



Prepared for:



## Partners for Climate Protection

### Milestone 3 Final Report

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Natural Resources Canada

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Service Canada



Prepared for:



**Partners for Climate Protection**

**Milestone 3 Final Report**

			<i>Stefan Tylak</i>
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## EXECUTIVE SUMMARY

This Milestone Three report presents a Local Action Plan (LAP) for the reduction of greenhouse gases (GHGs) in the Strait Highlands (S-H) Region. The LAP is one of the functional plans under the broader Strait Highlands Green Action. This LAP defines not only how the Strait Highlands Region community and stakeholders can reduce energy use and GHG emissions, but also how these efforts can be encouraged and supported by the three municipalities that comprise the entire S-H Region.

Measures such as building retrofits, public transit, the use of carbon neutral biomass, district energy systems, waste treatment and pumping station upgrades, natural gas conversions and local food production are just some examples of the initiatives that will guide the Strait Highlands Region towards becoming an environmentally sustainable community. Some of the long-term actions recommended in this plan include corporate green procurement and operating policies; the use of various renewable energy technologies; new building design and the development of a sustainable municipal energy vision that focuses on local, renewable, low or no carbon resources.

Implementation costs, time frame and other resources have been outlined where permissible, but many of these are time-sensitive and are likely to be different by the time actual implantation takes place. As new measures are implemented and policies and programmes are put into place, this LAP will have to be revised and updated annually as feedback from the monitored key indicators reveal how well guided each measure is toward the goals and the reduction targets. It can also be anticipated that more effort will be required as time passes, to identify and implement new technologies and approaches as they become commercialised.

The LAP will remain just that, a plan, until the local community transforms it into a reality. This LAP strongly depends on the voluntary participation of developers, residents, businesses, industries and institutions in the Strait Highlands Region. Until such time that improving energy efficiency and reducing fuel consumption become mainstreamed and “second nature” to all residents, progress towards these goals will depend, in large part, on programmes that not only increase public awareness of and commitment to GHG reduction, but also demonstrate economic incentives. As a result, a higher level of participation is likely if information about funding programmes can be widely delivered in the community and followed up with telephone calls or visits to obtain pledges of participation. Additional follow-up will also be required with the business community to encourage participating in government incentive programmes to reduce energy consumption and to share their experiences and successes with the wider community. This information sharing and a cooperative approach will be critical to maintaining long-term interest and involvement in the LAP. Municipal governments should also get their own ‘house in order’ during the implementation of this LAP by providing leadership and taking initiatives in the right direction in order to serve as a role model for the community.

# 1 INTRODUCTION

## 1.1 Background

Milestone Three step is part of the Partners for Climate Protection (PCP) Programme currently underway in the Strait Highlands Region to identify and recommend energy reduction measures as well as renewable energy opportunities in order to address the issue of climate change through a reduction in greenhouse gas (GHG) emissions. The PCP framework was adopted by the Federation of Canadian Municipalities (FCM) and is the Canadian component of the International Council for Local Environmental Initiatives (ICLEI) Cities for Climate Protection (CCP) network of more than 800 communities worldwide making the same effort of reducing GHG emissions. Activities supported by the PCP programme include an updated emissions inventory, setting of an emissions reduction target and the development of a GHG emissions reduction plan, referred to here as the Local Action Plan (LAP).

The main purpose of Milestone One which was completed in 2007 was to create a greenhouse gas (GHG) emissions inventory and future emissions forecast for the Strait Highlands Region. A forecast of future GHG emissions was made based on three potential scenarios; Business-As-Usual (BAU); Optimistic and Realistic. Milestone Two, generated a ‘Long List’ of potential actions of varying nature and impact under the eight goals that consisted of projects, programmes and policy change recommendations. Many of the actions were suggested by stakeholders and citizens throughout the consultation process that took place prior to setting the GHG emission reduction target for each of the municipalities, and for the Strait Highlands Community as a whole.

In order to winnow down the Long List to a smaller list that would be much more manageable within LAP project constraints during the feasibility analyses of the potential actions, evaluation criteria were carefully developed and agreed upon by both the Strait Highlands Regional Development Agency (S-HRDA) and the Project Team. It was gauged to be essential that these final criteria serve to go beyond energy conservation and efficiency by more holistically reflecting sustainability principles such as local job creation and health benefits to citizens.

Using the well-developed set of evaluation criteria, the long list of about seventy (70) action items was narrowed down to a manageable and practical, high-impact ‘Short List’ of actions that are to be considered for implementation. The Milestone Two framework quantified the GHG emissions reduction potential of each of the short-listed action items and proceeded to set GHG emissions reduction targets for both the community as a whole (18% below 2005 GHG emission levels), and for each of the three municipal governments in the Strait Highlands Region; namely Inverness, Richmond and the Town of Port Hawkesbury. Municipal targets arising from the Milestone Two work are summarised as follows:

MUNICIPALITY	REDUCTION TARGET
Inverness	21%
Richmond	20%
Town of Port Hawkesbury	20%

This LAP contains feasibility assessments of various Short List action items, thus forming a means for the Strait Highlands Region to promote energy sustainability and meet its GHG emissions reduction target. As part of the next Milestone (Four), there are several activities that should be carried out during implementation of the LAP including the following key ones:

- Ensure that the LAP is carried out to its full potential;
- Secure funding for municipal projects;
- Administer and track municipal programmes;
- Review existing programmes and identify potential future programmes in response to successes, barriers and available funding;
- Market the LAP to community sectors in general as well as to specific stakeholders; and
- Establish and acquire information on stakeholder initiated programmes/initiatives and GHG savings results.

## 1.2 Examples and Benefits

Many public and private companies, organisations, different levels of government and other municipalities have developed or are in the process of developing plans to reduce emissions, improve efficiency, and promote sustainability. The FCM website<sup>1</sup> lists all of the PCP Programme municipal participants within Canada (broken down by province) and also provides details<sup>2</sup> on their progress and status.

The Strait Highlands Region has been the recipient of provincial government and private funding to support sustainable initiatives such as the Strait Area Transit Cooperative. In addition, NewPage at Point Tupper is considering the installation of a biomass fired power plant boiler to generate up to 60 megawatts (MW) of renewable power through the utilisation of a local, carbon neutral source of energy.

More often than not, initiatives such as these and other action items utilise or secure a local supply of sustainable energy and can also offer an increase in the quality of life and enhanced local employment opportunities. Although quality of life can mean many things, it is assumed in this case to mean having needs (warmth and food, etc.) met without having to worry about how to pay for those necessities and also better health amongst citizens. The stimulation of local employment opportunities is particularly relevant in the Strait Highlands Region given the prevailing population out-migration due to dwindling employment prospects. Some examples of local employment opportunities offered in the LAP include (but are not limited to) the following:

- The harvesting and processing of local biomass from forests within the study area for use as an energy source;
- The installation and servicing of renewable energy technologies;
- Upgrading the energy efficiency of homes through retrofits such as attic and wall insulation; and
- The initiation of newer agricultural practices and local food production.

Real opportunities exist that can have a positive effect on economic growth; many of which are already coming to fruition in certain areas. For example, some professional insulation contractors in other areas of Nova Scotia cannot accept new work for many months due to the very high level of demand for their services, while Germany currently has roughly 250,000 citizens employed in the renewable energy sector.

Retrofitting homes through the EnerGuide for Houses programme is particularly effective at reducing GHG emissions; the average GHG reduction per home for all Nova Scotian homes that have participated in the programme is over five tonnes of eCO<sub>2</sub> per year, or over eight tonnes of eCO<sub>2</sub> per year for Nova Scotian homes older than sixty-three (63) years old. Reducing electricity consumption in Nova Scotia is also extremely effective at reducing GHG emissions given the very high emission intensity factor which is due to the high percentage of electricity (over 70%) generated from coal fired power plants in Nova Scotia. Considering the large number of electrically heated homes in the Strait Highlands Region and also that a significant amount of energy is required to heat homes, major GHG reductions can be realised through retrofitting houses for energy efficiency.

### 1.3 Approach

This Strait Highlands LAP uses an Adaptive Management Framework for setting and justifying specific recommendations. If the implementation actions encounter surprises, or produce inappropriate results, corrective changes can be made to the strategies. The framework used in this LAP defines the *goals*, *targets*, and *strategies* required to achieve the desired outcomes. A specific set of actions then forms the base of the plan. The definitions used in the LAP for these key terms are described as follows:

**Goals** are the general statements about the direction in which we want to move or the state we wish to achieve, e.g. Goal #6: *Increase Energy Security and Diversify Energy Supply*. Goals have to be descriptive, concrete and provide direction.

**Targets** are established for critical path planning, as well as for setting an ideal or maximum achievement. Targets help define the objectives and boundaries of a proposed plan. They are especially useful tools for stimulating creative out-of-the-box thinking, and for establishing a pace of change. An example target might be to *reduce GHG emissions 20% below the 2005 baseline levels by 2015*.

**Strategies** identify the basic approaches that can be implemented in order to achieve a goal or a set of objectives. For example: “*Implement a Sustainability Filter to be applied for all Municipal Goods and Services Procurement*” is an example of a strategy description.

**Actions** provide a range of specific activities that can be implemented in order to fulfil the key strategies. By virtue of the clear link between key strategies, objectives, goals and the vision, it is also clear how the specific actions address the higher layers of the framework. *Implement Energy Efficient Driver Training* is an example of an action. More detailed guidelines and specifications give a full description of what the required inputs are, and how to implement specific actions.

## 1.4 Partnerships

When several organisations are all striving for roughly the same objective, especially within the same region, it makes perfect sense for them to explore means to work together to achieve their common objectives more efficiently and quickly. Nova Scotia Power's Integrated Resource Plan includes two components: Demand Side Management; and Renewable Energy. These components fit well with the goals of the Strait Highlands Region community energy plan. Similarly, the Nova Scotia Renewed Energy Strategy and Climate Change Action Plan include components that also fit well with many of the proposed LAP strategies.

Each of the municipalities must actively take the lead on building, maintaining and expanding relationships with stakeholders to ensure success. This includes identifying new potential stakeholders each year; consulting with representatives to identify their potential for participation and initiating regular contact to build the relationship. The goal is to identify continuing and new stakeholder initiatives every year.

Municipal governments should identify and evaluate opportunities for partnering with not-for-profit agencies in the delivery of the Community LAP. The administrative elements of this plan, such as the development of the informational materials, can be produced with assistance from the municipalities in addition to one or more partner agencies such as ACAP Cape Breton, Clean Nova Scotia or the Ecology Action Centre (with or without the financial support from the municipalities). These organisations are not-for-profit potential partners who offer various benefits such as sharing their established contacts and school programmes as well as experience in networking with the community at large through public outreach and education. Opportunities for partnership between and across municipalities and non-municipal organisations are present in this region and will likely improve the level of success of many actions that are recommended in the LAP.

The Strait Area Campus of the Nova Scotia Community College (NSCC) is a partner that can play a role in several action items:

- The undertaking of energy efficiency/conservation retrofits through the adoption of DSM measures;
- The development of training programmes for renewable energy and energy efficiency and conservation in order to enhance the familiarity and skills of trades persons for more widespread acceptance and installation;
- The use of demonstration projects that focus on renewable energy and energy efficiency and conservation measures with the intent to organise tours for the promotion of these projects via the public education and awareness programme; and
- Determining their interest in having natural gas supplied the campus.

## 2 RESULTS FROM PREVIOUS MILESTONES

The reports from completed Milestones One and Two are available on the Strait Highlands Regional Development Agency’s website<sup>3</sup>. GHG emissions inventory assessments (base year of 2005), forecasts and reduction targets (for 2015) for both the Community and the municipalities are recapped in the following sections:

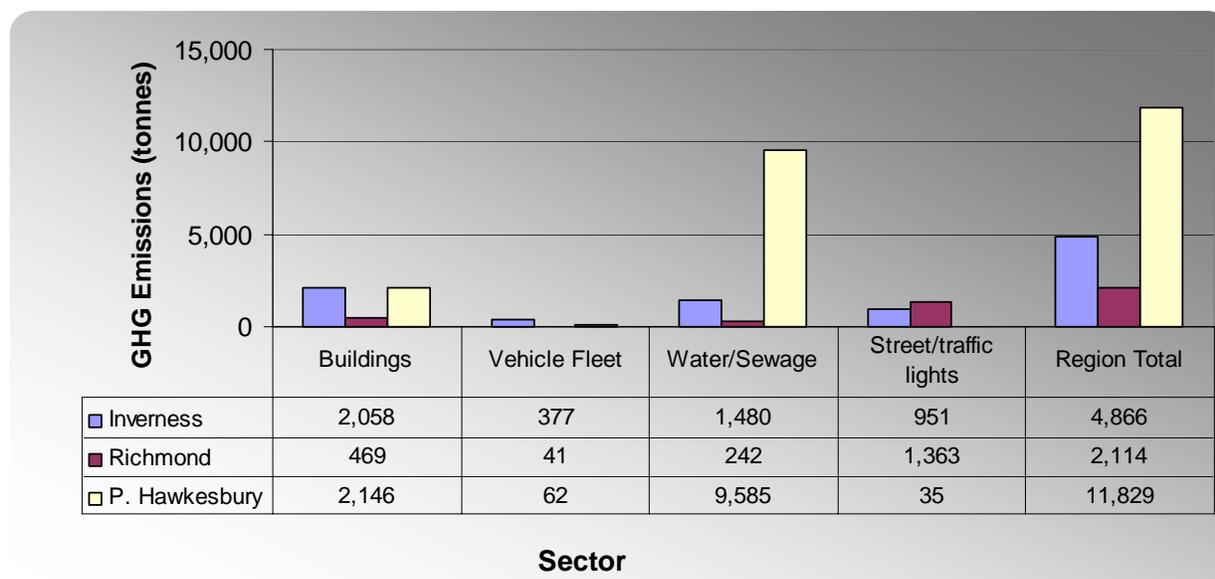
### 2.1 Milestone One: Emissions Inventory

In Milestone One, energy audits were carried out at the municipal and community levels. Municipal energy audits assessed buildings, vehicle fleets, street lighting and water/sewage infrastructure. In the community energy audits, the following sectors were assessed:

- Residential;
- Commercial and Small Industrial (C&I);
- Institutional;
- Transportation; and
- Municipal Solid Waste.

#### 2.1.1 Corporate Emissions Inventory Summary by Sector (2005)

Figure 1 illustrates the fact that sectoral GHG emissions are highly governed by the specific operation of each individual municipality. It is for reasons such as this that a Corporate LAP Implementation Strategy was developed not just separately from the Community Strategy, but there are various components of the plan that have been custom tailored for each municipality.



**Figure 1. 2005 Corporate Emissions by Sector**

## 2.1.2 Community Emissions Inventory Summary by Sector (2005)

It is evident from Figure 2 that the C & I and Residential Sectors are responsible for the greatest amount of GHG emissions within the Strait Highlands Community. This is followed by Transportation, Solid Waste and Institutional Sector emissions. It is important to note that although certain sectors emit significantly more GHGs in absolute terms, it is possible that other sectors (which emit less in absolute terms) may also offer extensive emission reductions.

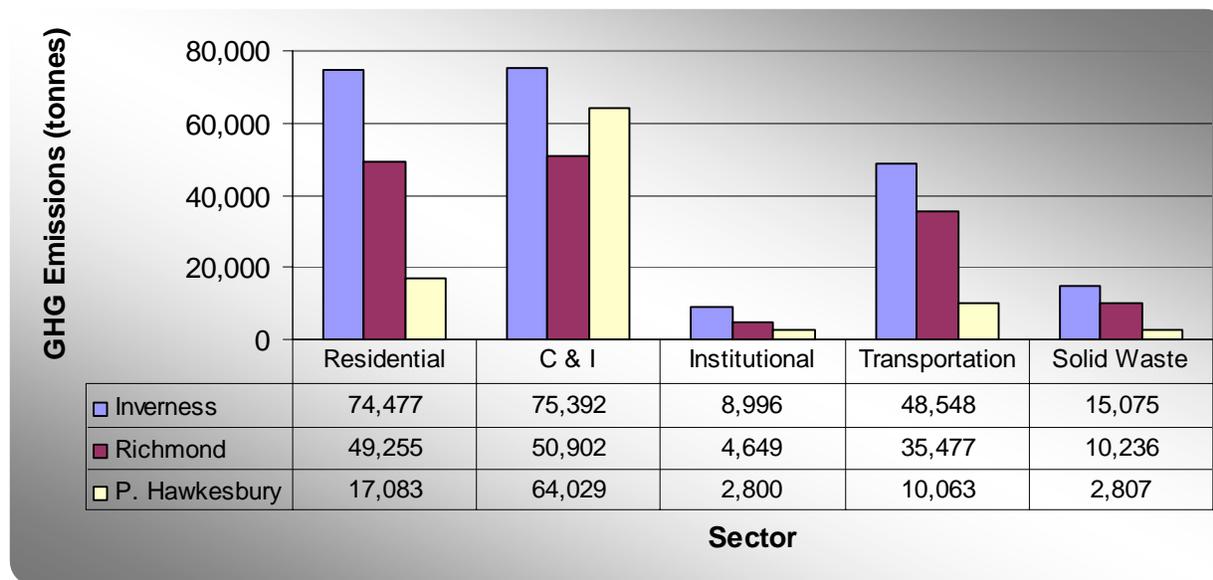


Figure 2. 2005 Community Emissions by Sector

## 2.2 Milestone Two Results: Emissions Forecasts and Reduction Targets for 2015

Milestone Two was a two-pronged task that set out to establish anticipated GHG emissions for 2015 and also to set recommended GHG emission reduction targets that were to be achieved by 2015. These are summarised separately in the following two figures for the municipalities (corporate) and for the Strait Highlands Community.

### 2.2.1 Corporate GHG Emissions Forecasts and Reduction Targets (2015)

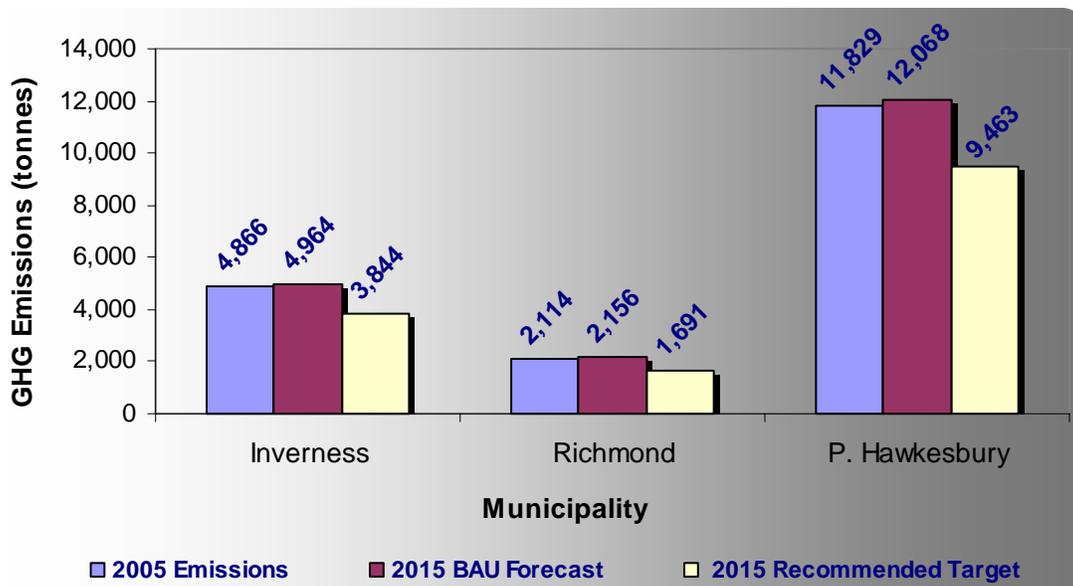


Figure 3. Comparison of Corporate Baseline Emissions and Forecast (2015) Emissions Scenarios

### 2.2.2 Community GHG Emissions Forecasts and Reduction Targets (2015)

A 3% decline in emission is expected under the business as usual (BAU) scenario. This is due to the fact that there is a slow population out-migration in the combined region. It has been recommended that the Strait Highlands Community adopts an 18% GHG emission reduction target by 2015. This would lead to annual GHG emissions of roughly 385,000 tonnes of eCO<sub>2</sub> in 2015. Under an optimistic scenario, it is possible for the Community to achieve a 33% reduction below the baseline 2005 levels. The community GHG emissions forecast scenarios are recapped in Figure 4.

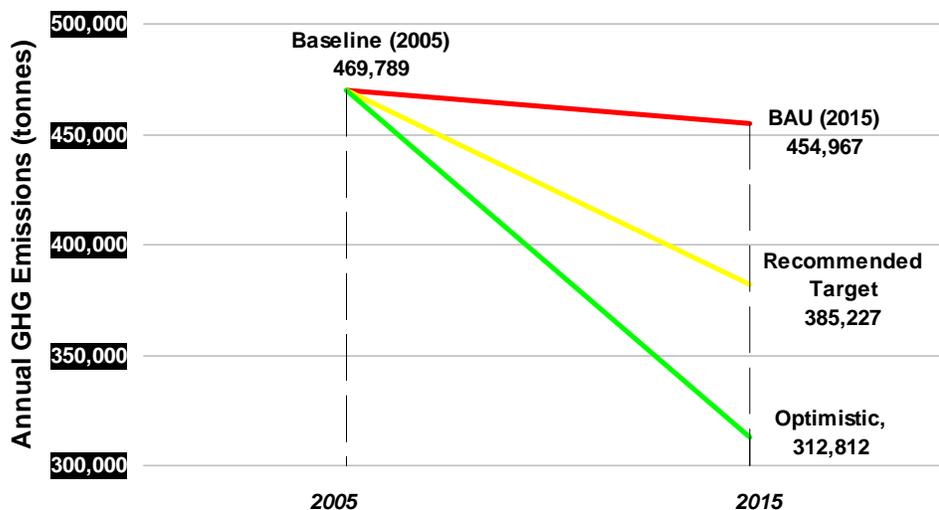


Figure 4. Community Baseline (2005) GHG Emissions and Forecast (2015) Emissions Scenarios

### 3 PROJECT GOALS

In generating appropriate and meaningful goals for the region, a set of objectives was first identified and reviewed with the office of the Strait Highlands Regional Development Agency (S-HRDA) in order to finalise the following list of eight goals:

- .1 Improve the energy efficiency of buildings.
- .2 Increase transportation choice and efficiency.
- .3 Increase industrial energy efficiency.
- .4 Encourage energy efficient land use planning and neighbourhood site planning.
- .5 Increase efficiency of infrastructure.
- .6 Ensure energy security and diversify energy supply.
- .7 Educate and engage local residents and businesses.
- .8 Demonstrate local government leadership.

