher amounts of energy inputs for heating buildings, and the running of vehicles	Energy efficiencies for buildings and vehicles can provide significant savings to residents.
Climate limits the growth and production of goods, requiring many items to be transported long distances, which makes goods more expensive.	Outreach to increase awareness around energy and GHG reductions can be combined with other local outreach initiatives.
Almost half of the population travel in SOVs (single occupancy vehicles), as small and rural communities have limited ability to support public transit networks.	Opportunities to build on the already high percentage of people that walk as their main mode of transportation.
More than half of the population rents their place of residence, making it less of an incentive to implement energy efficient practices, as they don't realize the cost-saving benefits compared to home owners.	Single property owner (NWT Housing Corporation) can make changes in its entire portfolio, reducing transaction costs for materials.

Community Energy and Emissions baseline

Typically, when developing an energy plan, a community will first compile an inventory of the energy consumption and resulting GHG emissions in the community. An inventory assists a community in understanding where and how energy is being consumed and the quantity of GHGs being emitted as a result, which may serve to highlight opportunities for reduction. The inventory provides a baseline from which the community can develop informed strategies and actions to reduce energy consumption and GHG emissions.

That said, inventories can be challenging to compile. Consumption data is not always readily available or easily accessible. In the case of Inuvik, the Arctic Energy Alliance is in the process of compiling a baseline energy and emissions inventory and is experiencing challenges with respect to data availability. Once the inventory is compiled, the Town may wish to revisit the Community Energy Plan to identify additional strategies or prioritize existing strategies that might be

considered better opportunities or “low hanging fruit” with respect to reducing energy and emissions (e.g., retrofit of a community recreation complex).



VISION

VISION

Inuvik means Living Place in Inuvialuktun.

Inuvik, first and foremost, prides itself on its people: its family and friends. A deep cultural heritage and diversity has led to a unique community-orientated town that is to be celebrated into the future. The future of Inuvik will be guided by people of all backgrounds forming an inclusive and empowered populace that strive to meet the challenges ahead.

Inuvik developed the following long-term vision for the community. Many elements of this vision are relevant for the Community Energy Plan. That is, they speak to land use patterns, infrastructure, services, and activities that support energy efficiency and GHG emissions reduction. These elements are highlighted below.

Inuvik is a healthy, welcoming and culturally proud community that works, shares, and enjoys life: - caring for friends, families and visitors, while striving to live in harmony with nature.

As a barometer of climate change, Inuvik is a looking glass for the rest of the world and as such we will endeavor to be a leading example of sustainable innovation and an advocate of arctic energy technologies.



GOALS & STRATEGIES

GOALS AND STRATEGIES

A series of goal areas and goal statements were developed to provide high level guidance for the strategies in the plan. These goal areas represent sectors that have the greatest impacts on energy and GHG emissions in a community. For Inuvik these goal areas include:

Land Use: The patterns of growth and development in a community greatly impact the energy that will be consumed in a community. For example, residential areas that are geographically dispersed from commercial areas cause residents to have to drive to go about their daily business. Land use is one of the areas in which municipalities can exercise direct control, through formation of regulations, by-laws, etc.

Buildings: Buildings tend to account for a large percentage of energy and emissions in the community. Many factors influence how much energy a building consumes, including age, size, orientation, quality of construction, etc. Buildings include residential, institutional, commercial and industrial facilities.

Transportation: The modes of transportation (i.e. car, bike, bus, walk) that people use to get around a community greatly affect the energy consumed and GHGs emitted in that community. This can be a particular challenge in cold climates, where vehicles require a certain amount of idling to stay warm.

Alternative Energy Supply: The source(s) of energy that a community relies on for its heat and power needs will affect the GHG emissions in the community. The burning of fossil fuel (i.e. coal, oil, natural gas) to produce energy is the principal cause of global climate change. Energy supply is a particularly important issue in Inuvik, where an extremely cold climate requires a reliable energy supply in order to ensure the safety of residents.

Energy and Sustainability: This area recognizes the links between energy efficiency/conservation and sustainability. There are certain actions that people attribute to reducing emissions, despite the fact that the majority of their benefit may be more accurately attributed to broader environmental, social and economic sustainability (e.g., activities around waste management, food supply, water use efficiency, etc).

In the section that follows, each of these goal areas is presented with a goal statement, a series of high-level strategies, and recommended actions. It may be helpful to think of the strategies as the “what” (i.e. what will we do to address energy and emissions in this area), whereas the recommended actions are the “how” (i.e. how might this strategy play out?). Rather than being prescriptive the recommended actions are intended to provide guidance.



LAND USE

Land Use

Goal: Increase spatial efficiency of the community

Land use planning is an important tool available to local governments to reduce energy and GHG emissions in the community. The development of mixed use areas and preservation of natural areas are achieved through land use designations (e.g. zoning). Land use policies can influence the viability of local energy systems, impact the energy efficiency of the built environment (e.g., buildings and infrastructure), and affect the energy we use to get around our community (e.g. transportation).