#### 3.1 Project Scope

The aim of Milestone Three is to develop a local action plan (LAP) with specific measures that will reduce reliance on and quantities of fossil fuels used in order to achieve the GHG emissions reduction targets as set out in Milestone Two. The LAP builds on the region's Green Action Plan. This LAP is structured to determine the best strategies to ensure successful development and implementation of these recommendations.

The LAP is divided into corporate and community energy actions. It distinguishes between the two because municipalities have direct control over corporate energy use and therefore more tools available at their disposal than the community has for addressing energy use. Initiating corporate strategies is also an excellent way to lead by example which is expressed in Goal 8: *Demonstrate Local Government Leadership*.

*Corporate Energy Use* refers to the energy used in municipal operations through the construction, management and delivery of municipal services and operation of facilities. For example, the Municipality of the Town of Port Hawkesbury owns and operates the Port Hawkesbury Civic Centre, Al-Anon Building, the Fire Hall, a municipal vehicle fleet and streetlights.

*Community Energy Use* refers to the consumption of energy in the Strait Highlands Region by residents, businesses, institutions, and industry. The region's community energy use is shaped by the sources of energy used, land use practices, economic activity, waste management practices, transportation activities and the energy efficiency of the building stock

## 4 PLAN DEVELOPMENT

This LAP contains the key initiatives around which the Region can realise its energy Vision and Objectives. Milestone Three is therefore the stage at which all the previous inputs and knowledge are distilled, analysed and prioritised, with a focus on action oriented and change-making outcomes.

Throughout the process the project team worked and exchanged ideas with the Strait Highlands Regional Development Agency (S-HRDA), municipal staff and other various key stakeholders to identify many compelling actions capable of steering the community towards the degree of substantial transformational change necessary to reach the LAP objectives. Considerable effort was spent analysing and assessing the efficacy and impact of various actions, realising that while virtually all the Long List actions had merit, only a much smaller and focused list of actions would be executed and could be cornerstones for a realistic LAP implementation. Although the cost effectiveness of each potential action item is investigated where possible, further research may be desirable to inform the LAP process and assist stakeholders as they move forward to engage in specific activities in order to reduce GHG emissions.

The energy supply and diversification goals proposed herein attempt to ensure that the Strait Highlands Region will evolve purposefully, to become a community that could prosper from increased economic activity, fuelled by efficient utilisation of adequate, diverse and reliable energy supplies. In short, the eight goals proposed will ultimately position the Strait Highlands Region to join leading communities in Canada in sustainable energy usage, optimising quality of life while conserving the precious resources associated with energy access, utilisation and security.

### 4.1 Role of Municipalities

In considering the Local Action Plan options, it is necessary to appreciate the critical roles that municipalities can and cannot play in the sphere of energy and greenhouse gas emissions. Municipalities can and must lead by example where they have the opportunity to do so. This will be accomplished by taking responsibility for getting their own ‘houses in order’ and becoming exemplars of progressive action in areas under their direct jurisdiction and within their corporate footprint. A useful resource that is provided by the FCM for municipalities is the document entitled ‘Citizen Participation and Community Engagement in the Local Action Plan Process: A Guide for Municipal Governments’<sup>4</sup>.

Since municipalities have such a crucial role to play in helping to turn this plan into reality, it is very important that each of the three municipalities considers implementing those measures with the greatest impact and visibility so as to provide an educational platform for the community. By demonstrating what can be accomplished through changes to corporate operations, the municipalities are in a better position to encourage and push for initiative from their constituents. When the citizens realise how seriously their municipal leaders are taking action to transform this action plan into policies, programmes and demonstrable projects, they will be stimulated to be part of this exceptional transformation.

As important as it is for municipalities to get their ‘house in order’ to lead by example, there are also a range of aspects that municipalities do not control due to lack of either jurisdiction or control. Many of these bear on regulatory frameworks and private or public sector interests beyond the municipal sphere of influence. However, in some of these areas, municipalities can exercise influence, either directly when there is a legitimate ‘seat at the table’, or less directly through moral suasion and advocacy. In this regard, the municipalities of the Strait Highlands Region should see themselves as proponents for change, within and beyond the narrow bounds of their respective communities.

The municipalities will provide leadership to the community in GHG reductions through positive examples, identifying opportunities, recognising successes and also by forming partnerships and engaging with citizens and stakeholders who have a role in the sustainable energy future that should become of the Region. Furthermore, the three municipalities must be interested in exploring any available and feasible means of playing a proactive role in the demand side management (DSM) component of the equation, be willing to take on more responsibility and look at creative options to access the funding and the mandate to do so.

It is recommended that these three Municipal Governments work together during implementation of the plan in order to benefit from any potential synergies. For example, since there are many action items that are similar or identical to one another between Municipalities, it would be worthwhile to explore funding options together where feasible in order to minimise the effort required for applications. This will allow more time to be effectively spent on actual implementation of the LAP. There will undoubtedly be valuable lessons learned during implementation that should be shared with the other municipalities in order to save time, increase effectiveness, maintain steady progress and save money through scale economies where applicable.

## 5 GHG EMISSION REDUCTION MEASURES

In consultation with municipalities, residents, private sector businesses, institutions and non-governmental organisations, a long list of appropriate actions was compiled. Ultimately, this list was narrowed down to a shorter list of measures which were discussed in Milestone Two. These measures are the crux of this local action plan and can be found in Table 1. The implementation strategies for each of the measures are analysed in sections six and seven.

**Table 1. Short List of Actions for Implementation**

GOAL 1: IMPROVE THE ENERGY EFFICIENCY OF BUILDINGS
<p><b>Legislative Priorities:</b></p> <ol style="list-style-type: none"> <li>Require higher standards of energy efficiency and environmental design in new municipal buildings, or buildings that receive municipal funding: <ul style="list-style-type: none"> <li>Make LEED Silver the minimum standard for new municipally owned buildings by 2015, and LEED Gold by 2020; and</li> <li>Make LEED eligibility the minimum standard for municipal funding support for new community owned buildings (i.e. fire halls, arenas, etc.).</li> </ul> </li> <li>Mandate EnerGuide rating label on homes at time of sale through the use of municipal by-law changes. The Nova Scotia Association of REALTORS and the province may assist with the implementation of this policy.</li> </ol>
Corporate Actions
<p><b>Action 1:</b> Retrofit existing municipal buildings for energy efficiency/conservation improvements and the use of renewable energy technologies:</p> <ul style="list-style-type: none"> <li>Utilise demand side management (DSM) programmes (such as NSPI's) as a resource tool to reduce energy consumption;</li> <li>Create a capital reserve fund for energy efficiency projects, replenished in part by savings from energy efficiency/conservation initiatives; and</li> <li>Encourage municipalities to enrol in Nova Scotia Power's SEIS (Smart Energy Information Service), which will assist them in managing their energy demand, or use a wireless energy monitor that provides real-time energy consumption information.</li> </ul>
Community Actions
<p><b>Action 1:</b> Reduce infiltration in residential dwellings through weather stripping, caulking, etc.</p> <p><b>Action 2:</b> Retrofit commercial and institutional buildings for energy efficiency and conservation (i.e. DSM measures).</p>
GOAL 2: INCREASE TRANSPORTATION CHOICE AND EFFICIENCY
<p><b>Legislative Priorities:</b></p> <ol style="list-style-type: none"> <li>Mandate that all municipal employees undergo energy efficient driver training (based on NRCan's FleetSmart Program) and limit municipally owned vehicles to maximum speed of 95 km/hr (possibly through the use of governors).</li> </ol>

<b>Corporate Actions</b>
<b>Action 1:</b> Provide incentives for municipal workers to take public transit (such as a 20% rebate on passes). <i>Richmond only</i>
<b>Action 2:</b> Provide (or support the acquisition of) carpooling parking lots in order to encourage ride sharing and transit rider-ship. <i>Excludes Port Hawkesbury</i>
<b>Action 3:</b> Determine the current usage patterns and best practices for municipal vehicles, and then incorporate these practices into operation of fleet. Incentives and/or bonuses may be offered for staying within fuel usage limits.
<b>Action 4:</b> Purchase and showcase more fuel-efficient and/or alternative fuel municipal vehicles (i.e. hybrid, CNG, propane).
<b>Action 5:</b> Support the Strait Area Transit Cooperative initiative by providing annual municipal operating subsidies to ensure its continued operation.
<b>Community Actions (In the PCP framework, Transportation Sector emissions fall under Community)</b>
<b>Action 1:</b> Promote local food production on the most productive lands that are currently not being utilised for food production or that would require minimal energy investment (i.e. even community gardens). Work on expanding Farmer's Markets and promoting efforts to share costs or establish cooperatives for food preparation and/or storage.
<b>Action 2:</b> Support the Strait Area Transit Cooperative initiative through community membership of the co-op and regular usage of the system.
<b>GOAL 3: INCREASE INDUSTRIAL ENERGY EFFICIENCY</b>
<b>Community Actions</b>
<b>Action 1:</b> Install heat recovery equipment at coal-fired power plant and/or pulp and paper mill; use for heating newly constructed greenhouses (local source of food) and/or local buildings.
<b>Action 2:</b> Encourage support and assistance for installation of 60 MW biomass combustion system (BCS) with steam turbine at NewPage.
<b>GOAL 4: ENCOURAGE ENERGY EFFICIENT LAND USE PLANNING AND NEIGHBOURHOOD SITE PLANNING</b>
<b>Corporate Actions</b>
<b>Action 1:</b> Incorporate solar access into community planning (layout of both roads and lots).
<b>Action 2:</b> Allow planning departments to provide preferential or accelerated review for the development permit process for projects meeting energy efficient criteria (i.e. through the use of a checklist) for developments and/or other green criteria.
<b>GOAL 5: INCREASE EFFICIENCY OF INFRASTRUCTURE</b>
<b>Corporate Actions</b>
<b>Action 1:</b> Monitor energy use at water/wastewater treatment plants and pumping stations and perform regularly scheduled maintenance, end of motor life upgrades to high efficiency units and variable frequency drives on pumps with high flow variability.

## GOAL 6: INCREASE ENERGY SECURITY AND DIVERSIFY ENERGY SUPPLY

### Legislative Priorities:

1. Review and if necessary revise any existing policies that may restrict uses of renewable energy or energy efficiency/conservation measures.
2. Enact a policy at the municipal level that provides for incentives to encourage the development of local sustainable energy sources (i.e. provide financial support for feasibility studies, defer taxes and/or reduce cost of acquiring land).

### Corporate Actions

**Action 1:** Explore the option of sea-water cooling in municipal buildings near water. Richmond only

**Action 2:** Utilise solar thermal air heating for suitable municipal buildings where feasible (i.e. solar wall for large buildings, modular units such as Cansolair for smaller buildings).

**Action 3:** Utilise solar thermal heating for suitable municipal domestic hot water (DHW) and pools where feasible.

**Action 4:** Utilise solar thermal energy for hydronic space heating in municipal buildings where feasible.

**Action 5:** Expand the geothermal system at the Port Hawkesbury Civic Centre to include nearby Strait Area Education and Recreation Centre (SAERC) and Port Hawkesbury Provincial Building; *only applicable to Port Hawkesbury.*

**Action 6:** Explore the potential of utilising wind energy to power municipal infrastructure. *Excludes Port Hawkesbury*

### Community Actions

**Action 1:** Install district heating system between the Inverary Manor (which is looking to double the size of the facility) and the Inverness Consolidated Memorial Hospital that is in close proximity (both use oil for heat). The system can incorporate one or more types of renewable energy resources (i.e. biomass plus solar supplement).

**Action 2:** Assess the feasibility of developing natural gas infrastructure in the town of Port Hawkesbury.

**Action 3:** Install a cogeneration BCS using substantial underutilised low-grade wood resource and clean wood (~100 tonnes/yr) from Inverness waste collection facility that can supply energy to local homes and/or greenhouses. *Mutually exclusive with Goal #6, Community Action #4*

**Action 4:** Explore alternative uses of the local biomass resource (i.e. wood pellets, wood chips, gasification, etc.). *Mutually exclusive with Goal #6, Community Action #3*

**Action 5:** Develop utility size wind turbines independently or in cluster approach.

**Action 6:** Assess feasibility for installation of solar thermal DHW (i.e. for residential, commercial & small industrial, institutional users, etc.). A high number of installations can obtain bulk pricing.

**Action 7:** Explore the potential for small scale (run-of-river) hydropower development on rivers with known flow data:

- April Brook at Gillisdale;
- Cheticamp River above Robert Brook;
- Cheticamp River below Artemise Brook;
- Cheticamp River below Cheticamp Lake;
- Lake O'Law Brook at Egypt Road;

- Little River near Port Richmond;
- Northeast Margaree River at Margaree Valley;
- North Little River below Beaver Dam Lake;
- River inhabitants at Glenora;
- Southwest Margaree River at Scotsville; and
- Southwest Margaree River near Upper Margaree.

## GOAL 7: EDUCATE AND ENGAGE THE COMMUNITY

### Legislative Priorities:

1. Hire a sustainability coordinator that will promote existing incentives/programs, build relationships, provide support in application processes, identify local renewable energy and energy efficiency/conservation service providers as well as provide leadership toward the implementation of this community energy plan (CEP).
2. Build partnerships with energy efficiency/conservation program delivery agents and education organisations such as ACAP Cape Breton (focuses on action and education and delivers EnerGuide for Houses program), Clean Nova Scotia and/or Conserve Nova Scotia.

### Corporate Actions

**Action 1:** Day long coalition building session (via invite) organised by mayors and CAOs from the three regions involving CEOs and top managers of large energy users to build momentum to get projects off the ground.

### Community Actions

**Action 1:** Implement a public education and awareness campaign on energy efficiency, conservation and renewable energy as well as available incentives/programs. Several forms of media should be used to ensure outreach to all citizens. This campaign can include tours of local RE systems and/or passive solar design, etc. Addressing concerns such as lower quality of life and unemployment would be beneficial.

**Action 2:** Explore funding options to conduct feasibility studies on the use of heat pumps for buildings (e.g. water source on the coast and ground or air source inland)

**Action 3:** Seek funding for prizes, speakers and educational aids etc. on energy efficiency/conservation and renewable energy at schools.

**Action 4:** Using a broad-based approach that involves multi-community partners and organisations in order to increase community participations, conduct a well-planned and timed CEP launch campaign and promotion blitz that utilises local festivals, exhibitions, workshops and other carefully selected social events.

**Action 5:** Determine the interest in bulk purchase (to achieve a lower cost) of rain barrels to be available at a nominal fee and provide information on operation and maintenance in order to decrease energy and resources used for water pumping and treatment.

**Action 6:** Partner with local and/or provincial NGOs to provide input and deliver education and outreach activities as well as organise school events such as energy challenges.

**Action 7:** Work with the NS Community College to develop training programs to enhance the skills of existing trades persons to implement energy efficiency/conservation and renewable energy measures.

**Action 8:** Develop an information and education campaign for developers and the Builders Owners and Managers Association (BOMA) that emphasises the benefits of energy efficient neighbourhood design.

**Action 9:** Create a carpool culture with a large ad campaign, or through a newsletter and/or call-in show and offer to provide a centralised car pooling registration system to allow interested participants to contact one another.

**Action 10:** Conduct a focussed neighbourhood canvassing program to promote the EnerGuide for Houses Programme.

**Action 11:** Use demonstration projects of renewable energy technologies and energy efficiency/conservation measures. Once installed, organise tours to promote them via the public education and awareness programme.

## GOAL 8: DEMONSTRATE LOCAL GOVERNMENT LEADERSHIP

### Legislative Priorities:

1. Enact a policy that requires a sustainability filter to be applied for all municipal goods and services procurement (i.e. purchasing renewable fuels/energy from sustainable sources, using local materials wherever available and within reason, etc.).
2. Enact a policy that requires a sustainability filter to be applied for all municipal operating procedures (i.e. using local labour and engaging in energy efficient practices such as temperature setbacks, energy efficiency sensitivity training for employees, etc.).
3. Develop a policy for the siting and permitting of wind power developments.
4. Encourage the UNSM to work with the province to provide legislation and related regulations to open up market to IPPs. Standard offer contracts (SOCs) should be the norm for power purchase agreements (PPA), while owners have rights over any carbon credits generated. Municipality may also offer renewable energy generation incentives through 'Behind the Meter Application' and implement a Green Power program that allows the purchasing of power from a sustainable source.

### Corporate Actions

**Action 1:** Use demonstration projects (i.e. heat pumps, solar thermal, green roofs, wind, biofuels, etc.) to prove technology and reduce (perceived) risk.

**Action 2:** Develop a long-term sustainable municipal energy vision that focuses on local, renewable, low or no carbon resources for the next 50 years.

**Action 3:** Officially endorse the GHG emission reduction target and the resulting implementation plan.

**Action 4:** Incorporate energy efficiency principles into municipal planning documents through regular review cycles (i.e. roundabouts and yield signs).

**Action 5:** Maintain the Green Action brand presence in all incentive programs and promotions developed through Green Action and the CEP.

**Action 6:** Develop a programme to exchange information related to sustainable development projects (i.e. share lessons learned, or cooperate on the launch of a capacity building programme).

## 6 CORPORATE LAP IMPLEMENTATION STRATEGIES

### 6.1 Goal 1 – Improve the Energy Efficiency of Buildings

<b>Action 1:</b>	Retrofit existing municipal buildings for energy efficiency/conservation improvements and the use of renewable energy technologies. Create a capital reserve fund for energy efficiency projects, replenished in part by savings from energy efficiency/conservation initiatives.																				
<b>Type of Action:</b>	Project																				
<b>Target Outcomes:</b>	<p>Reduction of energy consumption and GHG emissions by buildings.</p> <ul style="list-style-type: none"> <li>Total energy consumption reduction of about 156,000 kWh annually (for the three municipalities combined)</li> <li>Total annual GHG reduction of approximately 110 tonnes</li> <li>Savings from avoided energy use of about \$19,900 annually.</li> </ul> <p>Energy reductions are realised through building envelope and systems upgrades as well as operational changes at municipally owned or managed facilities. Municipal buildings represent a significant portion of municipal energy consumption. Energy use and GHG emission proportions for Corporate Buildings can be summarised for each of the municipalities as follows:</p> <p>Table 2. Energy Use and GHG Emissions from Municipal Buildings (2005)</p> <table border="1"> <thead> <tr> <th>MUNICIPALITY</th> <th>BUILDING ENERGY USE (KWH)</th> <th>PERCENT OF TOTAL MUNICIPAL ENERGY USE</th> <th>BUILDINGS GHG EMISSIONS (TONNES)</th> <th>PERCENT OF TOTAL MUNICIPAL GHG EMISSIONS</th> </tr> </thead> <tbody> <tr> <td>Inverness</td> <td>2,638,639</td> <td>38.6%</td> <td>2,058</td> <td>42.3%</td> </tr> <tr> <td>Richmond</td> <td>663,129</td> <td>25.2%</td> <td>469</td> <td>22.2%</td> </tr> <tr> <td>Port Hawkesbury</td> <td>2,636,872</td> <td>19.0%</td> <td>2,146</td> <td>18.1%</td> </tr> </tbody> </table>	MUNICIPALITY	BUILDING ENERGY USE (KWH)	PERCENT OF TOTAL MUNICIPAL ENERGY USE	BUILDINGS GHG EMISSIONS (TONNES)	PERCENT OF TOTAL MUNICIPAL GHG EMISSIONS	Inverness	2,638,639	38.6%	2,058	42.3%	Richmond	663,129	25.2%	469	22.2%	Port Hawkesbury	2,636,872	19.0%	2,146	18.1%
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Richmond	663,129	25.2%	469	22.2%																	
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<b>Lead/Partners:</b>	Municipal Governments (or established energy committee), Sustainability Coordinator, Building Contractors, Enterprise Cape Breton Corporation, ESCOs and Energy Consultants.																				
<b>Indicator:</b>	<p>Number of municipal buildings and their respective energy consumption will allow determination of savings from DSM measures.</p> <p>Percent reduction in energy use compared with pre-retrofit projections.</p>																				
<b>Inputs:</b>	Capital budget, Project Scope, Building Audits, Architects and Engineers specialising in buildings and energy management.																				
<b>Activities:</b>	<ul style="list-style-type: none"> <li>Encourage enrolment by municipalities in Nova Scotia Power's SEIS (Smart Energy Information Service), which will assist in managing energy demand, or use a wireless energy monitor that provides real-time energy consumption information.</li> </ul>																				

	<ul style="list-style-type: none"> <li>• Utilise demand side management (DSM) programmes (such as NSPI's) as a resource tool to reduce energy consumption;</li> <li>• Create a capital reserve fund or other means of funding retrofits- possibly through accessing funding programs;</li> <li>• Provide training and education to municipal staff on energy efficiency and alternative technologies;</li> <li>• Develop a detailed energy use benchmark database for existing municipal buildings;</li> <li>• Compare benchmarks with national database for comparable buildings;</li> <li>• Complete the necessary Building Audits on selected facilities;</li> <li>• Prioritise retrofit projects based on performance against national standards;</li> <li>• Compile a Priority List of Projects based upon information provided from the Building Audits;</li> <li>• Issue RFP for Architectural &amp; Engineering Services;</li> <li>• Implement the Project (or Projects) with Tender, Project Award, and Construction; and</li> <li>• Complete retrofits and begin paying savings into the capital reserve fund.</li> </ul>
<b>Outputs:</b>	Energy efficient municipal buildings and facilities; lowered annual energy bills. Potential to demonstrate the success of the measures to community groups as part of the ongoing public education and awareness program.
<b>Time Frame:</b>	Short to medium term. Implementation can begin in the short term – but will be an ongoing project until all suitable buildings have been retrofitted. Phasing and time frame will depend on budgets available and whether the retrofits can be accomplished as part of the regular maintenance and upgrading schedule.
<b>Budget/Resources:</b>	<p>Potential resources include Enterprise Cape Breton Corporation, ESCOs, NSPI's DSM programme assistance. The PowerCost monitor (available online<sup>5</sup> from Blue Line Innovations for \$150) may be used as an additional means to conserve energy by tracking electricity usage.</p> <p>A Public Works staff member or other staff member appointed by the municipality would administer the retrofit program. The capital reserve fund may be fed from 80% of the cost savings incurred by energy efficiency/conservation initiatives. Those who take efficiency/conservation initiatives keep about 20% of the savings incurred from such actions. The time requirement depends in part on the pace of implementation. Initial baseline and benchmark studies would take about 3- 6 person months full time if done in-house. The actual retrofits would occur over a period of about 12 months and would require oversight by the municipal engineer.</p>

## 6.2 Goal 2 – Increase Transportation Choice and Efficiency:

<b>Action 1:</b>	Provide incentives for municipal workers to take public transit (such as a 20% rebate on passes). This action item is only applicable to Richmond municipal employees due to limited service area.
<b>Type of Action:</b>	Programme

<b>Target Outcomes:</b>	Increased rider-ship on the Strait Area Transit and a corresponding reduction in GHG emissions due to reduced individual driving by municipal staff.
<b>Lead/Partners:</b>	Strait Area Transit Cooperative (SAT), Municipality of Richmond County through formal approval by CAO/CFO/municipal engineer and Council.
<b>Indicator:</b>	Number of avoided vehicle kilometres travelled (VKT) in private vehicles. This could be determined through an annual staff questionnaire or a reporting form in exchange for receipt of the rebate.
<b>Inputs:</b>	Funding for subsidisation of transit passes. Amount depends on uptake.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>Assess the level of interest for participation by municipal staff and provide encouragement</li> <li>Assess the level of required subsidy (rebate) in dollars on an annual basis</li> <li>Determine the length of time (e.g. number of years) that the rebate should be available</li> <li>Present to Council and seek funding approval</li> </ul>
<b>Outputs:</b>	Increased rider-ship on public transit due to lower cost per person. Some potential savings to municipality if municipal vehicles are being driven home by employees at present, reduced gas and maintenance bills.
<b>Time Frame:</b>	<ul style="list-style-type: none"> <li>Implementation is short term</li> <li>Programme expected to be in place in the long term and beyond 2015</li> </ul>
<b>Budget/Resources:</b>	Municipal Government funding. At the current SAT Scheduled Route Rates, the level of funding required for this rebate is about \$11,300 annually assuming all 18 municipal staff will participate.

<b>Action 2:</b>	Provide (or support the acquisition of) carpooling parking lots in order to encourage ride-sharing and transit ridership. This action item excludes Port Hawkesbury due to close proximity to employment areas and much reduced need for extensive travel.
<b>Type of Action:</b>	Planning
<b>Target Outcomes:</b>	Reduction in the total community vehicle kilometres travelled (VKT) and thus GHG emissions. This measure is expected to achieve an annual reduction in Transportation Sector GHG emissions of 45 to 70 tonnes.
<b>Lead/Partners:</b>	Municipal Governments, CAO's, Municipal Engineers and the Sustainability Coordinator.
<b>Indicator:</b>	Number of kilometres saved from being driven in private vehicles.
<b>Inputs:</b>	<ul style="list-style-type: none"> <li>Continued public education on the benefits of carpooling.</li> <li>Municipally owned land, or land which municipalities can lay claim to for the purposes of this measure.</li> </ul>
<b>Activities:</b>	<ul style="list-style-type: none"> <li>Identify areas where carpooling parking lots would be useful (i.e. at major intersections or near on and off-ramps of highways).</li> <li>Formal assessment of these key locations for land ownership and suitability.</li> <li>Acquire land for the use of carpooling parking lots and designate as such.</li> </ul>
<b>Outputs:</b>	Increased carpooling and ridership on the Strait Area Transit and savings of energy. Community wide savings of over \$750,000 and \$915,000 for Richmond County and Inverness County respectively would be saved on fuel annually from this measure.

<b>Time Frame:</b>	This is a short term activity which has to be rolled out immediately. Size of land allocated could increase incrementally as more drivers opt for carpooling and/or public transportation.
<b>Budget/Resources:</b>	<ul style="list-style-type: none"> <li>• Municipal government land.</li> <li>• Municipal public works director for assessment of candidate parcels of land.</li> <li>• Annual maintenance costs for grading, snow removal</li> </ul>

<b>Action 3:</b>	Determine the current usage patterns and best practices for municipal vehicles, and then incorporate these practices into operation of fleet. Incentives and/or bonuses may be offered for staying within fuel usage limits.																								
<b>Type of Action:</b>	Programme																								
<b>Target Outcomes:</b>	<p>To have an efficient corporate vehicle fleet that is able to meet the municipal transportation needs as required while consuming less energy and requiring less maintenance than at present.</p> <p>Relative municipal vehicle fleet energy consumption and GHG emissions for each of the municipalities are shown in Table 3 as of the end of year 2005.</p> <p>Table 3. Energy Use and GHG Emissions from Municipal Vehicle Fleet (2005)</p> <table border="1"> <thead> <tr> <th>MUNICIPALITY</th> <th>VEHICLE ENERGY USE (KWH)</th> <th>PERCENT OF TOTAL MUNICIPAL ENERGY USE</th> <th>VEHICLE GHG EMISSIONS (TONNES)</th> <th>PERCENT OF TOTAL MUNICIPAL GHG EMISSIONS</th> </tr> </thead> <tbody> <tr> <td>Inverness</td> <td>1,499,538</td> <td>21.9%</td> <td>377</td> <td>7.8%</td> </tr> <tr> <td>Richmond</td> <td>166,527</td> <td>6.3%</td> <td>41</td> <td>1.9%</td> </tr> <tr> <td>Port Hawkesbury</td> <td>249,037</td> <td>1.8%</td> <td>62</td> <td>0.5%</td> </tr> </tbody> </table> <p>Vehicle fleet is a relatively small sector within the municipal structures. However, this measure will reduce annual energy consumption in the combined municipal vehicle fleet by almost 21,000 kWh (75 GJ), which will result in combined energy savings of about \$2,000 per year. Inverness County could benefit more from this measure due to a comparably higher vehicle ownership than the other two municipalities. A total of about 15 to 35 tonnes of GHG emissions could be reduced annually.</p>					MUNICIPALITY	VEHICLE ENERGY USE (KWH)	PERCENT OF TOTAL MUNICIPAL ENERGY USE	VEHICLE GHG EMISSIONS (TONNES)	PERCENT OF TOTAL MUNICIPAL GHG EMISSIONS	Inverness	1,499,538	21.9%	377	7.8%	Richmond	166,527	6.3%	41	1.9%	Port Hawkesbury	249,037	1.8%	62	0.5%
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<b>Lead/Partners:</b>	Municipal Government, Municipal staff and the Sustainability Coordinator.																								
<b>Indicator:</b>	Percent reduction in the overall fleet energy consumption; and the percent reduction in fleet maintenance costs.																								
<b>Inputs:</b>	A fleet inventory and usage database is required in order to develop the programme. This would allow the municipalities to consider municipal vehicle and equipment management as well as coordination with a focus on energy efficiency and emissions reduction																								
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Review current fleet inventory uses, costs, and current procurement criteria.</li> </ul>																								

	<ul style="list-style-type: none"> <li>• Consult with vehicle fleet users, maintenance personnel, and procurement staff.</li> <li>• Develop new procurement policy and operations and maintenance policy.</li> <li>• Provide training in operations and maintenance policy (note that driver training is dealt with separately in the Policy Action Item for this goal).</li> <li>• Develop fleet operating cost and energy consumption database for monitoring purposes.</li> </ul>
<b>Outputs:</b>	Fleet policy that covers procurement as well as operations.
<b>Time Frame:</b>	<p>Medium term – implementation</p> <p>Research and inventory of current fleet would take about 30 days full time and could be done in house or contracted out. Policy development based on the research and inventory would require 2 – 3 months to ensure that staff are consulted. Once the policy has been developed – it can be implemented immediately with training on an ongoing basis. Due to a small number of vehicles per municipality, procurement is not expected to be immediate. However, the anticipation is that vehicles will be replaced with more energy efficient vehicles according to each municipality’s current regular replacement schedule.</p>
<b>Budget/Resources:</b>	<ul style="list-style-type: none"> <li>• Municipal staff time for assessing databases and coordinating with municipal departments</li> <li>• Sustainability Coordinator for reviewing best practices and other comparable literature such as from the NRCan’s FleetSMART programme.</li> <li>• There may also be incremental procurement costs associated with more energy efficient vehicles, but the rate of return on the investment is expected to be very attractive if vehicles are already scheduled for replacement (ROI will vary with type of vehicle and use).</li> </ul>

<b>Action 4:</b>	Purchase and showcase more fuel-efficient and/or alternative fuel municipal vehicles, with the exception of ethanol (i.e. hybrid, CNG, propane).
<b>Type of Action:</b>	Programme or Demonstration
<b>Target Outcomes:</b>	One fuel-efficient vehicle per municipality in order to increase awareness of the benefits while also lowering operating costs.
<b>Lead/Partners:</b>	Municipal Council, Procurement and Training Officers and CAO’s.
<b>Indicator:</b>	<p>There are two indicators of the effectiveness of this action:</p> <ul style="list-style-type: none"> <li>• The reduction of vehicle fleet GHG emissions as a result of replacement of a conventional vehicle with a more energy efficient vehicle.</li> <li>• Increase in the number of energy efficient private vehicles purchased as a result of increased awareness in the region.</li> </ul>
<b>Inputs:</b>	Purchase of one fuel-efficient or alternative fuel vehicle per municipality. The type of vehicle chosen should be determined through an evaluation of the duties the vehicle will be responsible for. A Smart Car or hybrid vehicle may be most suitable if used mainly for commuting to and from public gatherings or events. Ethanol fuelled vehicles should not be considered for the purposes of this measure due to the very low energy return on investment of making ethanol from corn and also because of concerns over using food as fuel.

<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Label the vehicle as “Energy Efficient” or “Hybrid” where such markings can be easily seen by passers-by.</li> <li>• Use showcase vehicle instead of conventional vehicle whenever possible and especially at any public events or gatherings.</li> <li>• Promote the efficiency of the vehicle by posting actual achieved fuel efficiency data for the vehicle.</li> </ul>
<b>Outputs:</b>	More efficient private vehicles in the Strait Highlands area as a result of increased awareness. Additionally, a reduction of GHG emissions will be achieved for the municipality as a result of their more efficient showcase vehicle that can displace the use of a conventional vehicle.
<b>Time Frame:</b>	This is a short-term action that needs to be active as soon as possible – ideally to be activated during the launching of the Milestone Three local action plan.
<b>Budget/Resources:</b>	Municipal spending on the preferred vehicle. The cost could be anywhere between \$20,000 to \$50,000 depending on the choice and make of the vehicle.

<b>Action 5:</b>	Support the Strait Area Transit Cooperative initiative by providing annual operating subsidies to ensure its continued operation.
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	A high level of ridership through successful execution of the operational strategy and word of mouth.
<b>Lead/Partners:</b>	Strait Area Transit Cooperative, Municipal Governments, various interested groups (e.g. disability groups, two school boards, and other governments).
<b>Indicator:</b>	Level of ridership on the transit system and the reduction in the number of vehicle kilometres travelled (VKT) in private vehicles.
<b>Inputs:</b>	<ul style="list-style-type: none"> <li>• Funding to commission feasibility studies for expansion of service and geographic coverage.</li> <li>• Annual funds to reduce ticket costs and increase ridership.</li> </ul>
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Educate the public on the available options and pick-up places as more destinations make it to the schedule.</li> </ul>
<b>Outputs:</b>	<ul style="list-style-type: none"> <li>• Increased use of public transit and corresponding reduction of GHG emissions from the use of private vehicles. A successful and user-friendly operating system may lead to an expansion of the service into other areas.</li> <li>• Ability for SAT to provide both a dial-a-ride service (door-to-door pick up) if a call is placed one to two days prior as well as regularly scheduled weekday routes.</li> </ul>
<b>Time Frame:</b>	The co-op initiated service in the fall of 2008. This support needs to be in place immediately as reduced ticket costs would likely stimulate ridership from the low levels currently being experienced.
<b>Budget/Resources:</b>	<ul style="list-style-type: none"> <li>• Municipal Governments to sustain the approximately \$26,000 a year, already in place.</li> <li>• Provincial Government has provided \$120,000 but has not committed to sustained financial support. With support from municipal councils and CAO’s, the provincial government should be lobbied for committed and predictable</li> </ul>

	<p>financial support</p> <ul style="list-style-type: none"> <li>• Various other group donations (SAT has secured Charitable Status).</li> </ul>
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### 6.3 Goal 4 – Encourage Energy Efficient Land Use Planning and Neighbourhood Site Planning

<b>Action 1:</b>	Incorporate solar access into municipal permit applications for community planning (layout of both roads/streets and lots).
<b>Type of Action:</b>	Planning/Legislative priority
<b>Target Outcomes:</b>	<ul style="list-style-type: none"> <li>• More sustainable and energy efficient neighbourhoods,</li> <li>• Reduced energy footprint and reduction in GHG emissions.</li> </ul>
<b>Lead/Partners:</b>	Municipal Government leaders, Planning Commission, Public works directors and civil engineers.
<b>Indicator:</b>	<ul style="list-style-type: none"> <li>• Increase in the number of homes built with passive or active solar design features</li> <li>• The relatively lower energy use index compared to existing comparable homes.</li> </ul>
<b>Inputs:</b>	An integration of solar access principles into the community planning process.
<b>Activities:</b>	Integrate solar access principles into municipal permit applications in order to incorporate these design principles at the earliest stage in the development process (community planning), thus increasing the chances of adoption. Work with the Planning Commission to develop guidelines that are suitable for the region while maintaining the maximisation of passive solar absorption into new developments.
<b>Outputs:</b>	Design of neighbourhoods (lots and roads) that promote the development of climate sensible homes. For example, incorporating passive solar design features (homes oriented on an east-west axis with southerly windows) and ecological landscaping (using conifers to block cold winter winds and deciduous trees to block summer sun).
<b>Time Frame:</b>	The planning documentation development requires an immediate implementation, while the actual development is in a long term frame and expected to be ongoing well into the 2030's.
<b>Budget/Resources:</b>	Each municipality needs to have one staff member working on this with the Regional Planning Commission. If a municipality has formed an “Energy Committee” or similar, the chair of such a committee - or their delegate - may be the liaising individual with the Planning Commission. Beyond this, there are no other foreseeable required resources.

<b>Action 2:</b>	Allow planning departments to provide preferential or accelerated review for the development permit process for projects meeting energy efficient criteria and/or other green criteria (i.e. through the use of a checklist).
<b>Type of Action:</b>	Planning
<b>Target Outcomes:</b>	Reduction in energy use and GHG emissions
<b>Lead/Partners:</b>	<ul style="list-style-type: none"> <li>• Regional Planning Commission to take the lead; in partnership with Municipal</li> </ul>

	<p>Councils, municipal staff and developers.</p> <ul style="list-style-type: none"> <li>• A Sustainability Coordinator required for promotion and dissemination of information as well as development of an energy efficient criteria checklist.</li> </ul>
<b>Indicator:</b>	Rate of increase in the percentage of energy efficient or 'green' projects
<b>Inputs:</b>	Development of appropriate criteria that forms the checklist (to determine how 'green' or sustainable proposed projects would be.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Develop checklist to evaluate level of sustainability. Checklist should be based on Canadian Green Building Council LEED standards.</li> <li>• Apply checklist to all projects applying for a permit and accelerate the turn over time for those meeting the criteria.</li> </ul>
<b>Outputs:</b>	A greater percentage of sustainable projects.
<b>Time Frame:</b>	Development of the input criteria could be done and verified within 4 to 6 weeks, following which the checklist should be applied.
<b>Budget/Resources:</b>	If capabilities are resident within the Planning Commission or within the municipal staff for brainstorming the criteria elements and verifying against a simulated model, there are no costs associated with implementing this measure. In the absence of such a skill set in-house, an energy consultant should be secured. The consultant's fee for running the simulations and tweaking the inputs is estimated to be about \$1,400 to \$2,000.

#### 6.4 Goal 5 – Increase Energy Efficiency of Infrastructure

<b>Action 1:</b>	Monitor energy use at water/wastewater treatment plants and pumping stations and perform regularly scheduled maintenance, end of motor life upgrades to high efficiency units and variable frequency drives on pumps with high flow variability.
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	<ul style="list-style-type: none"> <li>• Reduced energy consumption</li> <li>• Longer pump service life,</li> <li>• Fewer unscheduled station shutdowns, and reduced pump motor maintenance costs.</li> </ul>
<b>Lead/Partners:</b>	Municipal engineer/public works director and the respective municipality.
<b>Indicator:</b>	% energy reduction after retrofits and upgrades. A baseline of energy consumption data for equipment prior to upgrade needs to be developed through real time measurement of energy consumption while running. This practice has been found to reduce consumption by about 10 to 15%.
<b>Inputs:</b>	<ul style="list-style-type: none"> <li>• Assessment of current stock of motors and pumps, and the pump operating schedules.</li> <li>• Funds for and installation of energy monitoring equipment, equipment upgrades, and enhanced inspections.</li> </ul>
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Obtain detailed inventory of energy consuming equipment including size, installation date, drive type, efficiency rating and the estimated date for equipment replacement.</li> </ul>

	<ul style="list-style-type: none"> <li>• Monitor energy consumption at each station to determine base conditions.</li> <li>• Follow up on the inventory assessment by developing a plan to periodically monitor consumption, upgrade motors to high efficiency at end of service life, and install variable frequency drives on pumps with high flow variability.</li> <li>• Use results from monitoring to then determine the energy and emission reduction that was achieved through this measure.</li> </ul>
<b>Outputs:</b>	Baseline energy use and implementation of more efficient water/wastewater treatment plants and pumping stations.
<b>Time Frame:</b>	Study initiation in the short term, Implementation is a medium term activity Proper training of maintenance and procurement staff on new equipment and procedures expected to take up to four months.
<b>Budget/Resources:</b>	\$30,000 - \$60,000 to conduct assessment and develop plan \$200,000 to \$350,000 per municipal unit to implement retrofits, most or all of which should be recovered by reduced operational costs.

## 6.5 Goal 6 – Increase Energy Security and Diversify Energy Supply

<b>Action 1:</b>	Explore the option of sea-water cooling in municipal buildings near water. This action item is only applicable to Richmond County due to lack of applicability in other municipalities (It might be possible for the Inverness Court House in Port Hood too - requires further feasibility studies).
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	<ul style="list-style-type: none"> <li>• Reduction in energy required for cooling the Administrative Building by about 90% and up to 100% for most of the summer season.</li> <li>• Reduction of GHG emissions</li> </ul>
<b>Lead/Partners:</b>	Facilities Manager/Municipal Engineer, Energy Consultants, Sustainability Coordinator, S-HRDA.
<b>Indicator:</b>	<ul style="list-style-type: none"> <li>• Quantity of energy reduced for cooling the building</li> </ul>
<b>Inputs:</b>	<ul style="list-style-type: none"> <li>• Funding for feasibility assessments of potential for Richmond County Administration Building and the Port Hood Court House in Inverness.</li> <li>• Installation of selected equipment with appropriate controls to suit the cooling load.</li> </ul>
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Seek funding for commissioning preliminary feasibility studies of both buildings</li> <li>• If feasibility results are favourable, proceed with detailed design, construction and commissioning</li> </ul>
<b>Outputs:</b>	Utilisation of a clean renewable resource for cooling
<b>Time Frame:</b>	<ul style="list-style-type: none"> <li>• Funding approval and feasibility studies could take about four to six months</li> <li>• Detailed design, tendering, construction and commissioning could be accomplished within 12 months</li> </ul>
<b>Budget/Resources:</b>	Depending on the current cooling loads at each of these places, a well designed and constructed system could potentially show attractive economic returns. However,

	substantial costs might be incurred in procuring corrosion resistant heat exchangers and other equipment that might require titanium alloys.
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<b>Action 2:</b>	Utilise solar thermal air heating for suitable municipal buildings where feasible (i.e. SolarWall for large buildings, modular units such as Cansolair for smaller buildings).
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	<ul style="list-style-type: none"> <li>• Reduction in energy use</li> <li>• Reduced carbon footprint</li> </ul>
<b>Lead/Partners:</b>	Municipal Engineer to take the leading role, support from Conserval Engineering (only manufacturer of SolarWall in Canada), Council, S-HRDA.
<b>Indicator:</b>	Reduced energy utilisation index per building
<b>Inputs:</b>	<ul style="list-style-type: none"> <li>• Funding for feasibility and concept studies</li> <li>• Availability of about 50 m2 of south-oriented wall for one bldg in each municipality. Combined rebates available for projects over \$50,000</li> </ul>
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Determine the number and type of municipal buildings suitable for solar thermal air heating installations (i.e. relatively large expanse of south-facing wall and no Heritage Building status).</li> <li>• Determine which candidate buildings will have their cladding replaced within five years and make them a priority (economics for SolarWall are better for new buildings or where cladding would be replaced by the SolarWall if it were due for replacement).</li> <li>• Seek funding for detailed engineering design and installation of the solar air heating system</li> </ul>
<b>Outputs:</b>	<ul style="list-style-type: none"> <li>• Use of solar for space heating</li> <li>• Reduced GHG emissions from heating</li> <li>• Reduced building heating costs</li> </ul>
<b>Time Frame:</b>	Feasibility studies – short term Project design and installation – medium term
<b>Budget/Resources:</b>	<ul style="list-style-type: none"> <li>• Funding for feasibility studies – \$6,000 to \$10,000 per project</li> <li>• Capital for material procurement and construction - \$35,000 to \$50,000 for a 50 m2 wall area.</li> </ul>