Strategy 1: Encourage mixed use development

Mixed use development combines residential, commercial, institutional and sometimes light industrial in the same land use area, which can potentially reduce the trip length required to access daily goods and services, and lessen travel time to school and work.

Suggested Actions

- Explore the options of **increasing mixed use development** in Inuvik. Currently in the Town of Inuvik, there are several zones which could be more of a mixed use development area.
 - The C3 Neighborhood Commercial zone currently allows for the development of retail and service outlets to serve the needs of residents in the immediate area. Currently this zone allows for a single family dwelling unit to be adjacent to a commercial use. It doesn't make allowances for multi-family dwelling units. Exploring the possibility of amending this zoning designation to include multi-family would be a test case to see if it was a viable option.
 - Another zone that is high density is the R3 – Residential High Density zones that is intended for development of apartments.
 - Exploration of including some commercial uses and/or greenspace as part of the conditional uses would be an opportunity to see if this kind of development is desirable in certain areas of the town.

Action #: EP-1-1

Time Frame: 2- 3 years

Budget – Operating – Part of Next Zoning and General Plan Review

Budget – Capital N/A

Performance Measure: Review as Part of Next Zoning and General Plan Review

Target: Consideration given

Community Involvement: Public, IRC, GTC, GNWT

Links to Other Initiatives: EP-2

Initiative Leader: SAO / Development Officer /Municipal Engineer

Notes:

Strategy 2: Maintain a compact town centre

Reduces the amount of infrastructure required to service an area. Streets, wiring, pipes and road length can be reduced in more carefully planned, compact development, which in turn reduces costs to the community. Additionally, the amount of GHGs emitted in constructing these items is reduced, as well as the distances travelled to reach destinations within the community can be far less than what we would tend to think of as a 'sprawled' community. Compact communities also create more opportunities for non-motorized transportation alternatives as desired destinations tend to be much closer.

SUGGESTED ACTIONS

- ❑ Potential actions include exploring the feasibility of developing a **growth concentration area** which encourages development within a designated area. Over time, as development occurs, a growth concentration area will increase density; as development increases it will go upward as opposed to growing outward to surrounding areas. This in turn will preserve the surrounding area from low-density, sprawl-type development which requires a greater amount of infrastructure per dwelling, and will increase the amount of energy used to construct it and to travel within the area.

Action #: EP-2-2

Time Frame: On-Going

Budget – Operating Part of Next Zoning and General Plan Review

Budget – Capital N/A

Performance Measure: Review as Part of Next Zoning and General Plan Review

Target: Consideration given

Community Involvement: Public, IRC, GTC, GNWT

Links to Other Initiatives: EP-2

Initiative Leader: SAO/ Development Officer / Municipal Engineer

Notes: New ladder truck being delivered in 2010 will allow for higher buildings in Inuvik. Cost of Utilidor and Road Construction tends to encourage more compact forms of development in Inuvik.

- ❑ Another action is to research **cold climate design for communities** that plan developments that are designed in such a way as to limit blowing snow, and also have the ability to create snow drifts that serve as wind breaks. Buildings can be shaped and located to reduce accumulation of snow drifts and to create pedestrian corridors that are protected from wind and blowing snow. Examples of this kind of design can be found in the Winter City Design Guidelines developed for the City of Fort St. John.

Action #: EP-2-3

Time Frame: 1-2 years

Budget – Operating N/A

Budget – Capital \$ 5,000

Performance Measure: Review in Context of proposed future development area

Target: Review Completed

Community Involvement:

Links to Other Initiatives: SP-2

Initiative Leader: Municipal Engineer

Notes: Already required wind study for large buildings such as school



BUILDINGS

Buildings

Goals: Improve the health, safety, and energy efficiency of buildings

This goal area builds on Land Use Strategy 1 (*Build sustainable homes and neighbourhoods*) within the ICSP, and includes strategies and actions that apply to all types of buildings in the community – residential, institutional, commercial and industrial.

A recent study identified technical issues such as energy efficiency, moisture management and industry capacity as key challenges affecting the sustainability of housing in the north⁹. These older homes may have deterioration of air sealing, inefficient furnaces and water heating appliances, all of which contribute to increased energy consumption. Existing buildings represent a significant opportunity to improve energy efficiency and reduce GHG emissions in the community.



Rental Housing

Source: A. Savelson

New construction in Inuvik faces similar challenges in terms of energy efficiency. NWT has adopted the National Building Code which lacks provisions for energy efficiency, such as minimum requirements for thermal insulation for small buildings¹⁰. However, there may be opportunities – through outreach, incentives and regulation – to increase energy standards for new construction.

Opportunities for reducing energy used in institutional, commercial and industrial (ICI) buildings are generally the same as for residential homes (i.e. energy retrofits and higher energy performance standards). However, with institutional buildings and social housing being owned by the government (with operating costs paid for, or partially subsidized, by the government), there isn't a strong business case to minimize lifecycle costs through optimized design and operation.