<b>Action 3:</b>	Utilise solar thermal heating for suitable municipal domestic hot water (DHW) and pools where feasible.
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	Reduced GHG emissions through use of solar for domestic hot water needs at municipal administrative and office buildings
<b>Lead/Partners:</b>	Municipality to lead the initiative, partner with local (Nova Scotian) solar panel manufacturers, Ecology Action Centre, Conserve Nova Scotia and Sustainability Coordinator.
<b>Indicator:</b>	Actual energy reduction at municipal buildings and corresponding GHG cuts
<b>Inputs:</b>	<ul style="list-style-type: none"> <li>• Inverness – 15 panels for DHW only for 3 buildings</li> <li>• Richmond – 10 panels for DHW for 2 buildings (Admin &amp; Court house)</li> </ul>

	<ul style="list-style-type: none"> <li>Port Hawkesbury - 44,320 kWh/yr for 40 panels; 48.4 tonnes of GHG. Assume existing is electric heat.</li> </ul>
<b>Activities:</b>	<ul style="list-style-type: none"> <li>Evaluate the municipal hot water needs and prioritise projects (the SAERC in Port Hawkesbury is the only municipally owned pool in the Strait Highlands Region).</li> <li>Engage in discussion with companies such as Thermo Dynamics Ltd and Second Source Power, etc. to establish accurate anticipated project costs</li> <li>Examine available funding options for solar projects and prepare funding applications</li> </ul>
<b>Outputs:</b>	Operating solar panels for DHW needs that also demonstrate the municipality's commitment to minimise their carbon footprint. Reduced operating costs.
<b>Time Frame:</b>	<ul style="list-style-type: none"> <li>Preliminary evaluations and funding approvals - 6 to 10 months</li> <li>Design, implementation and commissioning – 12 months</li> </ul>
<b>Budget/Resources:</b>	Project capital requirements estimates: Inverness County - \$35,000 to \$45,000 Richmond County - \$30,000 to \$40,000 Port Hawkesbury - \$66,000 to \$80,000

<b>Action 4:</b>	Utilise solar thermal energy for hydronic space heating in municipal buildings where feasible.
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	Reduced GHG emissions through use of solar hot water for preheating municipal heating water at municipal buildings. The most suitable use of this proposed heating system would be for existing (and future) municipal buildings utilising in-floor radiant heat. It may also be possible to retrofit existing floors for in-slab heating in order to incorporate solar thermal hydronic systems.
<b>Lead/Partners:</b>	Municipality to lead the initiative, partner with local (Nova Scotian) solar panel manufacturers, Ecology Action Centre, Conserve Nova Scotia and Sustainability Coordinator.
<b>Indicator:</b>	Energy reduction at the heated municipal buildings and corresponding cuts in GHG emissions
<b>Inputs:</b>	<ul style="list-style-type: none"> <li>Inverness – Increase panels to 20 per building for space heating (preheating water)</li> <li>Richmond – Increase panels to 20 for Administration building and 15 for the Court House</li> <li>Port Hawkesbury - Install 60 panels for Civic Centre</li> </ul>
<b>Activities:</b>	Determine the number and type of municipal buildings suitable for solar thermal hydronic space heating.
<b>Outputs:</b>	Additional demonstration opportunity and lowered GHG emissions for space heating of municipal buildings.
<b>Time Frame:</b>	12 to 24 months for design and implementation
<b>Budget/Resources:</b>	Estimated capital requirements (solar panel installations only, not including floor retrofit or heating piping):

	Inverness County - \$45,000 to \$60,000 Richmond County - \$62,000 to \$75,000 Port Hawkesbury - \$66,000 to \$80,000
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<b>Action 5:</b>	Expand the geothermal system at the Port Hawkesbury Civic Centre to include nearby Strait Area Education and Recreation Centre (SAERC) and Port Hawkesbury Provincial Building; only applicable to Port Hawkesbury.
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	Increased utilisation of earth energy within Port Hawkesbury
<b>Lead/Partners:</b>	To be led by the School Board representative. Requires support of the SAERC Administration, Municipality of Port Hawkesbury (CAO and Engineer), Engineering Consultants (e.g. High Performance Energy Systems).
<b>Indicator:</b>	Reduced quantity of fuel oil required by the SAERC.
<b>Inputs:</b>	Funding for feasibility assessment, design and construction
<b>Activities:</b>	<ul style="list-style-type: none"> <li>Evaluate the available potential from the existing laid out geothermal system</li> <li>Determine what the energy requirements of SAERC and the Provincial Building are and determine if the Civic Centre system is large enough to accommodate SAERC and the Provincial Building.</li> <li>Seek funding and proceed with the systems expansion</li> </ul>
<b>Outputs:</b>	A shared geothermal system between the Civic Centre and SAERC allowing for a further reduction in GHG emissions and reduced level of dependence on fuel oil.
<b>Time Frame:</b>	18 to 30 months from initiation assessments to implementation
<b>Budget/Resources:</b>	Feasibility study and capacity assessment – \$1,000 to \$2,000 – this is primarily to review the historic performance at the Civic Centre, and then comparing the delivered energy over the past year with the geothermal system design capacity to establish extra capacity. The project cost is estimated at \$200 per kBTU of installed heating capacity.

<b>Action 6:</b>	Explore the potential of utilising wind energy to power municipal infrastructure. This action item excludes Port Hawkesbury from GHG reduction credit due to the fact that the installation of a large-scale wind turbine is already being explored; this has been addressed separately.
<b>Type of Action:</b>	Planning/Project
<b>Target Outcomes:</b>	Reduced reliance on conventional (mainly coal-fired) electricity.
<b>Lead/Partners:</b>	Municipal Governments, S-HRDA, wind power developers and land owners.
<b>Indicator:</b>	Power generated and equivalent GHG reductions achieved as wind turbines come online.
<b>Inputs:</b>	<ul style="list-style-type: none"> <li>Funding for feasibility studies and environmental assessments</li> <li>Funding for actual project implementation</li> </ul>
<b>Activities:</b>	<ul style="list-style-type: none"> <li>Identify potential sites with attractive wind regime</li> <li>Seek funding approval for feasibility and resource assessment for identified locations</li> <li>Conduct resource assessments for a minimum of one year at each location (to</li> </ul>

	<p>account for seasonal variations)</p> <ul style="list-style-type: none"> <li>• Obtain relevant permits and right of way approvals</li> <li>• Design and construct wind turbine installations</li> </ul>
<b>Outputs:</b>	Use of wind energy for powering municipal infrastructure which will reduce the municipal carbon footprint.
<b>Time Frame:</b>	<ul style="list-style-type: none"> <li>• Wind Resource Assessment – 12 to 18 months</li> <li>• Permitting process and right of way approvals – 12 months</li> <li>• Project design and construction – 18 to 30 months (sometimes lead times for delivery of wind turbine parts could be over 24 months).</li> </ul>
<b>Budget/Resources:</b>	<ul style="list-style-type: none"> <li>• Wind resource assessment is estimated at about \$20,000 per site (however, if this assessment has been done within the vicinity of the proposed locations, data and results may be obtained for free or at a price lower than above.</li> <li>• Permitting and environmental assessments estimated at \$20,000 to \$100,000 (the upper range is for wind farms rather than single turbine projects.</li> <li>• Equipment, engineering and project management is \$220,000 to \$250,000 for an installed 50 kW turbine. Installed costs for the ‘big wind’ turbines range from \$2 million to \$3 million per MW of installed capacity.</li> </ul>

## 6.6 Goal 7 – Educate and Engage the Community

<b>Action 1:</b>	Day long coalition building session (via invite) organised by mayors and CAO’s from the three regions involving CEOs and top managers of large energy users to build momentum to get projects off the ground.
<b>Type of Action:</b>	Programme
<b>Target Outcomes:</b>	Partnership-building and sharing of opportunities to minimise investment risk.
<b>Lead/Partners:</b>	Sustainability Coordinator to chair and facilitate discussions. Support required from Municipal Governments, S-HRDA and CEOs of large energy users.
<b>Indicator:</b>	Quality and number of partnerships leading to implementation of GHG reducing measures.
<b>Inputs:</b>	Ideas, commitment, and willingness to partake.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Set date, time and place and send invitations to desired participants</li> <li>• Share information available on the Strait Highlands Green Action, including all three PCP Milestone reports.</li> <li>• Encourage free sharing of ideas on project and programme partnerships with specific focus on measures that reduce GHG emissions and increase potential economic opportunities with the region.</li> </ul>
<b>Outputs:</b>	A shared interest, vision and commitment by municipal units and business community.
<b>Time Frame:</b>	A couple of weeks to make a list and send invitations. The discussions would ideally last one day with potential for collection of feedback by the Sustainability Coordinator or other.
<b>Budget/Resources:</b>	N/A

## 6.7 Goal 8 – Demonstrate Local Government Leadership

Actions under this goal are specific to the municipalities. These actions are listed below:

<b>Action 1:</b>	Use municipal demonstration projects (i.e. heat pumps, solar thermal, green roofs, wind, biofuels, etc.) to prove technology and reduce (perceived) risk. Once installed, organise tours to promote them via the public education and awareness programme.
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	<ul style="list-style-type: none"> <li>Improved acceptance of renewable energy and alternative energy technology by regional citizens</li> <li>Public education and demonstration on how to proceed at the community level with similar measures.</li> </ul>
<b>Lead/Partners:</b>	To be led by appointed municipal staff or Sustainability Coordinator. Partners include municipal governments, S-HRDA, key community leaders, consultants and/or engineers, education groups such as the EAC, Clean Nova Scotia and ACAP Cape Breton.
<b>Indicator:</b>	Enquiries made by the public and increased interest in similar technologies by citizens.
<b>Inputs:</b>	Funding for demonstration projects; this is dependent on type and size of project.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>Determine which projects have a visible appeal and make the list available to incumbents.</li> <li>Issue invitations and schedule times when tours may be offered for those areas where guides or operators need to give demonstration and explanations.</li> </ul>
<b>Outputs:</b>	Knowledge base and better understanding of how the different technologies can positively impact people within the community and improve the quality of life while reducing the carbon footprint.
<b>Time Frame:</b>	Continuous
<b>Budget/Resources:</b>	Funds required depend highly on type and size of project. A dedicated individual is crucial to the success of demonstration projects. Municipal in-house staff that maintains or looks after the completed projects.

<b>Action 2:</b>	Develop a long-term sustainable municipal energy vision that focuses on local, renewable, low or no carbon resources for the next 50 years.
<b>Type of Action:</b>	Planning
<b>Target Outcomes:</b>	Continued effort on maintaining the momentum and commitment to sustainability.
<b>Lead/Partners:</b>	Municipal Sustainability Coordinator, Municipal Governments, S-HRDA, forestry brokers, land owners, consultants, etc.
<b>Indicator:</b>	N/A
<b>Inputs:</b>	<ul style="list-style-type: none"> <li>Energy Asset Mapping for Strait Highlands Region.</li> <li>Implementation of this local action plan</li> </ul>
<b>Activities:</b>	Consult with the DNR to obtain a report (expected to be released in 2008) that will contain detailed forestry yield calculations in order to ensure a sustainable harvest of biomass.

<b>Outputs:</b>	A continued commitment to focussing on sustainable energy resources beyond 2015.
<b>Time Frame:</b>	Long term
<b>Budget/Resources:</b>	1 full time equivalent for 2 years to build the roadmap that is consistent with each municipality's Vision.

<b>Action 3:</b>	Officially endorse the GHG emission reduction target and the resulting implementation plan as outlined in this report.
<b>Type of Action:</b>	Policy
<b>Target Outcomes:</b>	Endorsement and approval of the local action plan, which is necessary for the plan to move to implementation.
<b>Lead/Partners:</b>	Municipal Governments
<b>Indicator:</b>	The number of measures implemented out of the total brought forth in order to achieve the recommended GHG emission reduction targets.
<b>Inputs:</b>	Acceptance of the LAP by municipal staff and CAO's prior to submission to council
<b>Activities:</b>	Understand the plan, improve where necessary and submit to council for buy-in, endorsement and support.
<b>Outputs:</b>	Increased chance of a successful implementation of the corporate local action plan.
<b>Time Frame:</b>	Immediate
<b>Budget/Resources:</b>	N/A

<b>Action 4:</b>	Incorporate energy efficiency principles into municipal planning documents through regular review cycles.
<b>Type of Action:</b>	Policy
<b>Target Outcomes:</b>	Ensure that new developments are unique from the old stock by featuring lowered energy consumption.
<b>Lead/Partners:</b>	Municipal Planning departments
<b>Indicator:</b>	Rate of improvement on the energy utilisation index (EUI) for new buildings compared to existing.
<b>Inputs:</b>	Revisions to any relevant municipal planning documents.
<b>Activities:</b>	Through regular cycles, review and revise where necessary municipal planning documents in order to incorporate energy efficiency principles.
<b>Outputs:</b>	More energy efficient developments that help the community to reduce GHG emissions and become more sustainable.
<b>Time Frame:</b>	Immediate to short term - expected to take no more than 12 months.
<b>Budget/Resources:</b>	4 person months with one full time equivalent.

<b>Action 5:</b>	Maintain the Green Action brand presence in all incentive programmes and promotions developed through Green Action and the PCP framework.
<b>Type of Action:</b>	Programme
<b>Target Outcomes:</b>	A greater awareness and better understanding of how these functional plans augment the efforts and enhance the goals of the Strait Highlands Green Action.
<b>Lead/Partners:</b>	Municipal Sustainability Coordinator, municipal governments, other municipal partners, educational organisations, consultants involved in work resulting from

	elements of the Strait Highlands Green Action.
<b>Indicator:</b>	Increase in the public buy-in and participation in the Green Action initiatives
<b>Inputs:</b>	N/A
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Ensure a wide and far-reaching message that highlights all accomplishments and milestones as they are completed under all Green Action functional plans including the PCP milestones, Energy Asset Mapping, etc.</li> <li>• Ensure that all relevant partners are aware of the Strait Highlands Green Action.</li> <li>• Maintain the Green Action awareness by incorporating the brand in any future programme or promotional developments.</li> </ul>
<b>Outputs:</b>	A well known, understood and respected Green Action branding throughout the Strait Highlands community.
<b>Time Frame:</b>	Continuous
<b>Budget/Resources:</b>	Sustainable funding for media publication and spiked media activity during milestone and project completions.

<b>Action 6:</b>	Develop a programme to exchange information related to sustainable development projects (i.e. share lessons learned, or cooperate on the launch of a capacity building programme).
<b>Type of Action:</b>	Programme
<b>Target Outcomes:</b>	A unified Strait Highlands Green Action for all municipalities and the community of the Strait Highlands regardless of the municipal boundaries.
<b>Lead/Partners:</b>	Municipal Sustainability Coordinator, municipal governments, S-HRDA.
<b>Indicator:</b>	Amount of information contained in the database or programme and its level of usefulness.
<b>Inputs:</b>	Development of an information exchange programme.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Establish and acquire information on stakeholder initiated programmes/initiatives and any information related to these initiatives that may help future actions.</li> <li>• Work with relevant stakeholders to increase awareness of information exchange programme. This is extremely important given that increased use induces a positive feedback cycle by ensuring that useful information is available, thus increasing the level of interest as well as the likelihood of more information being shared.</li> </ul>
<b>Outputs:</b>	Database of projects and lessons learned resulting from the Strait Highlands Green Action initiatives.
<b>Time Frame:</b>	Ongoing throughout the lifetime of the S-H Green Action
<b>Budget/Resources:</b>	Sustainability Coordinator can be responsible for this action item, as it also involves networking with relevant stakeholders and providing helpful information and assistance.

## 7 COMMUNITY LAP IMPLEMENTATION STRATEGIES

### 7.1 Goal 1 – Improve the Energy Efficiency of Buildings

<b>Action 1:</b>	Reduce infiltration in residential dwellings through weather stripping, caulking, etc.
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	<p>Reduced infiltration and heat loss in residential dwellings, leading to a decrease in energy consumption and GHG emissions. An annual energy reduction of over five million kWh (&gt;5,000 MWh) is a realistic expectation for this measure. This equates to an annual reduction of GHG emissions of roughly 3,700 tonnes.</p> <p>This measure may be accomplished in part through increased participation in the EnerGuide for Houses programme, which will likely further serve to stimulate additional energy efficiency and/or conservation retrofits to the existing housing stock through financial incentives and lead to further reductions in GHG emissions.</p>
<b>Lead/Partners:</b>	Sustainability Coordinator, building contractors, EnerGuide for Houses delivery agents (ACAP Cape Breton, Sustainable Housing), Conserve Nova Scotia and the S-HRDA.
<b>Indicator:</b>	Home energy consumption before and after sealing can be used when available. In cases where homeowners have decided to participate in the EnerGuide for Houses programme, the achieved reduction of GHG emissions and ratings before and after retrofits can be used (this information can be provided by Natural Resources Canada through Conserve Nova Scotia).
<b>Inputs:</b>	Education about and promotion of the EnerGuide for Houses programme as well as the benefits of going after the ‘low hanging fruit’. This action is directly linked to goal 7, community Action 10, which promotes the EnerGuide programme through neighbourhood canvassing. Also linked with the public education and awareness campaign in goal 7. Partners should be consulted to ensure campaign compliments their own campaigns.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Determine if a marketing approach will be taken (in house or otherwise) to encourage homeowner participation</li> <li>• Determine if funds will be secured to implement sealing in houses as part of a widespread programme.</li> <li>• Include the promotion of this action into other – promotional - action items in goal 7 – ‘Educate and Engage the Community’, or possibly recruit a marketing firm to deliver the message.</li> <li>• Develop a marketing plan (either in-house or through a marketing firm) and seek funding for the reduction of infiltration in homes.</li> </ul>
<b>Outputs:</b>	More energy efficient housing stock through reduced infiltration and heat loss.
<b>Time Frame:</b>	<p>Short term – for initiation and implementation.</p> <p>Medium and long term – increasing participation, especially as energy prices rise.</p>
<b>Budget/Resources:</b>	The total cost of reducing infiltration depends on the current level of sealing and the degree of sealing required/desired, but is typically in the range of \$75-\$250 per home. The eco-ENERGY/EnerGuide for Houses programme offers a maximum

	<p>rebate of \$300 for air sealing. At a cost of approximately \$15-\$25 per tonne, achieving a realistic reduction of 3,715 tonnes of eCO<sub>2</sub> will cost a total of about \$56,000-\$93,000 (excluding potential rebates). However, annual cost savings are expected to be almost \$700,000.</p> <p>The Sustainability Coordinator can offer assistance in the promotion of this action item, mainly through community actions 1 and 10 in goal 7 ‘educate and engage the community’. ACAP Cape Breton and Sustainable Housing (delivery agents for EnerGuide for Houses) are valuable resources to provide EnerGuide audits and advice.</p>
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<b>Action 2:</b>	Retrofit commercial, institutional and small industrial buildings for energy efficiency and conservation (i.e. DSM measures).
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	<p>Increased enrolment in energy efficiency programmes, encouraging energy efficiency and conservation retrofits to existing commercial and institutional buildings through financial incentives.</p> <p>Reduction in heat loss, energy consumption and GHG emissions from commercial, institutional and small industrial buildings through a greater uptake of DSM measures. It is expected that this action item will result in a realistic annual savings of almost 30 million kWh (30,000 MWh); this translates into about 6,600 tonnes of eCO<sub>2</sub>.</p> <p>Energy savings are demonstrated using baseline information for each facility, compared to project operating costs post-retrofit. These calculations can be completed and presented to building owners prior to any capital expenditures.</p>
<b>Lead/Partners:</b>	Sustainability Coordinator, Municipal Governments, Building and Construction Trades Council, NSCC, Nova Scotia Home Builders Association, Construction Association of Nova Scotia, building owners, building contractors, business community (Chamber of Commerce), school boards, ESCOs, Dalhousie Eco-Efficiency Centre, NSPI (DSM programme), large power consumers such as the NSCC and the Cape Breton District Health Authority.
<b>Indicator:</b>	Level of enrolment in various relevant programmes and measures taken. Per cent reduction in energy use compared with pre-retrofit projections.
<b>Inputs:</b>	<p>Education about and promotion of various energy efficiency programmes and incentives/programmes offered by government agencies and utilities to non-residential power users. Market through media with easy internet links. Building owners can be provided with specific information to disseminate to their tenants to promote energy conservation. As a further measure, building owners can be encouraged to reward tenants who adopt energy conservation initiatives by considering adjustments to rents in those buildings where utilities are included as part of the rent.</p> <p>Coordinate with energy consultants and engineering professionals for the development of an audit strategy and recommendations for large energy consumers to consider.</p>
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Work with the Building and Construction Trades Council, NSCC (trades and</li> </ul>

	<p>technology), Nova Scotia Home Builders Association and the Construction Association of Nova Scotia to prepare for the increase in demand for trades people for the purposes of retrofitting buildings.</p> <ul style="list-style-type: none"> <li>• Undertake in conjunction with goal 7, community action 1; the implementation of a public education and awareness campaign.</li> <li>• Develop and promote the need for energy audits at these large consumers to determine if these facilities are operating at peak efficiency. This should include promoting the need for assessment of electrical systems (power factor) and the use of energy efficient devices in all facets of the facility.</li> <li>• Develop and deliver marketing materials through a campaign to raise awareness among building owners and to promote participation in the programmes offered by NRCan, NSPI and others. Materials may also be provided to building owners for them to customise and implement in order to facilitate the promotion of energy conservation amongst their tenants.</li> <li>• Encourage industrial or large institutional users of energy to make an ‘energy conservation pledge’.</li> </ul>
<b>Outputs:</b>	Heightened awareness of the programmes available to commercial building owners (and tenants) as well as increased participation in energy efficiency and conservation. More energy efficient buildings through better sealing, insulation levels and other DSM measures.
<b>Time Frame:</b>	Short term to initiate. Medium to long term implementation ongoing, especially if municipalities wish to offer outreach or information sessions directly to building owners as well. It is likely that interest will only increase as energy prices rise.
<b>Budget/Resources:</b>	<p>The cost of the retrofits depends strongly on which measures are taken, which further depends on the current state of particular buildings and the level of improvement desired. There are a variety of initiatives that offer a range of payback periods and have to be evaluated on a case-by-case basis. It is anticipated that cost savings will amount to roughly \$4 million per year.</p> <p>Natural Resources Canada and NSPI may provide funding for this action item (from the ecoENERGY Retrofit Incentive for Industry and Energy Efficiency in Existing Buildings as well as from NSPI’s DSM programme). The Sustainability Coordinator can provide assistance wherever possible; it is expected that this will not constitute more than a couple of thousand dollars per year of their salary. ESCOs may also provide funding under an Energy Performance Contract.</p> <p>The Building and Construction Trades Council, the NSCC (trades and technology), Nova Scotia Home Builders Association and the Construction Association of Nova Scotia should be consulted to ensure that increased demand for retrofitting services can be met.</p>

## 7.2 Goal 2 – Increase Transportation Choice and Efficiency:

<b>Action 1:</b>	Promote local food production on the most productive lands that are currently not being utilised for food production or that would require minimal energy investment to get them up to par.
<b>Type of Action:</b>	Promotion
<b>Target Outcomes:</b>	Increased productive use of land and less transportation requirements to move food to local markets. It is expected that this action item will result in a realistic annual savings of over 200,000 kWh (200 MWh); this translates into about 52 tonnes of eCO <sub>2</sub> .
<b>Lead/Partners:</b>	Municipal Governments and Sustainability Coordinator, local farmers, Department of Agriculture, Nova Scotia Federation of Agriculture, Select Nova Scotia, Nova Scotia Agricultural College and AgraPoint.
<b>Indicator:</b>	Level of increase in local food production as measured by a greater number of local food production sites as well as the number of new Farmer’s Markets.
<b>Inputs:</b>	Promotional activities can be integrated within the public education and awareness campaign (goal, 7, community actions 1 & 6). Planning Staff and/or the Department of Agriculture may be consulted to identify potential lands for agricultural development. Education on organic farming methods and soil enrichment methods would likely be beneficial. Encouraging additional Farmer’s Markets could greatly assist in the development of local food production by increasing awareness and also by providing a forum for the selling of goods.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Identify surplus or underutilised land for use as community gardens.</li> <li>• Explore costs associated with land improvements required to make it agriculturally productive.</li> <li>• Initiate a buy local campaign for fresh produce to encourage growers in the Strait Highlands Region to produce food.</li> <li>• Expand Farmer's Markets and promoting efforts to share costs or establish cooperatives for food preparation and / or storage.</li> <li>• Promote Select Nova Scotia’s provincial database of locations where local food may be purchased.</li> <li>• Provide funding for community gardens and also a component geared toward sharing local wisdom and traditional skills such as gardening, propagating plants, seed saving, curing, canning, etc.</li> </ul>
<b>Outputs:</b>	Abandoned farmlands brought back into production. Community or individual gardens are also an effective way of producing local food. Reduced energy consumption associated with transportation of food into the region.
<b>Time Frame:</b>	Short term - promotional efforts. Medium to long term – implementation. Initial development expected over two to three years, with full development taking over ten years.
<b>Budget/Resources:</b>	To actually provide opportunities for local food production, costs are estimated to be >\$100,000 if land is procured and <\$50,000 with no procurement. Land development and procurement incentives could cost up to \$100,000 per year, although some cost

	<p>recovery is possible through renting of garden plots and additional assessments due to new businesses setting up. The inventory of surplus or underutilised land will cost &lt;\$10,000. Some costs would also be associated with an educational programme for organic farming and soil enrichment. It is anticipated that this action item will result in a realistic annual savings of over \$20,000.</p> <p>The horticultural capacity work of 2003 by Donald Nicholson may prove to be a useful resource.</p>
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<b>Action 2:</b>	Support the Strait Area Transit Cooperative initiative through membership of the co-op and regular usage of the system.
<b>Type of Action:</b>	Programme
<b>Target Outcomes:</b>	<p>Increased co-op membership and rider ship on the Strait Area Transit. Reduced overall cost of rider ship in the medium to long term. Reduced GHG emissions resulting from private vehicle use.</p> <p>It is expected that this action item will result in a realistic annual savings of over 12.5 million kWh (12,500 MWh); this translates into about 3,200 tonnes of eCO<sub>2</sub>.</p>
<b>Lead/Partners:</b>	Strait Area Transit Cooperative, Sustainability Coordinator, Municipal Governments, local NGOs and education organisations.
<b>Indicator:</b>	Level of membership and rider ship on the Strait Area Transit.
<b>Inputs:</b>	Development of a marketing programme to raise awareness and encourage the use of the Strait Area Transit. Market the programme through education and community engagement (for example, goal 7, community actions 1 & 6).
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Review the Strait Area Transit Cooperative's current promotion and marketing initiatives.</li> <li>• Work with the Strait Area Transit to enhance the promotional materials and increase the marketing campaign (if required).</li> <li>• Work with the Strait Area Campus of the NSCC to evaluate any potential opportunities to increase ridership amongst students (i.e. lower fares).</li> <li>• Implement marketing campaign.</li> </ul>
<b>Outputs:</b>	Marketing programme and materials.
<b>Time Frame:</b>	<p>Short term - to initiate and implement.</p> <p>This action item is particularly short term if existing materials are utilised. It is expected that once a solid rider ship base is established, the ongoing need for promotional activities will diminish.</p>
<b>Budget/Resources:</b>	<p>&lt;\$10,000 per year for marketing.</p> <p>It is expected that this action item will result in a realistic savings of over \$1.3 million per year</p> <p>It is anticipated that the Sustainability Coordinator as well as local NGOs and education organisations will provide assistance with the development and distribution of materials.</p>

### 7.3 Goal 3 – Increase Industrial Energy Efficiency

<b>Action 1:</b>	Install heat recovery equipment at coal-fired power plant and/or pulp and paper mill; use for heating newly constructed greenhouses (local source of food) and/or newly constructed local buildings with hydronic, in-slab heating.
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	<p>A potentially new source of revenue for a current waste product, or new low cost energy source to attract new businesses. The Dalhousie EcoEfficiency Centre supports initiatives such as this.</p> <p>Increased overall efficiency will lead to a reduction in fossil fuel energy consumption and GHG emissions. It is expected that this action item will result in a realistic annual savings of 525,000 kWh (525 MWh); this translates into about 460 tonnes of eCO<sub>2</sub>.</p>
<b>Lead/Partners:</b>	NSPI Plant manager, NewPage Management, building owners, Municipal Engineer, potential developers, Dalhousie EcoEfficiency Centre, the Department of Agriculture, Natural Resources Canada, the Canadian Industry Programme for Energy Conservation (CIPEC), Conserve Nova Scotia, the Nova Scotia Federation of Agriculture, local farmers and other industries.
<b>Indicator:</b>	Energy consumption of buildings or greenhouses compared to similar conventional buildings or greenhouses.
<b>Inputs:</b>	Feasibility analysis for the installation of a district heating system. Capital budget. Conversion of existing buildings and/or construction of greenhouses to be able to utilise low-grade heat resource of approximately 32°C.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Identify existing potential users of the district heating system and determine the level of interest on both sides.</li> <li>• Encourage the development of new facilities that can be heated using low-grade thermal energy (buildings require hydronic, in-slab heating).</li> <li>• Discuss details of development with developers to integrate into feasibility analysis.</li> <li>• Assist with the implementation of projects (through funding or technical support).</li> <li>• Monitor energy consumption to determine actual savings.</li> </ul>
<b>Outputs:</b>	District Heating System for newly constructed local buildings and/or greenhouses that utilise waste heat from industrial processes.
<b>Time Frame:</b>	Medium term – to identify potential developers and interested parties and implement. Long term – an increase in interested users may occur well into the future as buildings are developed to utilise the available thermal energy and/or as energy costs continue to rise.
<b>Budget/Resources:</b>	<p>The procurement of outside engineers and/or consultants will be required to provide a feasibility study and project design if project is to proceed.</p> <p>The estimated capital cost to install a district heating system from NewPage pulp and paper mill to the Town of Port Hawkesbury (terminating at the Industrial Park adjacent to Point Tupper) is \$1.5 million. A feasibility study for this system would cost approximately \$35,000 to complete and would take roughly two months.</p>

	This action item will lead to a realistic annual savings of over \$68,000.
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<b>Action 2:</b>	Encourage support and assistance for the installation of a 60 MW biomass fired steam turbine at NewPage. It is possible that this action may be mutually exclusive with goal 6, community actions 3 and 4 (if they use more than 5% of the sustainable resource).
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	Utilisation of carbon neutral biomass and a corresponding significant decrease in GHG emissions.
<b>Lead/Partners:</b>	New Page Management will lead the project. Other partners to provide resources/advice and possible incentives include: Natural Resources Canada, NSPI, forestry brokers and the Eco Efficiency Centre. It is also a possibility that an adjacent (new) sawmill will provide feedstock for the system.
<b>Indicator:</b>	Although this action item will lead to a significant reduction in GHG emissions, this will not be counted towards any of the Strait Highlands emission targets due to the fact that the NewPage facility is a large final emitter (LFE) and was not accounted for in the local community GHG emissions inventory.
<b>Inputs:</b>	Capital budget, Project Scope, engineers specialising in industrial energy systems.
<b>Activities:</b>	Support and assist with the implementation of the project wherever possible.
<b>Outputs:</b>	60 MW biomass fired steam turbine installed at NewPage.
<b>Time Frame:</b>	Medium to long term – for permitting, design and implementation.
<b>Budget/Resources:</b>	It is very important to note that this action item is mutually exclusive with goal 6, community action 3 - installation of a cogeneration biomass fired power plant, as well as goal 6, community action 4 - installation of a wood pellet plant - if either of these action items utilise more than 5% of the available (sustainable) resource. It is imperative that the DNR is consulted to verify an acceptable (sustainable) level of harvest during any research or feasibility study.  Some other resources include Natural Resources Canada, NSPI, forestry brokers, potentially an adjacent (new) sawmill and the Eco Efficiency Centre.  The cost of the actual project is approximately \$60 million. This cost is lower than typical costs for an entirely new installation given that many of the required components are already present at the plant.

#### 7.4 Goal 6 – Increase Energy Security and Diversify Energy Supply

<b>Action 1:</b>	Install district heating system between the Inverary Manor (which is looking to double the size of the facility) and the Inverness Consolidated Memorial Hospital that is in close proximity (both use oil for heat). The system can incorporate one or more types of renewable energy resources (i.e. biomass plus solar supplement).
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	Reduction of GHG emissions by substituting fossil fuel energy with a carbon neutral source of local energy.

<b>Lead/Partners:</b>	Cape Breton District Health Authority, Inverary Manor, Department of Health.
<b>Indicator:</b>	N/A
<b>Inputs:</b>	Feasibility study for district heating system that utilises renewable energy. Project design, planning, permitting, construction and commissioning.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Determine the existing and projected energy usage of the buildings.</li> <li>• Conduct a feasibility study on a district heating system that uses renewable energy (i.e. biomass combustion system).</li> <li>• Proceed with implementation if project is feasible.</li> </ul>
<b>Outputs:</b>	Biomass combustion system (BCS) that supplies the majority of the heating load in the winter, with a solar supplement component in order to supply the domestic hot water (DHW) load in the summer; thus enabling the BCS to be shut off for the summer.
<b>Time Frame:</b>	Short term - for feasibility study. Medium term – for permitting, planning and design. Long term – for construction and implementation.
<b>Budget/Resources:</b>	<p>Funding from EcoNova Scotia for Clean Air and Climate Change<sup>6</sup> may be available. Since the level of in house expertise is likely insufficient, the outside services of consultants and/or engineers may have to be retained.</p> <p>At approximately 190 boiler horsepower, the capital cost of a biomass combustion system for a district heating system for these facilities would be approximately \$1.8 million.</p> <p>The solar system capital cost would be on the order of \$500,000 to \$600,000. This is highly dependent on the degree to which the solar system will meet the load (i.e. size of the solar system).</p> <p>Note: two new oil fired boilers (250 hp each) have recently been installed at the Inverness Consolidated Memorial Hospital in order to meet the thermal load for the shared services between the hospital and the Inverary Manor. Although these boilers were recently installed, it is still possible to conduct a feasibility study to evaluate the project’s potential in terms of GHG emissions and cost reductions, as this action may offer significant savings.</p>

<b>Action 2:</b>	Assess the feasibility of developing natural gas infrastructure in the town of Port Hawkesbury.
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	<p>A better understanding of the feasibility of expanding the natural gas infrastructure to include Port Hawkesbury. If the project proceeds, this will mean a greater availability of natural gas as a fuel choice for Port Hawkesbury residents and greater competition in the heating fuel market.</p> <p>It is anticipated that this action would lead to a realistic annual reduction of approximately 1,000 tonnes of eCO<sub>2</sub>. This measure would also lead to a reduction in the absolute amount of energy used given that equipment with much higher efficiencies (up to 98%) could be used. Compared to oil and electricity use, very significant reductions of SO<sub>2</sub>, NO<sub>x</sub> and particulates would transpire.</p>

<b>Lead/Partners:</b>	Strait Area Gas Corporation, Port Hawkesbury Municipal Government, NSCC, S-HRDA.
<b>Indicator:</b>	Number of natural gas customers in Port Hawkesbury and the size of the distribution network. Stack emission reductions (where applicable) and overall reduction in GHG emissions.
<b>Inputs:</b>	Update the (already completed) feasibility study of NSCC using natural gas cogeneration as an anchor load. Conduct business case studies for the use of natural gas at other facilities. Funding for retrofits. Modification to the trenching policy may be required.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Encourage the Strait Area Gas Corporation (who holds a tentative franchise licence to distribute gas in the Strait area) to meet the conditions that will allow development to go ahead by working with them to hear their concerns and helping to alleviate or lessen those concerns.</li> <li>• Using already completed feasibility analysis, determine if it is currently feasible for the NSCC to convert to natural gas.</li> <li>• Conversion of the NSCC's existing boilers from oil to natural gas will involve the installation of underground gas piping and a metering station. The project will involve a new burner, burner valve arrangement, burner safety control system, gas piping within the building, possibly increased ventilation requirements and new or modified stack. Plants sometimes like to piggy-back a complete new plant computer control system with the gas conversion project. All the work is done to a nationally recognised safety code, in this case Canadian Standards Association Code B149. The completed project is usually inspected by a representative of CSA to ensure compliance. The owner's consultant will generally prepare the drawings and specifications required for the owner to tender the project to qualified contractors. The consultant will work with the owner to evaluate the bids to get the best possible value. The contractor will be responsible for obtaining all required permits from the Office of the Fire Marshall. The owner's consultant will generally provide services during construction to deal with any issues or concerns that arise during the construction phase.</li> <li>• Secure the NSCC as an anchor load if it is feasible in order to justify capital expenditure.</li> <li>• Identify other potential loads in area.</li> <li>• Promote natural gas as a clean burning fuel with promotional materials and in relevant goal 7 action items.</li> </ul>
<b>Outputs:</b>	Business case for conversions and promotional materials. Expanded natural gas infrastructure within Port Hawkesbury. Converted heating systems.
<b>Time Frame:</b>	<p>Medium term – for implementing conversions.</p> <p>One significant determinant of the level of progress will likely be the Strait Area Gas Corporation meeting the necessary requirements as set out by the UARB.</p> <p>The time frame to complete the gas conversion of an existing plant is dependent on the scope of the work. If a conversion project is a simple burner replacement with new controls, it can be accomplished in 8 – 12 months. If the scope of the work</p>

	involves installation of a new boiler the time frame would be in the order of 12 – 18 months.
<b>Budget/Resources:</b>	<p>No costs for municipalities.          &lt;\$50,000-\$100,000 for business case.          &gt;\$100,000 for conversions (only conducted if business case warranted).</p> <p>Assessing the business case for natural gas conversion in other buildings and residential dwellings will likely require the services of an outside consultant. Cost of building conversions vary depending upon size and type of heating system. A typical residential conversion would cost roughly \$7,000-\$10,000 installed to replace the heating source and retrofit the exhaust for a different fuel type, while a large office building with commercial boilers would cost about \$25,000. Home owners and small commercial businesses with an annual consumption of less than 15,000 GJ are eligible for a base rebate of \$1,500 to convert space heating equipment, while the additional conversion of water heating equipment will be eligible for the base rebate of \$1,500 plus an efficiency bonus of \$500<sup>7</sup>.</p> <p>Capital cost for installation of a natural gas cogeneration system at the NSCC is approximately \$330,000, while annual operating costs are roughly \$220,000. Expected energy and electrical savings are on the order of \$500,000 annually (subject to energy prices). It is recommended that prices are confirmed to reflect current market conditions. No additional personnel resources will be required for the operation of the plants due to gas conversion.</p>

<b>Action 3:</b>	Install a cogeneration biomass fired power plant using the substantially underutilised low-grade wood resource and clean wood (~100 tonnes/yr) from Inverness waste collection facility that can supply energy to local homes and/or greenhouses. It is possible that this action is mutually exclusive with goal 6, community action 4 and goal 3, community action 2.
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	<p>Decreased GHG emissions through the utilisation of a carbon neutral source of local energy for local buildings and/or greenhouses. Creation of local employment opportunities.</p> <p>It is anticipated that this action would realistically displace roughly 13 million kWh (13,000 MWh) of fossil fuel energy use per year. This translates into a realistic annual reduction of approximately 9,000 tonnes of eCO<sub>2</sub>.</p>
<b>Lead/Partners:</b>	S-HRDA, DNR, NS Department of Energy, Municipal Engineers and Governments (specifically Inverness [waste collection/transfer station]), forestry brokers, land owners, private investors.
<b>Indicator:</b>	N/A
<b>Inputs:</b>	Council approval, biomass availability estimates, existing reports (including DNR yield calculations), feasibility studies.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Determine interest in cogeneration biomass plants among utility, residential, industrial and institutional customers.</li> <li>• Determine feasibility of a biomass cogeneration plant with district energy.</li> <li>• Consider zoning restrictions, potential noise and emissions issues.</li> </ul>

	<ul style="list-style-type: none"> <li>• Consult with the DNR to obtain detailed forestry yield calculations (expected to be released in 2008) in order to ensure a sustainable harvest.</li> <li>• Construct a cogeneration BCS in a central area such as Orangedale, and/or smaller systems throughout the region.</li> </ul>
<b>Outputs:</b>	<p>Implementation of a cogeneration biomass fired combustion system (boiler) coupled with a steam turbine generator and condenser system that will supply both heat and power to local homes, businesses, greenhouses, etc. There are other methods of producing power from biomass but they are generally much more complex, less proven and more costly.</p> <p>A cogeneration biomass fired power plant will benefit the local economy by providing jobs in the construction, operation and maintenance of the system as well as opportunities in the forestry sector for harvesting, processing and transporting the biomass. It would be expected that the plant would employ roughly 15 local people, while an additional 25 or so people would be seasonally employed in the forestry sector under the realistic scenario (~3.5 MW cogeneration system). To utilise the full sustainable resource (~50 MW), roughly 30 people would be employed at the plant, with hundreds of people seasonally employed in the forestry sector.</p> <p>Under the realistic scenario, it is expected that a 3.5 MW plant will generate about 13 million kWh (13,000 MWh) per year. Utilising all of the sustainable resource (~50 MW) will generate ~170 million kWh (170,000 MWh) per year.</p>
<b>Time Frame:</b>	<p>Medium term (12-24 months) to complete report.</p> <p>Long term for construction and implementation.</p> <p>Design will require six months, construction requires six to nine months.</p>
<b>Budget/Resources:</b>	<p>It is very important to note that utilising all of the sustainable resource under this action item is mutually exclusive with goal 6, community action 4 - installation of a wood pellet plant, as well as goal 3, community action 2 - installation of a 60 MW biomass fired steam turbine at NewPage. It is imperative that the DNR is consulted to verify an acceptable (sustainable) level of harvest during any research or feasibility study.</p> <p>\$50,000-\$100,000 for research and report.</p> <p>Two part-time staff for 6-12 months to complete report.</p> <p>It is anticipated that this action would lead to a realistic annual cost savings of over \$1,600,000.</p> <p>Since there is likely a lack of sufficient in house expertise, the services of outside consultants and/or engineers would probably be required.</p> <p>Assuming a realistic harvest of 2.5% (37,900 m3) of the estimated total annual available resource (1,515,962 m3) in the Strait Highlands Region, a cogeneration plant of ~ 3.5 MW would come at a capital cost of roughly \$14.5 million. Since the plant would operate with steam at greater than 15 psig, it would require constant attendance by operating staff; this would likely mean employing at least eight or nine full-time people at an annual cost of about \$350,000-\$400,000.</p> <p>If the entire sustainable resource were to be exploited, the construction of a plant on the order of 50 MW would be possible. This would significantly reduce the capital cost from about \$4,000,000 per MW to roughly \$1,500,000 per MW, for a total</p>

	capital of ~\$75 million. Under this scenario, approximately 20 additional employees would be required. This would bring the total annual salary expense to roughly \$1.4 million. The efficiency of a large (>25 MW) steam turbine is much higher compared to a smaller unit because of the higher steam pressure and temperature, as well as the greater complexity with more blade stages for better efficiency. Therefore, the construction of a larger cogeneration plant would induce a higher return on the investment capital.
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<b>Action 4:</b>	Explore alternative uses of the local biomass resource (i.e. wood pellets, etc.). It is possible that this measure is mutually exclusive with goal 6, community action 3 and goal 3, community action 2.
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	Decreased GHG emissions through the utilisation of a carbon neutral source of local energy that may also be exported. A greater amount of product being exported from the region would translate into a lessened GHG reduction for the Strait Highlands Region. Creation of local employment opportunities. It is anticipated that this action would realistically displace roughly 13 million kWh (13,000 MWh) of fossil fuel energy use per year. This translates into a realistic annual reduction of approximately 9,000 tonnes of eCO <sub>2</sub> .
<b>Lead/Partners:</b>	DNR, Municipal Engineers and Governments, private investors, forestry brokers, land owners, S-HRDA.
<b>Indicator:</b>	N/A
<b>Inputs:</b>	Council approval, biomass availability estimates, existing reports (including DNR yield calculations), feasibility studies. 185 kWh of electricity is required to produce each tonne of wood pellets.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Determine interest in a wood pellet plant among residential, industrial and institutional customers, as well as in the export market.</li> <li>• Determine the feasibility of a wood pellet plant.</li> <li>• Consider zoning restrictions, potential noise and emissions issues.</li> <li>• Consult with the DNR to obtain detailed forestry yield calculations (expected to be released in 2008) in order to ensure a sustainable harvest.</li> <li>• Construct and operate a wood pellet plant in the region</li> </ul>
<b>Outputs:</b>	Construction of a wood pellet plant that would use the local underutilised wood resource in a sustainable, carbon neutral manner. A local wood pellet plant would benefit the local economy by providing jobs in the construction, operation and maintenance of the system as well as opportunities in the forestry sector for harvesting, processing and transporting the biomass. It would be expected that 20 people would be seasonally employed in the forestry sector under the 5% optimistic scenario (~80,000 m <sup>3</sup> per year). To utilise the full sustainable resource (~1,600,000 m <sup>3</sup> ) means hundreds of people would be seasonally employed in the forestry sector. Under the optimistic scenario, it is expected that ~16,000 tonnes of wood pellets will be produced annually. Utilising all of the sustainable resource available will generate

	~320,000 tonnes of wood pellets per year.
<b>Time Frame:</b>	Medium term (12-24 months) to complete report. Long term for construction and implementation. Design would require six months, construction requires six to nine months.
<b>Budget/Resources:</b>	It is very important to note that utilising all of the sustainable resource under this action item is mutually exclusive with goal 6, community action 3 - installation of a biomass cogeneration system - as well as goal 3, community action 2 - installation of a 60 MW biomass fired steam turbine at NewPage. It is imperative that the DNR is consulted to verify an acceptable (sustainable) level of harvest during any research or feasibility study. \$50,000-\$100,000 for research and report. It is anticipated that this action would lead to a realistic annual cost savings of over \$1.6 million. Since there is likely a lack of sufficient in house expertise, the services of outside consultants and/or engineers would probably be required. The costs associated with creating a pellet mill are significant. The economic success of a pellet mill is a function of many variables including cost of fibre and distance from markets. Successful pellet mills are usually associated with large sawmills where the feedstock for the pellet mill comes from the waste stream of the sawmill; bark, sawdust and planer shavings. The economics of a pellet mill for any given location would be a complete study itself. Typical costs would be approximately \$4.4 million for a turnkey system that would process about 40,000 tonnes per year; this is under the optimistic scenario which assumes that 5% (~80,000 m3) of the total sustainable harvest is processed annually. However, the construction of a pellet mill is analogous to that of a cogeneration biomass fired power plant, whereby economies of scale mean that larger plants are more cost effective than smaller ones.