Industry capacity is an important consideration with regards to improving building energy performance. Working in partnership with the territorial government, Aurora College, and local trades, the Town may be able to increase this capacity over time to ensure local trades persons are equipped to support more energy efficient development.

⁹ *Sustainable Housing in the North*. Canada Housing and Mortgage Corporation (CMHC), 2006.

¹⁰ Energy Efficiency in the Provincial Building Code, March 2009. Alberta Energy Efficiency Alliance.

Strategy 3: Set energy efficiency standards for new buildings

The Town will explore opportunities to encourage higher standards of energy efficiency in all new development through activities such as a building bylaw, sustainable development guidelines and a civic green building policy.

Best Practice Example**Fort St. John Winter City Design Guidelines**

Fort St. John has created guidelines to encourage development that is suitable to its cold climate (www.fortstjohn.ca). Similarly, the Good Building Practice for Northern Facilities Guidebook will be a valuable resource for Inuvik (<http://www.pws.gov.nt.ca/>).

Suggested Actions:

- ❑ Create sustainable development guidelines, attached to all applications for rezoning, development permits, building permits and subdivision applications, to articulate desired development standards and encourage builders to adopt these standards on a voluntary basis.

Action #: EP-3-4

Time Frame: 1 year

Budget – Operating With Current Resources

Budget – Capital N/A

Performance Measure:

Target: Sustainable Development Guidelines Implemented

Community Involvement: Arctic Energy Alliance, Home Owners, Contractors, Energy Planning Committee

Links to Other Initiatives: EP-3-5

Initiative Leader: Municipal Engineer

Notes: This is the potential first step to By-law

- ❑ Develop a building by-law to require minimum standards for energy efficiency in all new construction. For example, requiring EnerGuide 80 for detached residential buildings and ASHRAE 90.1-2007 or LEED (rating to be determined) for multi-family residential, and ICI buildings.

Action #: EP-3-5

Time Frame: 2-3 years

Budget – Operating \$ Operating with Current Resources / Recovered by fees

Budget – Capital N/A

Performance Measure:

Target: Development of Building By-Law and Implementation

Community Involvement: Arctic energy Alliance, Home Owners, Contractors, Energy Planning Committee

Links to Other Initiatives: EP-3-4

Initiative Leader: Municipal Engineer

Notes: Research completed re/ Yellowknife By-Law

- ❑ Adopt a civic green building policy to address building energy and emissions performance, as well as many other sustainability objectives in the construction or retrofit of all new civic facilities. Such a policy would demonstrate the Town's commitment to sustainability, and provide leadership and guidance to encourage the application of green building practices throughout the community.

Action #: EP-3-6

Time Frame: On-Going

Budget – Operating \$ Reduction

Budget – Capital \$ 1.5 million in 2009

Performance Measure: Continued Reduction of energy consumption

Target: 5-10% reduction per year

Community Involvement: Arctic Energy Alliance, MACA, INAC

Links to Other Initiatives:

Initiative Leader: Director of Public Services / Municipal Engineer

Notes: Town has completed numerous retrofit initiatives throughout its building to reduce energy use as well as implementing some mitigation measures as well. Audits have recently been completed on all facilities and opportunities for project funding will now be pursued. Develop papers on best management practices used.

Strategy 4: Encourage energy retrofits of existing buildings

The Town will consider ways to encourage residents to undertake energy audits and retrofits, and to adopt habits that promote energy conservation in order to improve the energy efficiency of existing buildings.

Suggested Actions:

- ❑ Promote opportunities to for rebates for energy audits and retrofits

Action #: EP-4-7

Time Frame: On-Going

Budget – Operating With current resources

Budget – Capital N/A

Performance Measure: Additional Promotion

Target: Package to go with building permits complete, links on website

Community Involvement: Energy Planning Committee, Arctic Energy Alliance

Links to Other Initiatives:

Initiative Leader: Arctic Energy Alliance

Notes: Materials to be included with Building Permits and links on website

- ❑ Conduct outreach on energy efficiency and conservation with residents in an effort to affect change in building occupant behaviors both at home, at work and at school. This could be done in partnership with the Arctic Energy Alliance and would include information around actions to reduce energy consumption, and programs and incentives to support this action (e.g., audits, retrofits incentives, etc)

Action #: EP-4-8

Time Frame: On-Going

Budget – Operating Within Current Budget

Budget – Capital N/A

Performance Measure:

Target: Presentation in both Schools and on-going tips in Town Hall Announcements

Community Involvement:

Links to Other Initiatives: Public, Schools, Arctic Energy Alliance

Initiative Leader: Arctic Energy Alliance / SAO

Notes: Building on the Biggest Loser, take advantage of Earth Day for Education in School and education in the home. Tips etc in the Town Hall Announcements

Strategy 5: Increase local capacity around building energy efficiency

Working with local partners, the Town will seek to increase capacity around energy efficiency and conservation in an effort to increase the energy performance of buildings.