<b>Action 5:</b>	Develop utility size wind turbines independently or in cluster approach in the communities.
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	Decreased GHG emissions through the utilisation of a carbon neutral source of local, renewable energy. Creation of local employment opportunities during both construction and ongoing operation. It is anticipated that installing one 50 kW wind turbine in each of the three municipalities (assumed to be the realistic scenario) would displace roughly 650,000 kWh (650 MWh) of mainly fossil fuel fired electricity. This would lead to virtually a 100% reduction of SO <sub>2</sub> , NO <sub>x</sub> and particulates. An annual reduction of approximately 575 tonnes of eCO <sub>2</sub> is expected under the realistic scenario. Note that these figures do not include the planned wind turbine (~1 MW) for Port Hawkesbury.
<b>Lead/Partners:</b>	Wind power developers (RESL, Cape Breton Power), Municipal Governments, Eastern District Planning Commission, Community Development Groups, S-HRDA, Enterprise Cape Breton Corporation (ECBC), Nova Scotia Power Inc., NS Department of Energy, land owners, educational organisations and NGOs, wind

	power cooperatives (such as Scotian Wind Fields).
<b>Indicator:</b>	Total installed wind power capacity within the Strait Highlands Region.
<b>Inputs:</b>	Public education about benefits of co-ops and local ownership of wind power. Input and feedback from the community and stakeholders regarding wind power development. Municipal staff resources are required to develop the policies and bylaws to allow further development of the process.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>Continued staff consultation with public and stakeholder groups, policy development, bylaw enactment and public education.</li> <li>Integrate Provincial initiatives into the process such as the environmental assessment guidelines for wind turbines and the provincial wind atlas.</li> <li>Work with the UNSM to create a model land use bylaw for wind energy, using HRM as a role model.</li> <li>Investigate opportunities for supplying wind power capacity through the NSPI RFP process.</li> <li>Monitor what appear to be suitable wind power sites for at least one year (to account for seasonal variations). This will likely involve working with land owners.</li> <li>Develop wind power as either stand-alone units or in clusters or ‘wind-farms’. Due to current regulations, it is likely that wind power developments will be either very small (&lt;100kW installed capacity) or large (on the order of at least several MW).</li> </ul>
<b>Outputs:</b>	Educational and outreach programme and materials, new land use bylaw. Increased wind power capacity (150 kW across region) and the generation of about 650,000 kWh of clean electricity per year.
<b>Time Frame:</b>	Short term to medium term – for bylaw work, site selection and monitoring. Medium term to long term – for permitting, design, construction and commissioning. New bylaw to Council in short term, regulations and policies within one year.
<b>Budget/Resources:</b>	<p>The cost of large-scale turbines is roughly \$2 million per installed MW, with costs increasing rapidly for smaller scale installations (up to \$5 million per installed MW for a 50 kW installation). As a result, it may be worthwhile exploring options to install larger turbines. However, the difficulty arises when the power leaves the property upon which the turbine is installed, as the provincial power grid must then be utilised. Under these circumstances, a power purchase agreement between the generator and NSPI is required; this is often only obtained through an RFP process. For installations where all the generated power is used on site, a net metering agreement offers the generator (to a maximum of 100 kW) equal credits (on a one-for-one, kWh basis) which are valid for a maximum of twelve months.</p> <p>The total installed cost of a 50 kW turbine is roughly \$220,000 to \$250,000. Under the assumed realistic scenario of installing one 50 kW turbine in each municipality, the total installed cost would be roughly \$700,000. It is anticipated that this action would lead to a realistic annual cost savings of about \$85,000.</p> <p>Bylaw work should require about one full time equivalent (FTE) for six months to complete regulations given that the HRM bylaw can be used as a template. Allow approximately \$20,000 for outreach programme; amount required depends on level</p>

	of in-kind support received.
<b>Action 6:</b>	Assess feasibility for installation of solar thermal DHW (i.e. for residential, commercial & small industrial, institutional users, etc.). A high number of installations can obtain bulk pricing.
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	Reduced consumption of fossil fuels to produce hot water, support for the solar industry in Nova Scotia, reduced production costs, enhanced visibility of green projects and overall support for the solar industry. It is anticipated that installing a total of 1,000 glazed solar collectors (2,880 m <sup>2</sup> ) across the region would lead to a realistic annual reduction in fossil fuel energy use of roughly 2.7 million kWh (270,000 MWh) and virtually a 100% reduction of SO <sub>2</sub> , NO <sub>x</sub> and particulates compared to the average percentages of energy types used as determined in Milestones One and Two. An annual reduction of approximately 90 tonnes of eCO <sub>2</sub> is expected under this realistic scenario.
<b>Lead/Partners:</b>	Municipal Sustainability Coordinator, building owners and/or managers (BOMA), school boards, Cape Breton District Health Authority, Conserve Nova Scotia, Municipal Governments, Eco-Efficiency Centre, S-HRDA.
<b>Indicator:</b>	Installations of solar panels.
<b>Inputs:</b>	Government incentive programmes, enhanced solar marketing campaign, business green campaigns.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Municipalities promote solar energy and current funding programmes.</li> <li>• Identify building owners and/or operators to have energy audits conducted (including solar site assessments).</li> <li>• Explore funding options and submit applications where applicable.</li> <li>• Implement solar technologies.</li> </ul>
<b>Outputs:</b>	Identification of suitable sites for solar energy installations. A corresponding increase in the level of uptake of solar energy; realistic scenario assumes 1,000 glazed solar collectors (2,880 m <sup>2</sup> ) installed throughout the region by 2015.
<b>Time Frame:</b>	Short to medium term – for feasibility and installations. All technologies and incentive programmes currently exist. Audit and funding application requires one to two months, design and construction requires six to twelve months.
<b>Budget/Resources:</b>	<p>Promotion can be incorporated into the public education and outreach activities. Audits for larger users will be approximately \$3,000 - \$5,000, while solar installation costs will range from \$10,000 to \$50,000 depending upon level of hot water supply desired. Residential installations are on the order of \$2,000 - \$10,000. Larger systems are simply scaled up in a modular nature, with capital costs increasing with the size of the system.</p> <p>Under the assumed realistic scenario of installing 1,000 glazed solar collectors by 2015, the realistic annual cost savings is expected to be about \$350,000.</p> <p>A 15% rebate<sup>8</sup> (to a maximum of \$20,000 per project) towards the installed cost of a solar water (or air) heating system is available from Conserve Nova Scotia for all</p>

	<p>residents of Nova Scotia. Projects that exceed \$20,000 may be considered and must be pre-approved; applicants may apply in advance with a detailed project description.</p> <p>The Federal ecoENERGY for renewable heat<sup>9</sup> incentive is not applicable to residential installations (only businesses, public institutions and industries are eligible) and consists of the following rebates:</p> <p>Table 4. Federal Solar Incentives (\$/m<sup>2</sup>)</p>		
	<b>INCENTIVE RATE - \$/M<sup>2</sup></b>		
		<b>REGULAR</b>	<b>REMOTE COMMUNITY</b>
	Solar Air (glazed and unglazed)	70	112
	Solar Hot Water (glazed)	275	440
Solar Hot Water (unglazed)	30	48	

<b>Action 7:</b>	Explore the potential for small scale (run-of-river) hydropower development on rivers with known flow data.
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	Increased use of renewable energy and a corresponding decrease in GHG emissions. A realistic annual reduction in fossil fuel energy consumption is expected to be 2.2 million kWh. Significant reductions of SO <sub>2</sub> , NO <sub>x</sub> and particulates would also be realised. Realistically, an annual reduction of approximately 2,000 tonnes of eCO <sub>2</sub> is expected if this action item is implemented
<b>Lead/Partners:</b>	Private developers (RESL, Cape Breton Power), NSPI, land owners, Municipal Governments, S-HRDA, salmon fishermen. Flow data exists for several rivers. Feasibility analyses will determine investment interest from the private sector.
<b>Indicator:</b>	Increased development of hydro power capacity.
<b>Inputs:</b>	River flow data. Research - followed by feasibility analyses - into any potential rivers in the region that may be suitable for hydro power development.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Consult with potentially concerned parties such as salmon fishermen, the Canadian Heritage Rivers System and Parks Canada through community consultations and networking.</li> <li>• Determine potential feasibility of each potential site.</li> <li>• Develop concept level design and cost estimate for those sites that are likely feasible.</li> <li>• Estimate annual operating costs and revenue streams based on discussions with NSPI.</li> <li>• Solicit project investment if analysis suggests a business case.</li> <li>• Once funding is in place, proceed to preliminary design and permitting, and then detailed design and construction.</li> </ul>
<b>Outputs:</b>	The development of small hydro plants, highly visible demonstration of ecologically sustainable power generation and excellent educational opportunities for promoting green energy and sustainability. Increased hydro power capacity and the generation

	of about 2.2 million kWh (2,200 MWh) of clean electricity per year.
<b>Time Frame:</b>	Medium term – long term for studies and construction. Six months for pre-feasibility assessments, feasibility study and fundraising will require 12 months, design permitting and construction will require 18 – 24 months. This is highly dependent on potential roadblocks such as disputes over land rights, etc.
<b>Budget/Resources:</b>	\$50,000 - \$100,000 for studies. >\$2 million if a municipality is the owner of facility – this investment should be recouped through electricity sales. A basic 500 kW run of river project is estimated to cost anywhere between \$2 million and \$5 million; actual cost is highly dependent on the site characteristics. Under the assumed realistic scenario, the annual cost savings is expected to be almost \$300,000.

## 7.5 Goal 7 – Educate and Engage the Community

<b>Action 1:</b>	Implement a public education and awareness campaign on energy efficiency, conservation and renewable energy as well as provide information on available incentives/programs.
<b>Type of Action:</b>	Programme
<b>Target Outcomes:</b>	Increased awareness of the LAP and energy and climate change issues, greater uptake of available programmes and incentives. A reduction in GHG emissions from increased participation in energy efficiency and conservation, as well as the installation of renewable energy.
<b>Lead/Partners:</b>	Municipal Sustainability Coordinator, Municipal Governments, Conserve Nova Scotia, S-HRDA, key community leaders, School Boards, action/education groups such as the EAC, Clean Nova Scotia and/or ACAP Cape Breton.
<b>Indicator:</b>	Rate of uptake of associated programmes such as the EnerGuide for Houses programme (results obtainable from Conserve Nova Scotia). Tracking ‘hits’ on the S-HRDA web-site links to the LAP.
<b>Inputs:</b>	Development of a Cape Breton-oriented clearinghouse of information related to home and other small-scale alternative energy technologies. This campaign should market the LAP to community sectors in general as well as to specific stakeholders and can include tours of local RE systems and/or passive solar design, etc. Addressing concerns such as lower quality of life and unemployment would be beneficial. The LAP and information regarding the plan is best to come from key community leaders and action groups, not the government, as people tend to be sceptical of the government.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Develop an awareness campaign (in conjunction with goal 7, action items 4 and 6) to highlight the LAP, using the Strait Highlands Green Action brand and logo. Formulate different marketing messages for different demographic audiences.</li> <li>• Implement the plan using several forms of media to ensure outreach to all citizens. This may include easy on-line links as well as a Facebook group page to</li> </ul>

	<p>keep younger citizens in touch and allow for immediate feedback.</p> <ul style="list-style-type: none"> <li>• Identify and utilise local communications expertise in order to refine key public messages.</li> <li>• Promote the LAP and its concepts to the Strait Highlands Region at large.</li> <li>• Provide a website link and opportunities for engagement throughout the process.</li> <li>• Identify local ‘champions’ from each community and nurture their commitment to the LAP as they help to deliver communications (stories and messages). Local champions should include representation from youth, seniors, and all levels of income and ability and findings should be synthesised – perhaps by the Sustainability Coordinator – in order to identify shared interests and capitalise on existing community capacity.</li> <li>• Groups undertaking the same or similar actions should be introduced to each other as a way to promote the exchange of ideas and lessons learned.</li> <li>• Periodically produce and distribute a community newsletter to highlight different aspects of the LAP and include examples of best practices and local success stories.</li> <li>• Keep up to date on funding programmes and incentives (and concurrently update the Take Home Booklet developed during the Education and Capacity Building component of the LAP, which will be used for distribution).</li> <li>• Provide assistance with identifying useful programmes or rebates and help with relevant applications.</li> <li>• Undertake anti-idling programmes where feasible.</li> <li>• Establish mentor ships with people who have mitigated fossil fuel consumption by retrofitting for energy efficiency/conservation and renewable energy.</li> <li>• Continuously develop new promotional ideas and material to maintain interest.</li> <li>• Ensure pledges of participation are followed up with actions.</li> </ul>
<b>Outputs:</b>	Awareness campaign, informational and educational materials.
<b>Time Frame:</b>	<p>Short term - to design, plan and initiate implementation.</p> <p>Medium to long term - full implementation and higher level of acceptance.</p> <p>Although this action item can be designed and implemented in the short term, a public education and awareness campaign is crucial to the long term acceptance and understanding of the plan, and must be ongoing throughout the entire process.</p>
<b>Budget/Resources:</b>	<p>The level of funding required depends highly on the degree of implementation and is on the order of \$50,000 to \$100,000. It is anticipated that municipal staff member(s) would oversee the development of the awareness campaign and the presentation of the information.</p> <p>The Take Home Booklet of incentives and programmes that was developed for the public education and capacity building components is a very useful resource and should be widely distributed (and kept up to date).</p> <p>Assistance (mainly in the form of in-kind) may be provided by Conserve Nova Scotia and action/education groups such as the EAC, Clean Nova Scotia and/or ACAP Cape Breton. Volunteers may also be recruited to provide assistance.</p>

<b>Action 2:</b>	Explore funding options to conduct feasibility studies on the use of heat pumps for buildings (ground or air source).
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	Feasibility studies on the use of heat pumps in various buildings. Increased installation of heat pumps, which will displace mainly oil-fired and electric heating, leading to a reduction of GHGs.
<b>Lead/Partners:</b>	Municipal Sustainability Coordinator, S-HRDA.
<b>Indicator:</b>	Number of feasibility studies conducted for the installation of heat pumps and ultimately, the installation of heat pumps.
<b>Inputs:</b>	Research into available funding options and the undertaking of feasibility studies.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Research available funding options for conducting feasibility studies on installing heat pumps for heating (and cooling) buildings.</li> <li>• Conduct feasibility studies.</li> <li>• Promote the installation of heat pumps, provide information and assistance.</li> <li>• Install heat pumps.</li> </ul>
<b>Outputs:</b>	List of funding options available to conduct feasibility studies on the use of heat pumps.
<b>Time Frame:</b>	<p>Short to medium term – for exploring funding options and conducting feasibility studies.</p> <p>Medium term – for installation of heat pumps where feasible.</p> <p>Increased installations can be expected in the long term as energy prices rise. However, electricity prices will also play a role in the utilisation of heat pumps given their dependency on power for operation.</p>
<b>Budget/Resources:</b>	<p>This action item can be integrated within the tasks of the Sustainability Coordinator and would likely translate into a cost of less than a few thousand dollars per year.</p> <p>Residential application - from several thousand dollars for an air-source heat pump to approximately \$30,000 installed for a large ground-source system.</p> <p>Commercial or institutional application - \$10,000 for an air-source system to hundreds of thousands of dollars for a ground-source installation.</p> <p>Rebates range from \$400 for the installation of an air-source heat pump system to \$3,500 for an installed earth-energy (ground or water sourced) system through the EnerGuide for Houses programme<sup>10</sup>.</p>

<b>Action 3:</b>	Seek funding for prizes, speakers and educational aids etc. on energy efficiency/conservation and renewable energy at schools.
<b>Type of Action:</b>	Programme/Promotion
<b>Target Outcomes:</b>	Increased education and awareness on energy efficiency and/or conservation as well as renewable energy at schools, ultimately leading to a reduction in GHG emissions, especially as children bring the message home.
<b>Lead/Partners:</b>	Municipal Sustainability Coordinator, School Boards, S-HRDA, education groups such as the EAC, Clean Nova Scotia and/or ACAP Cape Breton.
<b>Indicator:</b>	Level of effectiveness as determined by pre and post surveys.
<b>Inputs:</b>	Research into funding opportunities for educational aids, prizes, speakers, etc. that

	will provide a higher level of exposure to energy efficiency/conservation and renewable energy education to school children.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Research into funding opportunities.</li> <li>• Work with non-profit organisations to determine prizes, secure speakers and develop educational aids on energy efficiency/conservation and renewable energy.</li> <li>• Conduct surveys to determine base line level of awareness on energy and climate change issues.</li> <li>• Deliver programmes and prizes, presentations and education activities. For example: <ul style="list-style-type: none"> <li>- Hold an eco competition between different schools using per capita energy consumption information coupled with energy conservation and efficiency tips;</li> <li>- For students above the primary level, classmates could compete to achieve the largest energy reduction per person in their households using home energy records. Energy saving measures are reported in class; and/or</li> <li>- Classmates are divided into teams and given a computer generated model house. Each team is given a budget with the aim of reducing energy consumption in their house as much as possible using a list of possible measures and their costs. These online model houses are available through various government energy and educational websites.</li> </ul> </li> <li>• Conduct surveys on awareness of energy and climate change issues amongst students to determine level of effectiveness.</li> </ul>
<b>Outputs:</b>	Increased awareness and education of energy efficiency/conservation and renewable energy amongst school children.
<b>Time Frame:</b>	Short term to medium term – for research and networking, followed by delivery.
<b>Budget/Resources:</b>	The Sustainability Coordinator can be responsible for researching funding opportunities. It is expected that <\$1,000 of the Coordinator’s annual salary would be dedicated to this action item. Minimal funding is required if most measures are the result of operational changes. Small prizes could be awarded to the schools with the greatest energy savings

<b>Action 4:</b>	Using a broad-based approach that involves multi-community partners and organisations in order to increase community participations, conduct a well-planned and timed LAP launch campaign and promotional blitz that utilises local festivals, exhibitions, workshops and other carefully selected social events.
<b>Type of Action:</b>	Programme
<b>Target Outcomes:</b>	Increased awareness of the LAP and participation in its programmes and promoted incentives, leading to a reduction in GHG emissions from increased participation in energy efficiency and conservation as well as the installation of renewable energy.
<b>Lead/Partners:</b>	Municipal Sustainability Coordinator, Municipal Governments, multi-community partners and organisations, Conserve Nova Scotia, S-HRDA, key community leaders, School Boards, action/education groups such as the EAC, Clean Nova Scotia and/or ACAP Cape Breton.