Suggested Actions:

- ❑ Hold workshops with local builders and developers to discuss opportunities and challenges with respect to increasing energy efficiency standards. Establishing a dialogue with the development community would allow the Town to communicate its goals with respect to energy efficiency and may help to identify ways to overcome barriers to developing more energy efficient buildings.

Action #: EP-5-9

Time Frame: One Year

Budget – Operating \$ 3,000

Budget – Capital N/A

Performance Measure:

Target: Host initiation meeting / consultation and any required follow-up meetings

Community Involvement: Arctic Energy Alliance, Energy Planning Committee, Contractors, Solution Providers

Links to Other Initiatives: EP-5

Initiative Leader: Municipal Engineer / Development Officer

Notes: Start as part of discussion on Efficiency Standards (Voluntary and By-Law)

- ❑ Hire an inspector trained in building energy management and technologies. Once residents are ready to implement measures to improve energy efficiency, they will be looking for expertise to better understand and navigate the challenges of implementation. The Town can assist in this by

hiring an appropriately trained inspector. The inspector should be able to guide residents through building codes, and energy performance measures, and provide guidance on the documentation required to access rebates from utilities, funding agencies, or home warranty programs.

Action #: EP-5-10

Time Frame: One Year

Budget – Operating \$ Recovered in fees

Budget – Capital N/A

Performance Measure:

Target: Coordinated with the implementation of the Guidelines and By-Law

Community Involvement: Arctic Energy Alliance, Residents, Contractors

Links to Other Initiatives: EP-5

Initiative Leader: Municipal Engineer / Development Officer / Arctic Energy Alliance

Notes: Discussion with Arctic Energy Alliance to take on this role already initiated.



TRANSPORTATION

Transportation

Goal: Promote alternative modes of transportation in the Town of Inuvik.

The percentage of Inuvik residents who drive a single-occupancy vehicle to work is almost half of its residents, or 49% of the population. Twelve percent of vehicles carry an additional occupant as a passenger, while the remaining 33% of the population walk, or cycle (this is higher than the national average and they should be congratulated for their successes). The remaining 5% of the population use transit or some other mode of transportation.

The challenge for a small, isolated community such as Inuvik that is also located in a cold climate to use alternative modes of transportation is to make different modes of transportation attractive to users. Resources are limited in both small towns and rural areas, and the size of the population makes it difficult to justify implementing an extensive public transit system, which can be a significant drain on public coffers. The extensive number of taxis with fixed rate fares in Inuvik means that taxis are essentially public transit.

Strategy 6: Increase active transportation opportunities

Encourage the expansion of walking and biking options. This strategy encourages the Town of Inuvik to support more walking and cycling through improved amenities and accessibility.

Currently, the amount of sidewalks in Inuvik is limited, making potential walkers uneasy about their safety with no designated barrier between themselves and vehicles. In the winter, roads tend to become narrower as snow piles up. If there is no existing sidewalk to clear, snow is cleared to the side, making walking difficult.

Another challenge for walkers is the lack of traffic signals at street crossings. Additional traffic signals would provide more assurance to walkers that

crossings were dedicated and that there would be a designated amount of time to cross safely. There is also a limited amount of benches available for walkers to rest, or wait for a ride. Street lighting is also



Winter cycling in Inuvik

Source: A. Savelson

limited, adding to a perception that walkers can't be seen, and could more easily come into conflict with motorized users. Finally, providing information to residents on existing walking and cycling amenities can increase participation.

Suggested Actions:

- Increasing the amount of sidewalks and bike paths in the community. New development presents opportunities for potential amenity contributions that can be made on the part of a developer. This can be desirable from the developer's point of view as bike paths and sidewalks can increase property values.

Action #: EP-6-11

Time Frame: On-Going

Budget – Operating \$ 5-10,000 per year

Budget – Capital \$ 350,000 in 2010

Performance Measure: Increased Sidewalks

Target: 1 km per year

Community Involvement: Contractors, MACA, INAC

Links to Other Initiatives:

Initiative Leader: Municipal Engineer

Notes: Funding secured for additional length of Sidewalk of 2.5 km in 2010

- Increasing the number of benches and street lighting. Again, consider the tradeoff of more people choosing active transportation and the costs associated with traffic lights compared to road construction and repair. Cost benefit analysis may be a useful tool to employ for this potential action as well.

Action #: EP-6-13

Time Frame: One Year

Budget – Operating Within Current Budget

Budget – Capital N/A

Performance Measure: Cost Benefit Analysis Completed

Target:

Community Involvement: Energy Planning Committee

Links to Other Initiatives:

Initiative Leader: Municipal Engineer

Notes: This is for the completion of cost benefit analysis only. Explore motion sensitive lighting.

- Developing an alternative transportation map showing where routes for walking and cycling are located in the Town. This is an opportunity to combine awareness and education with the promotion of active transportation modes. It may be desirable to develop a map of existing walking and biking routes as measuring the increased response (if any) would be a useful tool to demonstrate the effectiveness of such an engagement strategy.