<b>Indicator:</b>	Attendance at local events where LAP is being promoted. Rate of uptake of associated programmes such as the EnerGuide for Houses programme. Tracking ‘hits’ on the S-HRDA web-site links to the LAP.
<b>Inputs:</b>	This campaign should market the LAP to community sectors in general as well as to specific stakeholders and can include tours of local RE systems and/or passive solar design, etc. Addressing concerns such as lower quality of life and unemployment would be beneficial. Overall, the LAP and information regarding the plan is best to come from key community leaders and action groups, not the government, as people tend to be sceptical of the government.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Develop a marketing plan (in conjunction with goal 7, action items 1 and 6) to highlight the LAP, using the Strait Highlands Green Action brand and logo as a base to work from.</li> <li>• Formulate different messages for different demographic audiences (dependent upon which event LAP is being promoted at).</li> <li>• Identify and utilise local communications expertise in order to refine key public messages.</li> <li>• Plan and time the launch campaign well.</li> <li>• Maintain the LAP and Green Action brands in future energy programmes resulting from the LAP.</li> <li>• Promote the LAP and its concepts to the Strait Highlands Region at large.</li> <li>• Hold focus groups or workshops and charettes in order to ensure the public has the opportunity to voice their opinions, priorities and desires during the decision making process. Specific groups or stakeholders may be invited to increase participation.</li> </ul> <p>Carefully select social events (and/or institutions of faith) to present information in a more social and inclusive setting and in a manner that is most relevant to participants.</p> <ul style="list-style-type: none"> <li>• Hold a series of public open houses in various geographic locations to allow questions and encourage participation, as well as highlight proposed and current measures.</li> </ul>
<b>Outputs:</b>	Marketing programme.
<b>Time Frame:</b>	Short term – to plan, initiate and implement. This action item is considered very short term; it is anticipated that it may take four to six weeks to complete and implement.
<b>Budget/Resources:</b>	<\$50,000. The Take Home Booklet (see Appendix A) of incentives and programmes that was developed for the public education and capacity building components should be widely distributed (and kept up to date). The Sustainability Coordinator would play a significant role in this action item, with the cost of the position potentially being shared equally amongst the three municipalities. It is also anticipated that municipal staff members could be assigned to oversee the development of the Marketing Campaign. Assistance (mainly in the form of in-kind) may be provided by Conserve Nova Scotia and action/education groups such as the EAC, Clean Nova Scotia and/or

	ACAP Cape Breton. Volunteers may also be recruited to provide assistance.
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<b>Action 5:</b>	Determine the interest in bulk purchase (to achieve a lower cost) of rain barrels to be available at a nominal fee and provide information on operation and maintenance in order to decrease energy and resources used for water pumping and treatment.
<b>Type of Action:</b>	Programme
<b>Target Outcomes:</b>	Reduced energy consumption through a lessened need for water pumping and treatment.
<b>Lead/Partners:</b>	Municipal Sustainability Coordinator, Municipal Governments.
<b>Indicator:</b>	Number of installed rain barrels.
<b>Inputs:</b>	Municipalities may offer and promote rain barrels in conjunction with compost bins already available.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Develop promotional and educational material to increase awareness and interest by conveying the benefits of owning and using a rain barrel.</li> <li>• Administer a survey to determine the level of interest in bulk purchase.</li> <li>• If cost of barrels will be borne by homeowners, securing a deposit may be required or desired.</li> <li>• Place a bulk order for rain barrels.</li> <li>• Administer the rain barrels with installation and operational instructions.</li> </ul>
<b>Outputs:</b>	Increased deployment of rain barrels.
<b>Time Frame:</b>	Short term – to determine interest, place order, deliver and install rain barrels.
<b>Budget/Resources:</b>	The Sustainability Coordinator can be responsible for determining the level of community interest in purchasing rain barrels at a nominal fee. It is expected that <\$2,000 of the Coordinator’s annual salary would be dedicated to this action item. The cost of the rain barrels varies dramatically depending on the type and make; an expected cost would be in the range of \$50-\$200 per barrel.

<b>Action 6:</b>	Partner with local and/or provincial NGOs to provide input and deliver education and outreach activities as well as organise school events such as energy challenges.
<b>Type of Action:</b>	Programme
<b>Target Outcomes:</b>	Heightened awareness in schools.
<b>Lead/Partners:</b>	Municipal Sustainability Coordinator, School Boards, education and/or outreach groups such as the EAC, Clean Nova Scotia, Select Nova Scotia and/or ACAP Cape Breton.
<b>Indicator:</b>	Awareness of energy and climate change issues by local children.
<b>Inputs:</b>	Surveys and marketing/promotional materials (can also fund pre-existing programmes and materials).
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Survey children about awareness of energy issues.</li> <li>• Develop awareness education to highlight the energy issues.</li> <li>• Implement the education and awareness programme.</li> <li>• Follow up surveys of awareness.</li> </ul>
<b>Outputs:</b>	Energy and climate change awareness education.
<b>Time Frame:</b>	Short term – initiation.

	<p>Medium term – implementation.</p> <p>Pre-existing educational materials and programmes may be used. Municipal Governments can help fund materials and programmes.</p>
<b>Budget/Resources:</b>	<p>&lt;\$50,000.</p> <p>It is anticipated that one municipal staff member for each municipality would be assigned to oversee the development of the Marketing Campaign and the presentation of the information for the duration of the action item.</p> <p>Education and/or outreach groups such as the EAC, Clean Nova Scotia, Select Nova Scotia and/or ACAP Cape Breton may provide (in-kind) assistance.</p>

<b>Action 7:</b>	Work with the NS Community College to develop training programmes to enhance the skills of existing trades persons to implement energy efficiency/conservation and renewable energy measures.
<b>Type of Action:</b>	Programme
<b>Target Outcomes:</b>	Increased acceptance and adoption of energy efficiency/conservation and renewable energy measures in the community, leading to a reduction in GHG emissions. It is very difficult to quantify GHG emissions reductions resulting from this measure.
<b>Lead/Partners:</b>	NSCC Strait Area campus (particularly Trades and Technology and the ‘Go Green’ Committee), Municipal Sustainability Coordinator, S-HRDA.
<b>Indicator:</b>	Number of training programmes related to energy efficiency/conservation as well as renewable energy.
<b>Inputs:</b>	Dedication by the NSCC (particularly Trades and Technology) in the development of training programmes.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Research other training programmes at the Strait Area Campus that relate to or focus on energy efficiency and conservation as well as renewable energy.</li> <li>• Evaluate existing programmes in order to determine where new programmes will provide a complementary role.</li> <li>• Promote the new programmes prior to making them available.</li> <li>• Roll out new training programmes with continued promotion.</li> </ul>
<b>Outputs:</b>	Greater level of energy efficiency/ conservation as well as renewable energy knowledge and skills amongst trades persons. Increased action on energy efficiency and conservation as well as renewable energy measures.
<b>Time Frame:</b>	<p>Short term – for initiation.</p> <p>Medium term – for implementation of training programmes.</p> <p>This action item will carry into the long term and promote deep GHG reductions once integrated within the NSCC’s portfolio of programmes.</p>
<b>Budget/Resources:</b>	<p>The NSCC can assign existing staff this task as part of their normal requirements at no extra cost. It is anticipated that these programmes will offer a positive revenue stream in the long run as the shift to sustainability becomes more widespread and demand for these technologies (and the people who install them) grows.</p> <p>The Sustainability Coordinator can assist the NSCC with this action item. It is expected that &lt;\$1,000 of the Coordinator’s annual salary would be dedicated to this measure.</p>

<b>Action 8:</b>	Develop and deliver an information and education campaign for Developers and the Builders Owners and Managers Association (BOMA) that emphasises the benefits of energy efficient neighbourhood and building design.
<b>Type of Action:</b>	Planning
<b>Target Outcomes:</b>	Number of new developments that self-identify as incorporating sustainable building practices and energy efficiency.
<b>Lead/Partners:</b>	Municipal Sustainability Coordinator, Municipal Governments, Eastern District Planning Commission, Community Development Groups, Municipal Planning Departments, Developers, Building Owners and Managers Association (BOMA), NS Home Builders Association, Construction Association of Nova Scotia (CANS), Canada Mortgage and Housing Corporation (CMHC), S-HRDA.
<b>Indicator:</b>	N/A
<b>Inputs:</b>	Funding for educational materials, partnerships with Development Community.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Develop an information and education campaign on energy efficient neighbourhood and building design.</li> <li>• Work with relevant departments, associations and proponents to convey the results from this campaign both prior to and during the development process.</li> </ul>
<b>Outputs:</b>	Heightened awareness of the LAP as well as energy efficient neighbourhood and building design.
<b>Time Frame:</b>	Short term – for development of campaign. Medium term to long term – for delivery of campaign. The campaign development will be a short term task, although the delivery of the campaign will be a medium to long term objective.
<b>Budget/Resources:</b>	<\$50,000. Funding and assistance may be provided by several of the partners listed above. Municipal Staff should be able to provide assistance for this action item as part of their overall services. Some training of building officials and other staff may be required. The S-HRDA can provide assistance in developing and administering the campaign given that they work with Developers.

<b>Action 9:</b>	Create a carpool culture with a large ad campaign, or through a newsletter and/or call-in show and offer to provide a centralised car pooling registration system to allow interested participants to contact one another.
<b>Type of Action:</b>	Programme
<b>Target Outcomes:</b>	An increase in the rate of carpooling, with a corresponding decrease in GHG emissions.
<b>Lead/Partners:</b>	Municipal Sustainability Coordinator, S-HRDA.
<b>Indicator:</b>	An increase in the number of registrants for the car pooling registration system. Decrease in the number of vehicle kilometres travelled (VKT) in the community.
<b>Inputs:</b>	Marketing campaign and car pooling registration system.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Research opportunities to deliver the carpooling message.</li> <li>• Create a marketing campaign and work with local newsletter publishers and/or call in shows (such as CBC Information Morning, etc.) to deliver the message.</li> </ul>

	<ul style="list-style-type: none"> <li>Explore the use of <a href="http://www.carpool.ca">www.carpool.ca</a> as a means for interested people to register.</li> </ul>
<b>Outputs:</b>	Marketing campaign, carpooling registration system, carpool culture.
<b>Time Frame:</b>	<p>Short to medium term – for design and implementation of the campaign, followed by the adoption of a carpool culture.</p> <p>It is anticipated that once a carpool culture is formed and energy prices continue to rise, that there will be a long lasting interest and rate of participation as people realise the benefits.</p>
<b>Budget/Resources:</b>	<p>The Sustainability Coordinator can assist the with this action item. It is expected that &lt;\$2,000 of the Coordinator’s annual salary would be dedicated to this measure.</p> <p>Additional costs include those for marketing and highly depend on the media used as well as the level of coverage.</p>

<b>Action 10:</b>	Conduct a focussed neighbourhood canvassing program to promote the EnerGuide for Houses programme.
<b>Type of Action:</b>	Programme
<b>Target Outcomes:</b>	<p>Reduction in energy consumption through increased uptake of the EnerGuide for Houses programme. An optimistic participation rate (46% of homes) is considered to have 5,139 out of the 11,100 homes in the Strait Highlands Region undergone retrofits by 2015, while a realistic participation rate (25% of homes) is considered to have 2,775 homes complete the programme by 2015. The business as usual (BAU) scenario (15% of homes) assumes that 1,665 homes will have performed retrofits under the EnerGuide programme without local promotion; this is simply due to rising energy costs, word of mouth and advertising by administration and/or delivery agents. The increase in participation will augment the level of energy efficiency/conservation retrofits being performed on homes, and will result in a corresponding decrease in the level of GHG emissions.</p> <p>An expected average reduction in GHG emissions and energy costs is approximately five tonnes of eCO<sub>2</sub> and \$500 or 30% per residence per year respectively. This equates to annual reductions of approximately 25 million kWh (25,000 MWh) and almost 17,000 tonnes of eCO<sub>2</sub> across the Strait Highlands Region.</p>
<b>Lead/Partners:</b>	Municipal Sustainability Coordinator and Municipal Governments, Conserve Nova Scotia, delivery agents for EnerGuide for Houses programme (ACAP Cape Breton and Sustainable Housing), local ‘champion’ who can deliver the message (for example, at public meetings) and perhaps recruit ‘messengers’, education and/or outreach groups such as the EAC and/or Clean Nova Scotia.
<b>Indicator:</b>	Rate of uptake of EnerGuide for Houses programme, achieved reduction of GHG emissions and ratings before and after retrofits (this information can be provided by Natural Resources Canada through Conserve Nova Scotia). Home energy consumption before and after retrofits may also be used where available.
<b>Inputs:</b>	Education about and promotion of the EnerGuide for Houses programme as well as the benefits of the ‘low hanging fruit’ through a marketing initiative. This action is linked with many other action items in goal 7 that aim to ‘Educate and Engage the Community’. The development of a marketing programme to raise awareness and encourage participation in the EnerGuide for Houses programme would be

	beneficial. Partners should be consulted to ensure campaign compliments their own campaigns. Current average residential EnerGuide rating in Nova Scotia is 51 before retrofits and 64 following retrofits.
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Review current promotion and marketing initiatives by partners;</li> <li>• Determine whether to support pre-existing programmes or to develop a new marketing campaign;</li> <li>• Possibly involve the municipalities in advertising; and</li> <li>• Implement.</li> </ul>
<b>Outputs:</b>	Marketing programme and materials. More energy efficient housing stock through reduced infiltration and heat loss.
<b>Time Frame:</b>	Short term to initiate and implement. This is an ongoing action item whereby it can be expected that homeowners will continue to participate in the programme for years to come, especially as energy prices rise.
<b>Budget/Resources:</b>	<p>Nova Scotia Association of REALTORS, Sustainability Coordinator, building contractors, delivery agents (ACAP Cape Breton, Sustainable Housing), S-H RDA.</p> <p>It is difficult to quantify the promotional costs involved because of the fact that they are heavily dependent on the type of media used and the level of coverage. However, it is expected that the promotional costs will be &lt;\$50,000 per year. The option exists to retain a marketing firm to implement a marketing campaign.</p> <p>The total cost of actually implementing retrofits depends on the current status of the building envelope and the degree of upgrading desired. Both the federal and provincial governments currently offer a combined maximum of \$6,500 in rebates per house for energy efficiency retrofits through the eco-ENERGY/EnerGuide for Houses programme, while the typical enrolment cost of \$150 + HST is reimbursed for low-income earners. The specific upgrades performed determine the amount of the EnerGuide rebate. It is now possible for homeowners to apply for a zero-interest loan of up to \$5,000 from Conserve Nova Scotia that can help pay for energy efficiency upgrades through the EnerGuide programme.</p> <p>The expected savings from a realistic increased uptake of the EnerGuide programme is approximately \$3 million per year.</p> <p>The Sustainability Coordinator can offer assistance in the promotion of this action item, mainly through the public education and awareness campaign (goal 7, community actions 1 and 6).</p>

<b>Action 11:</b>	Use demonstration projects of renewable energy technologies and energy efficiency/conservation measures. Once installed, organise tours to promote them via the public education and awareness programme.
<b>Type of Action:</b>	Project
<b>Target Outcomes:</b>	An increased level of acceptance and improved adoption of renewable energy technologies and energy efficiency and conservation measures by the community. Organised tours of projects for the purposes of promotion and further increasing awareness. Reduced GHG emissions.
<b>Lead/Partners:</b>	Municipal Sustainability Coordinator, NSCC, Municipal Governments, S-HRDA, key community leaders, School Boards, other potential stakeholders or hosts,

	educational organisations such as the EAC, Clean Nova Scotia and/or ACAP Cape Breton.
<b>Indicator:</b>	Number of new demonstration projects relating to energy efficiency and conservation as well as renewable energy.
<b>Inputs:</b>	Research into potential demonstration projects. Support and input from stakeholders. Feasibility studies (where required). Promotional activities, including organised tours (mainly through public education and awareness campaign).
<b>Activities:</b>	<ul style="list-style-type: none"> <li>• Research potential demonstration project hosts through the identification of specific actions.</li> <li>• Network with potential hosts and provide informational support and encouragement.</li> <li>• Explore potential opportunities of having students (from Trades and Technology at the Strait Area Campus of the NSCC) provide assistance.</li> <li>• Choose four or five older homes whose owners occupy them year round and are of low or modest income. Work with Municipal Governments to request that they forward the names of homeowners who have applied for assistance from Housing Services to Conserve Nova Scotia for consideration as Residential Energy Affordability Programme (REAP) candidates as a means to provide funding for retrofits of houses that need the most attention.</li> <li>• Monitor energy consumption of each demonstration home before and after the upgrade project using reviews, energy records, PowerCost monitors and/or energy meters as well as follow-up reviews. PowerCost monitors may be made available to homeowners through public libraries.</li> <li>• Implementation or construction of demonstration projects.</li> <li>• Profile demonstration houses in newsletter and other forms of information dissemination as described in section 7.1.1.1 using testimonials and energy reduction results in order to increase awareness and reduce (perceived) risk.</li> </ul>
<b>Outputs:</b>	An increased number of demonstration projects throughout the Strait Highlands Region.
<b>Time Frame:</b>	Short term to medium term – for networking, retrofitting, reporting and promotion.
<b>Budget/Resources:</b>	<p>The Sustainability Coordinator can provide networking services in order to locate potential hosts and provide information and encouragement for the development of demonstration projects. It is expected that &lt;\$2,000 of the Coordinator’s annual salary would be dedicated to this action item. The public education and awareness programme will be used to organise tours and for promotional purposes.</p> <p>There are many potential hosts in the region who may install these types of demonstration projects for not only demonstration purposes, but also to reduce their own carbon footprint and save on energy costs.</p> <p>Non-profit educational organisations such as the EAC, Clean Nova Scotia and/or ACAP Cape Breton may be able to provide (in-kind) assistance with the development of ideas, partner networking, system design and installation as well as promotion and education.</p> <p>Depending on the nature of the project, the services of outside consultants and/or engineers may be required. The associated costs are highly dependent on the project</p>

	in question.
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## 8 AREAS FOR FURTHER CONSIDERATION AND STUDY

### 8.1 Document and Recognise Initiatives and Results

It is recommended that the municipalities build and maintain a database to track proposed, current and implemented actions and the resultant GHG reductions. Stakeholders should be invited annually to report on their initiatives and the savings they have incurred. As an incentive, Municipal Governments could recognise efforts by publishing an annual GHG reduction report based on the findings. The report could be distributed through the newsletter mentioned in section 7.1.1.1 or other similar publication and should be supported by media releases, with the intent of stimulating stakeholder support for GHG reduction through a positive profile in the community.

Stakeholder efforts could be further recognised by certificates from the municipalities as well as annual rewards from Regional Councils to members for achievements such as, for example, the greatest GHG reduction, demonstrated the greatest commitment, the most innovative or provided the most inspiration. Radio spots and newspaper ads could be used to report on outstanding achievements in reducing GHGs and for Council to commend particular citizens and businesses. An excellent way to keep the ball rolling is to publicly celebrate successes throughout the implementation of the LAP. A method of ensuring that celebration becomes an established part of the LAP (and not just a good news bit on a web page) should be agreed upon (i.e., opportunities for recognition of partners, annual party, provision of incentives, etc.).

The LAP should be revisited every year in order to provide an opportunity to modify indicators and outcomes if they proved to be inappropriate (i.e. outside the sphere of influence of community groups, unpopular within the majority of the target audience, controversial or a hindrance to other outcomes, etc.).

### 8.2 Revisiting the Reduction Target

A sustainable GHG reduction plan requires periodic adjustments of the reduction target as planned initiatives are completed and results are able to be determined, as additional funding sources become available and as energy efficiency and GHG reduction are mainstreamed.

### 8.3 Funding Sources

The Sustainability Coordinator will help to identify, pursue and report on funding opportunities for the LAP measures. The creation of a revolving fund or other funding mechanism that frees (at least to some extent) the LAP from the limitations of one-off funding should be investigated in order to meet the long-term need of shifting towards a more sustainable Community.

Natural Resources Canada has a very helpful, user-friendly directory<sup>11</sup> of energy efficiency and alternative energy programmes across Canada that provides information on financial incentives currently available for renewable energy and energy efficiency, and conservation projects/programmes.

Additionally, Environment Canada has a similar directory<sup>12</sup> that focuses on incentives and rebates available for reducing energy use, switching to renewable energy, as well as producing less waste.

A useful source of information for funding sources is the take home booklet which was developed for the public education and capacity building seminars during the consultation process. See Appendix A for details of the booklet. This booklet is relevant for all sectors and should be widely distributed as a way to enhance awareness, stimulate interest and increase participation.

Potential funding sources identified to provide monetary or in kind support to a community demand side management program include the following:

- .1 Federation of Canadian Municipalities – Green Municipal Fund.
- .2 Conserve Nova Scotia – EnerGuide for Houses, Residential Energy Affordability Programme (REAP).
- .3 Natural Resources Canada – EcoENERGY Retrofit Programme for houses and businesses, Canadian Industry Programme for Energy Conservation (CIPEC).
- .4 Nova Scotia Power Incorporated – A corporate demand side management (DSM) study has been completed as part of a larger integrated resource planning project. Investment in DSM initiatives has been identified as having the potential to delay major capital expenditures in new generation infrastructure for several years, thus improving the long term financial outlook for the company.

## 9 RECOMMENDATIONS FOR IMPLEMENTATION

### 9.1 Awareness Building

#### 9.1.1 Public Education

Unless GHG emission reductions are mandated and social values and behaviours are altered significantly such that GHG reductions are mainstreamed, participation will be primarily based on financial incentives. First and foremost, messages must reveal that the local community's best interest is at heart. Mainstreaming this issue is a long-term objective that requires a focus on public awareness and education. These activities should emphasise the tangible benefits (environmental, economic, social etc.) that may be realised through participation, as well as the financial incentives that can help to achieve GHG reductions.

Knowledge is power and a knowledgeable society has the power to create meaningful change. More importantly, knowledge can be the foundation upon which to build community capacity, which can enhance the overall quality of life. Capacity building may be defined as “the process of developing and strengthening the skills, instincts, abilities, processes and resources that organisations and communities need to survive, adapt, and thrive in the fast-changing world”<sup>13</sup>. Capacity allows for a community to deal with change and undertake challenges. Climate change, which is inherently linked to energy issues and globalisation, certainly poses complex challenges that will increasingly test a community's capacity to deal with change gracefully.

Messages can be framed for different target audiences or specific demographic groups. In other words, use multiple messages to engage citizens instead of relying on one message. For example, younger audiences may be presented with simple and understandable messages that demonstrate how they will be personally, negatively affected if they do not take action. Communicate through action, then tell the story about what was achieved (something that can be measured and confirmed) using a human voice and everyday language. This is especially important given the level of mistrust with government. When it is perceived that government and government funded agencies are doing something, the request to participate in a LAP will seem more credible.