Action #: EP-6-14

Time Frame: Six Months

Budget – Operating With Current Resources

Budget – Capital N/A

Performance Measure: Alternative Transportation Map completed

Target:

Community Involvement: Ski Club, Walking Club

Links to Other Initiatives:

Initiative Leader: Municipal Engineer. Community Economic Development Manager

Notes: Dated map currently available on website. To be updated.

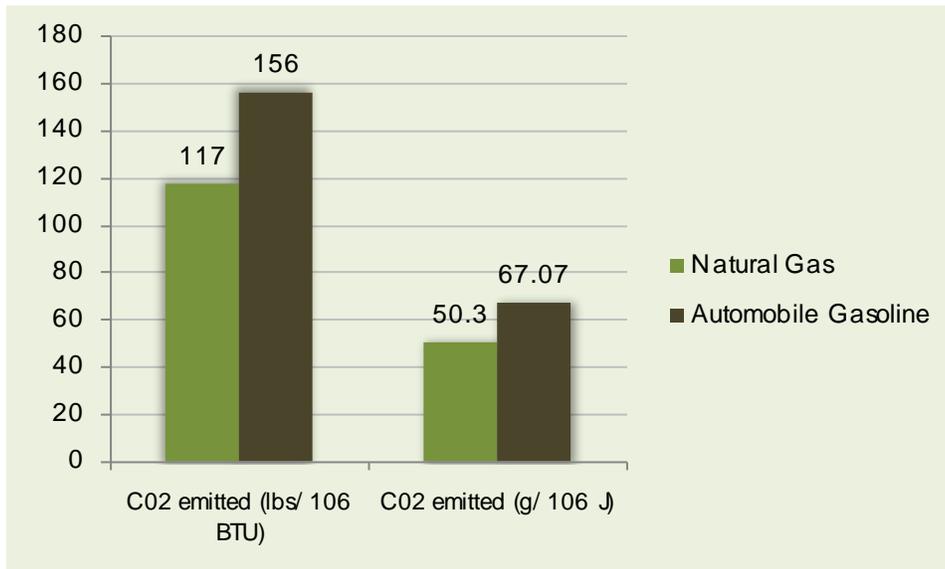


FIGURE 4: CARBON DIOXIDE EMISSIONS FROM NATURAL GAS VERSUS AUTOMOBILE GASOLINE¹¹

¹¹ US Energy Information Association, Voluntary report of GHG emissions program

Strategy 7: Encourage use of alternative fuel vehicles

As a global community, it is largely agreed upon that the combustion of fossil fuels is one of the major contributing factors to climate change. It has also been widely accepted that much of fossil fuel combustion is anthropogenic, or caused by humans. One of the major contributors to fossil fuel combustion is the use of motor vehicles, which is compelling us to try and find alternative fuels to use in our motor vehicles. One type of vehicle that is becoming more popular is the **hybrid** – which is a type of vehicle that uses a combination of gasoline and electricity.

As a result, Hybrid vehicles emit lower amounts of GHGs. There is currently a taxi driver in Inuvik who has purchased a 2009 Honda hybrid. They have been on the market for almost a decade now, and are increasing their market share annually.



**INUVIK TAXI DRIVER MAUNG WIN DRIVES A 2009
TOYOTA HIGHLANDER HYBRID**

Source: Arctic Energy Alliance

Inuvik is fortunate to have a natural gas field located in relative proximity and residents use natural gas for much of their heating of buildings. This existing fuel supply has the potential to fuel natural gas powered or CNG (compressed natural gas) vehicles. Natural gas is an available, local fuel and is a low emitter of greenhouse gas emissions. In Table 4 on the next page, it shows the comparison of Carbon dioxide emissions from natural gas to automobile gasoline.

Suggested Actions:

- ❑ Encourage the purchase of hybrid vehicles. Consider strategies to engage with the community to encourage hybrid vehicle use.

Action #: EP-7-15

Time Frame: Six Months

Budget – Operating N/A

Budget – Capital N/A

Performance Measure:

Target: Make Calculators available on AEA Website

Community Involvement: Arctic Energy alliance, Energy Planning Committee

Links to Other Initiatives:

Initiative Leader: Arctic Energy Alliance

Notes: Town of Inuvik to provide links to Arctic Energy alliance Website

- ❑ Explore the feasibility of fuelling hybrid vehicles with natural gas in the Town of Inuvik. There are natural gas vehicles that are now on the market; currently Honda is marketing a 2010 Civic GX which uses natural gas.

Action #: EP-7-16

Time Frame: One Year

Budget – Operating N/A

Budget – Capital N/A

Performance Measure:

Target: Completion of Feasibility Study

Community Involvement: Energy Planning Committee, Inuvik Gas

Links to Other Initiatives:

Initiative Leader: Director of Public Services / Municipal Engineer

Notes: Review for Town Fleet, GNWT and Private

Strategy 8: Promote idling reduction

The Town of Inuvik has passed an anti-idling bylaw that is enforced within the town that restricts the amount of idling for a vehicle to less than 30 minutes. The bylaw has been in effect since March 2008. Failure to comply with the anti-idling bylaw can result in a fine of \$100. According to Natural Resources Canada if every driver of a light duty vehicle avoided idling by three minutes a day, collectively over the year, we would save 630 million litres of fuel, over 1.4 million tonnes of GHG emissions, and \$630 million annually in fuel costs (assuming fuel costs are \$1.00/L). Another statistics is that for an average vehicle with a 3-litre engine, every 10 minutes of idling costs 300 millilitres (over 1 cup) in wasted fuel – and one half of a litre (over 2 cups) if your vehicle has a 5-litre engine. Unnecessary idling wastes fuel – and wasted fuel is wasted money. In the north, people can idle their cars for hours a day, as one CBC news story reported in 2008.¹² But local business was complaining of exhaust as a pollutant, which was one of the drivers behind developing the bylaw.



DAYTIME IDLING
Source: A. Savelson

Suggested Actions:

- Explore how effective the anti-idling bylaw has been. Is the Town able to enforce the bylaw? How resistant are people to the bylaw and why?

Action #: EP-8-17

Time Frame: 6 Months

Budget – Operating With Current Resources

Budget – Capital N/A

Performance Measure:

Target: Review of current Idling By-Law

Community Involvement: Energy Planning Committee, By-Law Officer, Public

Links to Other Initiatives:

Initiative Leader: Senior Administrative Officer

Notes: Also articulate Town Idling Policy so that it can be shared as a best management practice

¹² Retrieved from NRCAN website: <http://oee.nrcan.gc.ca/transportation/personal/idling.cfm>

- ❑ Explore the feasibility of putting timers on car warmers and block heaters as an alternative to idling. Research by Manitoba Hydro shows that the optimum amount of time to heat a car or truck is four hours – more than that does not add any additional value and ends up costing the driver additional money. http://www.hydro.mb.ca/your_home/home_comfort/block_heaters.pdf

Action #: EP-8-18

Time Frame: 6 months

Budget – Operating With Current Resources

Budget – Capital N/A

Performance Measure:

Target: Confirm optimum timing

Community Involvement:

Links to Other Initiatives:

Initiative Leader: Municipal Engineer / Director of Public Services

Notes: Best Management Information can be prepared based on the findings of this review

- ❑ Explore the feasibility of installing plug-ins on municipal streets to reduce the need for idling. If it was an action that was implemented, it could be promoted as an alternative to being fined for non-compliance with the anti-idling bylaw.

Action #: EP-8-19

Time Frame: 6 months

Budget – Operating - With Current Resources

Budget – Capital N/A

Performance Measure:

Target: Review of Plug-in's Downtown

Community Involvement: Energy Planning Committee, Downtown Business Owners, Snow

Removal/Sanding Contractors

Links to Other Initiatives:

Initiative Leader: Municipal Engineer / Director of Public Works

Notes: To be included in the Zoning By-Law Review if should be required of new parking lots

Strategy 9: Encourage best practices for vehicle energy efficiency

Enhancing the energy efficiency of vehicles can result in a range of positive outcomes such as emissions reductions, and saving money. There are a range of resources and systems available through several organizations and governments that are interested in assisting private and public vehicle users in utilizing vehicles in the most cost-effective and energy conscious manner. It can also be an opportunity to publicize the application of new energy-efficient techniques to demonstrate leadership in the community.

SUGGESTED ACTIONS:

- ❑ Explore the potential of partnering with the Arctic Energy Alliance (<http://www.aea.nt.ca/>) to develop and launch a campaign that is targeted at business and industry to enhance the energy efficiency of their vehicles using fleet management system techniques. Fleet management is a tool

used by many businesses and institutions to make their fleets more efficient. Examples of fleet management activities include:

- Assessment to determine whether vehicles can be made more fuel efficient by driving more conscientiously, and combining trips.
- “Right-sizing” of vehicles, meaning that a vehicle is chosen based on its ability to complete the job, but not overdo the job.
- Driver education
- Vehicle purchasing
- Trip planning
- Operation and maintenance
- Investigate opportunities to provide Fleet Smart Driver training locally

Action #: EP-9-20

Time Frame: One Year

Budget – Operating N/A

Budget – Capital N/A

Performance Measure:

Target: Development of Best Management Practice Materials / Explore Fleet Smart Driver Training

Community Involvement: Energy Planning Committee

Links to Other Initiatives:

Initiative Leader: Arctic Energy Alliance

Notes:

Resources:

1. Natural Resources Canada’s ecoEnergy for Fleets Program: is a program that offers information on energy-efficient practices that can reduce fuel consumption and emissions. A component of this program provides information on how energy-efficient vehicles and business practices can reduce fleet operating costs, improve productivity and increase your competitiveness. <http://fleetsmart.nrcan.gc.ca/index.cfm?>



ALTERNATIVE ENERGY SUPPLY

Alternative Energy Supply

Goal: Increase opportunities for renewable energy supply

Alternative technologies exist for providing electricity, space and water heating requirements to buildings. Examples include: solar photovoltaic (PV) panels, ground source heat pumps, district energy systems, and Integrated Resource Recovery (an approach that seeks to capture energy from waste streams). Many of these technologies are not yet widely deployed (though many are fully commercialized). The major barrier is that there exists a real or perceived financial cost associated with incorporating these technologies which may not be recovered by the developer in the sale of the units. In the North, financial barriers may be exacerbated by the limited availability of these technologies and the freight costs for transporting them to Inuvik. Opportunities to provide incentives that tie the cost of the alternative energy system to the home can help to break down these barriers, while efforts to encourage a market for alternative and renewable resources in the North may advance action in this area.



INUVIK'S UTILIDOR
Source: A. Savelson

This area focuses on developing alternative energy supply options locally in an effort to reduce GHG emissions, increase community resiliency, and stimulate local economic development. This strategy relates to Energy Strategy 1 (use more forms of alternative energy to run day-to-day life) in the ICSP, but goes beyond district heating to discuss additional alternatives and explore ways to encourage their implementation locally.

The Government of the Northwest Territories (GNWT) has developed an Energy Priorities Framework that supports the direction that the Town of Inuvik wants to take with regards to long-term energy sustainability. GNWT priorities include:

- Pursue initiatives that reduce the cost of living, and in particular, energy costs
- Work proactively with residents, communities, and industry on mitigation of climate change, and;
- Advance alternative energy initiatives.

Strategy 10: Develop local energy supply

Prior to moving forward in this area, the Town must investigate the feasibility of different types of alternative energy systems for implementation in Inuvik.

RECOMMENDED ACTIONS:

- ❑ Secure funding to conduct a pre-feasibility study of alternative energy opportunities in the community, including solar thermal (with seasonal storage), wind power, micro hydro on the Peel and Upper Arctic rivers, biomass combined heat and power (CHP), waste-to-energy, water source heat pumps, and residual (or waste) heat.¹³

- ❑ Explore re-commissioning of the district heating system. Opportunities to make use of the existing district energy system to provide heat and power using renewable sources should be investigated. The system used to provide the town with both electricity and steam heating via pipes in the utilidor system. Now, heat and electricity are provided via two power plants, consisting of three natural gas fuelled generators and four diesel generators.

Action #: EP-10-21

Time Frame: One Year

Budget – Operating With Current Resources

Budget – Capital N/A

Performance Measure:

Target: Funding to complete Pre-Feasibility Study

Community Involvement: Arctic Energy Alliance, NTPC, Inuvik Gas, Energy Planning Committee, Aurora Research Institute

Links to Other Initiatives:

Initiative Leader: Municipal Engineer

Notes: Need to Resolve Net Metering issues with NTPC as part of this initiative

Strategy 11: Increase knowledge and awareness of alternative energy options

In partnership with the GNWT and the Arctic Energy Alliance, the Town will implement activities aimed at increasing local knowledge and awareness of alternative and renewable energy supply options.

RECOMMENDED ACTIONS:

- ❑ Demonstrate leadership through pilot projects at civic facilities. The Town will look for opportunities to demonstrate alternative energy technologies and energy efficiency measures in civic facilities, in an effort to show leadership in the community and increase awareness of alternatives. These projects should include signage to explain the technology, as well as the benefits and challenges for implementation in Inuvik.

Action #: EP-11-22

¹³ Residual or waste heat was identified by the GNWT, in the Energy Priorities Framework, as a potential opportunity for Inuvik. Additionally, the GNWT plans to undertake an Alternative Energy Mapping Project to identify potential community energy sources in NWT. The Town may wish to wait for the results of this project, as they would inform which alternative energy opportunities merit a pre-feasibility study.

Time Frame: On-Going

Budget – Operating \$ 3,000 Signage

Budget – Capital \$?

Performance Measure:

Target: Signage for current projects, Funding for future projects

Community Involvement: Public, Arctic Energy Alliance,

Links to Other Initiatives:

Initiative Leader: Director of Public Services / Municipal Engineer

Notes: In the short term put up signage recognizing the projects that are already installed. With Audits now complete can go searching for funding for further projects.

- ▣ Explore opportunities to expand post-secondary programming on alternative and renewable energy. The Town will work in partnership with the GNWT and Aurora College to encourage the development of course offerings related to energy efficiency and renewable energy. A course in energy efficiency and building science is currently offered by the College, but there may be opportunities to create complimentary courses that would lead to a certificate in renewable energy. Such a program could serve to increase local capacity on alternative energy systems, foster entrepreneurship, and stimulate economic development around alternative energy.

Action #: EP-11-23

Time Frame: On-Going

Budget – Operating N/A

Budget – Capital N/A

Performance Measure:

Target: More students completing the program

Community Involvement: Energy Planning Committee, Aurora College, Arctic Energy Alliance,

Links to Other Initiatives:

Initiative Leader: Arctic Energy Alliance / Aurora College

Notes: This has already occurred through Arctic Energy Alliance and Aurora College and Town has always supported the program. Should explore learning opportunities with the Housing Corporation Model Home



ENERGY & SUSTAINABILITY

Energy and Sustainability

Goal: Pursue energy efficiency and conservation within the broader context of sustainability

There are a number of actions that we can take every day as individuals to reduce our consumption of energy. Some of these actions, if done collectively, will go a long way to reducing GHG emissions across the community. There are other actions that, while having less of an impact on energy and GHG reductions in the community, help to address local and global sustainability. These types of actions are beneficial for a number of reasons beyond just doing our part to address climate change. They contribute to broader objectives aimed at sustaining our natural environment, and social well-being, while supporting local economic development.

Strategy 12: Create a culture around energy conservation

The Town of Inuvik will foster a supportive culture around energy conservation, promoting energy culture in a positive and rewarding way that presents energy conservation ideas that will realize multiple benefits.

SUGGESTED ACTIONS:

- ❑ Develop communications material and distribute, host educational speakers that are fun to listen to, host movie nights, contests, or an energy fair that shows how retrofitting your home or business and carpooling can save money.

Action #: EP-12-24

Time Frame: One Year

Budget – Operating

Budget – Capital \$

Performance Measure:

Target: Materials are getting distributed within the community

Community Involvement: Public, GNWT, Schools, Arctic Energy Alliance, Energy Planning Committee

Links to Other Initiatives:

Initiative Leader: Municipal Engineer / Arctic Energy Alliance

Notes: Materials already purchased for School Programs (Water bottles, Tattoos, T-Shirts). Much of the materials will be created under other initiatives. Work with GNWT on their fall Energy Fair. Use opportunities like Earth Day etc.

- Create opportunities for residents to take action - E.g. A Christmas light contest, where you can turn in your old Christmas lights and get new LED (light-emitting diode, which use much less energy); winners of the contest will be selected from the newly installed energy efficient lights.

Action #: EP-12-26

Time Frame: 8 Months

Budget – Operating - Find Sponsors

Budget – Capital

Performance Measure:

Target: Light Exchange

Community Involvement: Residents, Arctic Energy Alliance, NTPC, Stores, Commercial Properties, Energy Planning Committee

Links to Other Initiatives:

Initiative Leader: Municipal Engineer

Notes:



NEXT STEPS

NEXT STEPS

The Town of Inuvik has developed a plan to reduce energy and GHG emissions throughout the community. The Community Energy Plan (CEP) contains 5 goal areas and 14 strategies to help Inuvik get started on its path toward an energy efficient, low carbon, and sustainable future.

The next steps of this planning process are for the Town to identify the key actions that will be implemented over the next 1-5 years. The long-term, strategic intent of the plan is to increase energy efficiency and decrease GHG emissions in all community activities. To this end, all Town departments and management would be expected to commit to including energy efficiency considerations in their daily activities.

Financing and Assistance

Investments will be needed to fund the recommended strategies. External funding will greatly assist in maintaining momentum for CEP implementation. Table 2 provides a selection of funding opportunities currently available that may be used for implementing climate change and energy-related activities.

TABLE 2: SELECTED FUNDING AND ASSISTANCE FOR CEP IMPLEMENTATION

Programs	Key Features
NWT Energy Efficiency Incentive Program	Administered by the Arctic Energy Alliance (AEA), this program provides rebates on energy efficient appliances, heating appliances, outboard motors and home renovations.
Home Energy Audits and Tips	The AEA has knowledgeable staff that can provide tips and advice on how to make your home more energy efficient. The AEA is also working to ensure that Inuvik residents have access to a trained professional that can provide home energy auditing services.
Yardstick Audits for Businesses and Institutions	The AEA offers yardstick audits which provide a comparison of power and heating bills between buildings. Additionally, the AEA will assist businesses and institutions in accessing funding programs to improve energy efficiency.
Energy Conservation Program	The GNWT will provide up to \$50,000 for energy conservation projects involving buildings or assets that are owned or leased by community and Aboriginal governments, boards or agencies, and non-profit organizations.

Programs	Key Features
<p>Alternative Energy Technologies Program, including:</p> <ul style="list-style-type: none"> • Community Renewable Energy Fund (CREF) • Medium Renewable Energy Fund (MREF) • Small Renewable Energy Fund (SREF) 	<p>CREF – available to community and Aboriginal governments, GNWT departments, boards and agencies, and NGOs to establish feasibility studies or alternative energy demonstration projects as part of their operations.</p> <p>MREF – assists businesses that want to incorporate commercially available alternative energy technologies into their operations.</p> <p>SREF – assists NWT residents to integrate commercially available, clean energy technologies on their property, building or other assets for the intent purpose of reducing fuel usage.</p>
<p>Federation of Canadian Municipalities (FCM) Green Municipal Fund</p>	<p>Grants available to support sustainability and climate action planning efforts. Low-interest loans available to support capital projects that reduce energy and GHG emissions. Competitive process with RFPs launched annually to fund projects related to brownfield redevelopment, energy, planning, transportation, waste and water.</p>