The sense of community should be emphasised, that everyone is part of their community, and there is an ability to address many social and basic needs while simultaneously being a better steward of the environment. Practical ‘solutions’ should be provided that are within a person's sphere of influence, and benefit someone's work/life routine. The majority of people tend to respond better to messages which start by talking about daily issues (i.e., rising costs to get to work, rising food prices, health issues) rather than discussions of intangible issues such as energy and climate change.

This LAP aims to create meaningful, positive change in the way energy is created and used in the Strait Highlands Region. Through public consultation sessions and a number of residential and commercial energy audits conducted, an appreciable number of residents have already been made aware of the project. In order to ensure that public support for project implementation is at a high level, it is considered

important that the public is kept fully aware of what project initiatives are both planned and proposed, as well as any expected benefits. Some relevant information that should be conveyed to the public includes:

- Typical energy costs per household in the Strait Highlands Region;
- Typical costs of home energy retrofit measures;
- Expected energy and cost savings associated with energy retrofit measures;
- Costs of energy for the municipalities;
- Typical costs for municipal energy saving measures;
- Expected energy and cost savings associated with municipal energy savings measures;
- GHG emission reduction potential of the proposed renewable energy projects; and
- Information on government programmes and financial incentives for homeowners and small businesses to reduce energy consumption.

Although the main goal of the Partners for Climate Protection programme is to reduce GHG emissions, high energy prices and large populations of low income earners in the Strait Highlands Region may overshadow a message based solely on GHG reductions. Therefore, the overall message of the LAP should emphasise that taking action will not only reduce GHG emissions but also that reducing energy use also saves money and increases health and comfort.

#### 9.1.1.1 INFORMATION DISSEMINATION

The ultimate success of the LAP will be based on the number of community members who get involved and commit to making positive changes to reduce GHG emissions in their homes and businesses. The shift to sustainable thinking and approaches is, in essence, a cultural change. The significance and size of the shift needed should not be underestimated.

Municipalities must develop a clear message of what they are striving to achieve in terms of GHG reductions in the community. This will include encouraging stakeholders to set their own voluntary targets for GHG reductions and to communicate initiatives and results to the municipalities. It is likely that stakeholders are currently not setting GHG reduction targets, even those who have been or are actively engaged in implementing significant GHG reduction initiatives.

As with any programme that requires people to modify their behaviour and values, the GHG reduction plan requires an identifiable project image or brand. Using the already developed 'Strait Highlands Green Action' brand and logo is an effective means of supporting public education and awareness efforts and should therefore be used in any promotional activities. Local communications expertise should be identified and used in order to refine key public messages in association with the branding of the Strait Highlands Green Action. Feedback from public consultations has indicated that the LAP and information regarding the plan is best to come from key community leaders and action groups as opposed to the government due to the fact that people tend to be sceptical of the government. Volunteers may also be recruited to be the voice behind selected messages in radio and print.

Access to information regarding the LAP should be made available at local festivals, community events, exhibitions and workshops. Feedback has also indicated that people tend to not want to learn in the lecture

format and avoid school-like public workshops. However, when the information is presented in a more social and inclusive setting in a manner that is relevant to them, they are willing to listen and learn. As a result, carefully selected social events may prove to be excellent venues to share information. Institutions of faith may also be a valuable means of disseminating information, as well as demonstrating creative programming that ‘brings communities closer to programmes’.

Although the internet is an effective means of communication, too much reliance on web-based information dissemination would neglect a large portion of the Cape Breton population. This is especially true until high-speed internet becomes common, but even after this service becomes wide-spread, some populations may not be as prone to use it. As a result, it would be very helpful if the Sustainability Coordinator can assist with identifying useful programmes or rebates and subsequently providing assistance with relevant applications. It was learned through public consultations that access to information is a significant barrier to action, particularly with regards to the advantages and disadvantages, costs, suppliers and service technicians for alternative home energy systems.

Sometimes people may want to take action but are unaware of which first steps to take. The ‘Energy Information Line’<sup>14</sup> is a toll-free phone number that provides useful information on energy to anyone in Nova Scotia. It is recommended that this number is widely distributed in order to connect citizens with a real person that can respond to queries and provide information on relevant financial incentives with the aim of reducing energy use and GHG emissions.

A community newsletter should be produced and distributed which would include the items previously mentioned and local success stories, etc. A series of newsletters could highlight different aspects of the LAP and also include examples of best practices used in the community and elsewhere. Many publications are currently in existence which can provide examples and information for the newsletter. Some sources include Natural Resources Canada, Conserve Nova Scotia, Nova Scotia Department of Energy, Clean Nova Scotia, Union of Nova Scotia Municipalities and Halifax Regional Municipality. The Federation of Canadian Municipalities (FCM) can also be utilised for information on successful conservation initiatives in other Canadian municipalities.

In addition to the newsletter, a series of public open houses can be used to allow the community to more fully understand all that the LAP involves, to ask questions and learn how they can participate. It seems logical to arrange various open houses in different locations throughout the Strait Highlands given the large geographical area involved. The open houses should focus on the goals and expected outcomes of the LAP, as well as highlight the measures proposed or already underway. Displays should provide detailed information on the costs and benefits associated with each measure to reduce (perceived) risk and increase uptake. The open house should also provide a forum for feedback from community members who have taken action, as well as provide information on energy efficiency programs for homeowners to take away. For example, the hand-out developed for the public education and capacity building seminars held in May, 2008 that outlines available incentives/rebates and programmes should be widely distributed. Detailed information on the EnerGuide for Houses programme should be provided, in addition to the opportunity for homeowners to enrol in the programme.

It is very possible that poor attendance at public open houses may reflect public perception that decisions have already been made and that, as a result, input from citizens will have little or no effect. As a result, citizens should be offered the opportunity to participate in the process before decisions are made. Focus groups or workshops and charettes may offer greater success by providing the public with the opportunity to voice their opinions, priorities and desires during the decision making process. This type of involvement will encourage public commitment and support during the launch of the LAP, especially through the invitation of specific groups or stakeholders.

Other proposed methods of public education are announcements and phone-in talk shows on radio stations. These actions would help to stimulate interest and participation through the promotion of upcoming public meetings, demonstration projects, etc.

Lastly, an effective communication tool may be the inclusion of information pamphlets with certain municipal literature, such as inclusion with property tax or water bills.

#### 9.1.1.2 INCREASING PARTICIPATION AND EFFECTIVENESS OF PLAN

Although large-scale information campaigns can be effective in generating public awareness and changing attitudes, behavioural change requires more than simply providing information. Behavioural change can be most effectively achieved through initiatives delivered at the community level. It is necessary for stakeholders to identify and complete GHG reduction initiatives on an ongoing basis.

The EnerGuide for Houses programme is particularly pertinent for this plan given the significant GHG reductions that it may achieve and also the level of awareness and education it can deliver. In order to increase participation in the programme, a focussed neighbourhood canvassing programme is recommended (goal 7, community action 10) to increase awareness and stimulate interest and participation in the programme. The municipalities could also advertise the programme and accept applications from homeowners to participate in the programme. Participants receive an initial energy audit and a corresponding score or energy rating. At this point, homeowners have 18 months to perform any of the desired retrofits before having a follow-up audit conducted to assign a second score and determine the level of rebates applicable. The specific upgrades performed determine the amount of the EnerGuide rebate. Maximum rebates are \$6,500, while the typical enrolment cost of \$150 + HST is reimbursed for low-income earners. It is now possible for homeowners to apply for a zero-interest loan<sup>15</sup> of up to \$5,000 from Conserve Nova Scotia that can help pay for energy efficiency upgrades through the EnerGuide programme. It is expected that as greater numbers of homeowners go through the EnerGuide process, they will tell their family, friends, and neighbours about it and participation will increase. An optimistic participation rate (46% of homes) is considered to have 5,139 out of the 11,100 homes in the Strait Highlands Region undergone retrofits by 2015, while a realistic participation rate (25% of homes) is considered to have 2,775 homes complete the programme by 2015. The business as usual (BAU) scenario (15% of homes) assumes that 1,665 homes will have performed retrofits under the EnerGuide programme without local promotion; this is simply due to rising energy costs, word of mouth and advertising by administration or delivery agents.

The ability to monitor energy consumption has been proven to have a positive effect on energy efficiency by making the user immediately aware of the cost of their electricity use. People tend to use less when they see the cost that is associated with certain actions. Energy meters that provide real-time energy usage information can be borrowed from public libraries or purchased for approximately \$25 from Canadian Tire or other popular retailers. Virtually any standard electrical device can be plugged into these meters, which is then simply plugged into a conventional power outlet in order to provide information such as power (W), energy (total kWh used), peak load (W) and time in use. Alternatively, it is recommended that larger power users such as institutions subscribe to Nova Scotia Power's Smart Energy Information Service (SEIS)<sup>16</sup> for approximately \$100 per month; this service provides similar information to the aforementioned power meters. However, the information (peak demand, time of peak demand, total energy used, kVA, etc.) is logged every 15 minutes and archived in order to observe hourly or daily trends using data and/or graphical representations of usage information. This information can then be used to take the necessary actions to reduce energy consumption and/or peak load. A PowerCost monitor is another option for monitoring energy consumption and can be purchased online for approximately \$150 through Blue Line Innovations<sup>17</sup>.

### **9.1.2 Demonstration Projects**

Although not necessarily new, the concept of energy conservation and renewable energy can be confusing, intimidating and perceived risky to many people. Energy conservation and renewable energy initiatives in use in residential and small commercial settings are a very good method of selling the concept to a sceptical public. This is a great opportunity for municipalities to lead by example and turn one or more of their buildings into showpieces of energy efficiency by incorporating as many efficiency and/or conservation measures into their buildings as possible and subsequently inviting the community to come and see the benefits these technologies offer.

On the residential side, a series of demonstration projects involving four or five houses is proposed. Due to the fact that a majority of the residences in the Strait Highlands Region were built prior to 1970 and that these homes are typically the worst energy performers, the demonstration projects should target homes of this age. Economically, low income households may benefit the most from reduced home energy costs, so it is proposed to implement demonstration projects in year round owner occupied homes of low or modest income. The Strait Area Campus of the Nova Scotia Community College has a trades and technology programme that may be able to contribute students to the project as a part of a training programme.

One potential funding source for the home energy demonstration projects is the provincial Residential Energy Affordability Programme (REAP)<sup>18</sup>. This programme is administered by Conserve Nova Scotia and offers comprehensive energy efficiency/conservation upgrades to low income homeowners in order to reduce energy consumption at no cost to the homeowner. Once the initial EnerGuide audit is performed, contractors hired by the programme administrator complete the necessary upgrades before a follow-up EnerGuide audit is conducted. Homes are conventionally selected based on pre-approved Housing Services lists from the Department of Community Services<sup>19</sup>. Since the municipalities are responsible for keeping records of low-income earners who have applied to Housing Services for assistance, it is possible for the Sustainability Coordinator to request that Community Services forwards the contact details of

several eligible homeowners in the Strait Highlands Region to Conserve Nova Scotia for consideration as REAP candidates. For the 2008/2009 fiscal year, up to seventy-five (75) homeowners on Cape Breton will participate in the REAP programme. This action would have several benefits associated with it: immediate reduction of GHGs upon completion of the work; easier access to information for profiling and demonstration purposes because of the fact that public funds are used; and an increase in the level of awareness and experience with regards to these types of energy efficiency/conservation retrofits for the trades people involved. This will likely be an ongoing programme that will continue performing energy upgrades to low-income homeowners. It may be possible to obtain testimonials from homeowners that may be used to promote energy efficiency upgrades via the public education and awareness measures.

In order to effectively monitor the energy consumption of each demonstration home before and after the upgrade project, a monitoring programme using reviews, PowerCost monitors, energy records and follow-up reviews will be required. PowerCost monitors can be purchased online for approximately \$150 through Blue Line Innovations<sup>20</sup>. Alternatively, it is recommended that the monitors are made available to homeowners through a loan at local public libraries. The ability to monitor energy consumption has been proven to have a positive effect on energy efficiency by making the user immediately aware of the cost of their electricity use. People tend to use less when they see the cost that is associated with certain actions.

### **9.1.3 School Projects**

Since values are learned at such a young age, public education should include school-age children. School children are also often seen to be an excellent resource to convey new ideas to a community via their families. Some examples of school based energy awareness programmes that could be applied in the Strait Highlands Region are as follows:

- .1 Energy conservation information is provided to school children as part of an eco competition between different schools. Schools could report on their electricity and heating fuel consumption and the number of students and staff in each building in order to determine an energy consumption figure per person. Each school then starts different energy conservation measures such as turning off lights when not needed, setting back thermostats over night, reducing hot water consumption, fixing air leaks around windows and doors, and other ideas developed and implemented by students and staff. Each school provides a brief report on their activities and monitors their energy consumption to report changes from their previous consumption per person figures. Minimal funding is required if most measures are the result of operational changes. Small prizes could be awarded to the schools with the greatest energy savings.
- .2 Students obtain their home energy records and enter into a competition with classmates to achieve the largest energy reduction per person in their households. They report in class what energy saving measures they are trying at home and what impact it is having. These competitions are better suited to children above the elementary grade levels.
- .3 Children in a class are divided into teams and are given a computer generated model house. Each team is given a budget and told to reduce energy consumption in their house as much as possible. Each team is given a list of possible measures and their costs. Each team selects their measures to

use up their budget, the measures are entered into the model house, and the energy reductions are determined. The team with the best reduction wins. These online model houses are available through various government energy and educational websites.

Suggested prizes could include home energy efficiency packs presented to students and staff like those developed and distributed by Nova Scotia Department of Energy. In addition to energy savings information, these packs usually include one or two compact fluorescent lamps, a hot water heater blanket, a roll of weather stripping, outlet cover insulators and a faucet aerator.

## 9.2 Local Support

Ultimately, the success or failure of this LAP will depend upon the ability of the municipalities to inspire the public, institutional, and business communities in the Strait Highlands Region to support the plan. The extensive energy audit programme of homes, businesses, institutions, and industries, as well as the public education and capacity building seminars held in May, 2008 provided an excellent opportunity to explain the rationale and goals of the LAP to a significant portion of the community. In total, over 200 audits were conducted which provided our team with direct contact with hundreds of people who have seen first hand what the LAP can mean for them.

An extremely important position is that of the local Sustainability Coordinator; this person plays the crucial role of maintaining momentum while the LAP is implemented. The municipalities need to seek funding to support the creation of this position. It may be possible to share the cost of the position between municipalities and obtain office space at the S-HRDA. Funding for this position may be available through the federal government EcoAction community funding programme. Co-op students may fill the role temporarily depending on the time of year. The Nova Scotia Youth Conservation Corps Program is another possibility, although this program is better suited to works projects.

Just as equally important as the Sustainability Coordinator is the need to identify local ‘champions’ from each community and nurture their commitment to the LAP. A diverse set of local ‘champions’ should take an initiative with the delivery of communications (stories and messages) regarding the LAP, as opposed to a nameless voice. Their commitment ought to be based on a shared understanding of the climate and energy challenges being addressed, the opportunities and benefits that can arise from tackling the challenges and a belief that the community can identify and successfully implement actions that reduce the reliance on carbon-intensive fuels. Local champions should include representation from youth, seniors, and all levels of income and ability. Plan for how long champions will be asked to serve, how new local champions will be identified and recruited, and how (if) they’ll be incented. Host a camp / retreat for local champions and use a professional facilitator to define a vision for regional sustainability (i.e., ‘Green Action’). Then, articulate outcomes - changes which prove that people’s capacity to live sustainably is improving. Next, identify indicators - conditions or events that signify a desired change (an outcome) has come to be. Each indicator should be tied to some kind of measure. For example, measures often include assessments of ‘how many’, or ‘what percentage of’, or evaluations about the ‘quality’ of something. Be sure to inform the local champions of all efforts that are resulting from the S-HRDA’s energy asset mapping exercise, the nature of any projects undertaken, who is leading the work, how it is

progressing, what kinds of GHG emission reductions it is expected to result in, and so on. The point is to avoid any duplication of effort and to allow local wisdom a chance to improve upon efforts to capitalise on energy from waste streams or renewable resources. Have representative local champions or their appointed spokesperson(s) present to Councils and the S-HRDA Green Action Advisory Committee on their stated vision and outcomes, actions to achieve those outcomes, and indicators which let us know how we are doing. Reconvene local champions and have them inventory associations, religious institutions and cultural organisations within their community. The inventory should identify the kinds of activities undertaken by the groups. Train willing local champions and their supportive peers (i.e., champions may recruit help) to attend meetings of key local associations and solicit input on the list of actions within the LAP. These assets are vital partners for empowering and mobilising individuals. Tips should also be provided to the champions on how to efficiently identify and contact community groups.

The findings from local champions should be synthesised – perhaps by the Sustainability Coordinator – in order to identify shared interests across the community associations that they have visited with and also to capitalise on existing community capacity in order to catalyze the LAP. This will require: linking an action of the LAP to a community group who will undertake that action; partnering them with other associations which may have the resources they need; clearly communicating their role within a larger, coordinated LAP; and determining the most effective way to have them measure and report on their progress. The Strait Highlands Regional Development Agency should also highlight the accomplishments and progress of the local champions in order to facilitate their work

Since more than one group can undertake any given action, it is recommended that groups undertaking the same or similar actions to each other are introduced to one another as a way to promote the exchange of ideas and lessons learned. Efforts should be measured consistently to ensure replicable results.

List resources such as space and facilities, vehicle fleets, materials and equipment, or unique expertise. Identify if and when these resources could help achieve desired outcomes. As well, continue to seek potential partners in GHG reduction actions and opportunities to build productive relationships (i.e., linking needs/ideas with resources).

It is essential that momentum be maintained once implementation initiatives have begun. New promotional ideas must be continuously developed to maintain interest among community resident. It should also be ensured that pledges of participation are followed up with actions. The local business community must be engaged to support the programme since it stands to benefit directly through sales of materials and construction labour.

### **9.3 Schedule for Target Achievement**

The feasibility analyses categorise measures according to length of time required for implementation. Short term measures are considered to be those which may be implemented with one to two years, while medium term measures require two to five years and long term measures will be carried out over more than five years. There are several action items that are already underway and should simply be acknowledged in order to gain recognition. There are also many short term measures that require

immediate focus for implementation, especially those that have little or no cost associated with them. Implementing these low or no cost measures can offer instantaneous GHG reductions and cost savings, while also increasing the prospects for funding availability because it demonstrates to potential funding sources that initiatives are currently underway. Tables five and six list the measures recommended for immediate implementation due to lack of expenditure requirements.

**Table 5. Corporate Measures Recommended for Immediate Implementation**

GOAL NUMBER	ACTION	DETAILS OF MEASURE
7	Legislative	Hire a sustainability coordinator for a successful implementation of this LAP.
2	2	Provide (or support the acquisition of) carpooling parking lots in order to encourage ridesharing and transit ridership. Excludes Port Hawkesbury.
2	3	Determine current usage patterns and best practices for municipal vehicles, and then incorporate these practices into operation of fleet. Incentives and/or bonuses may be offered for staying within fuel usage limits.
4	1	Incorporate solar access into community planning (layout of roads and lots)
4	2	Allow planning departments to provide preferential or accelerated review for the development permit process for projects meeting energy efficient criteria and/or other green criteria (i.e. through the use of a checklist)
7	1	Day long coalition building session (via invite) organised by mayors and CAOs from the three regions - involving CEOs and top managers of large energy users - to build momentum to get projects off the ground
8	3	Officially endorse the GHG emission reduction target and the resulting implementation plan
8	5	Maintain the Green Action brand presence in all incentive programmes and promotions developed through Green Action and the LAP

**Table 6. Community Measures Recommended for Immediate Implementation**

GOAL NUMBER	ACTION	DETAILS OF MEASURE
7	2	Explore funding options to conduct feasibility studies on the use of heat pumps for buildings (i.e. ground or air sourced)
7	3	Seek funding for prizes, speakers and educational aids, etc. on energy efficiency/conservation and renewable energy at schools
7	5	Determine the interest in bulk purchase of rain barrels to be available at a nominal fee and provide information on operation and maintenance
7	7	Work with the NS Community College to develop training programmes to enhance the skills of existing trades persons to implement energy efficiency/conservation and renewable energy measures

These measures listed above either have little or no capital requirement, or there are resources already in place to undertake these action items. On the other hand, the development of renewable energy and other capital intensive projects will require longer time periods to secure funding and complete detailed feasibility analysis.

It is very important to demonstrate that implementation is underway when applying for assistance funding. There is no better way to do this other than actually take initiatives and document them (as well as ensure that initiatives already underway or completed are documented as well).

Having a clearly defined governance structure for the implementation phase is crucial to the progress of this LAP, especially if two or three municipalities plan on undertaking initiatives together. Providing structure for the implementation phase allows funding agencies to perform follow-up duties with specific individual(s) to ensure that the funds were used properly. If this is taken into consideration, funding agencies will be much more likely to provide financial assistance for these measures. This is particularly important if more than one municipality is working together to obtain funding given that many more individuals - and much more money - will be involved, thus increasing the complexity of the situation.

## 10 CONCLUSION

Implementing this local action plan (LAP) as soon as possible is strongly recommended, as this will work to maintain momentum and also provide the greatest opportunity to meet the GHG reduction target as longer term measures have more time to come to fruition. Actions already underway should be acknowledged in order to gain recognition and increase the chances of securing funding for additional measures, as this will demonstrate that planned initiatives are currently being implemented.

Since capital cost is often an obstacle, the immediate focus should be directed towards the action items with little or no financial requirement. In addition to offering additional evidence to potential funding sources that actions are being undertaken, acting on these measures could also provide an additional source of funding as energy costs are reduced with little or no expenditure. These funds may be used for more widespread implementation of other measures, or to expand on existing measures. This ‘low-hanging fruit’ can also be a very realistic means of accomplishing relatively immediate reductions in GHG emissions since funding and feasibility studies are not normally required, thus significantly reducing lead times. For measures that require investment and involve funding agencies, the establishment of a governance structure is crucial to demonstrate who is responsible for the allocation of funds, and will greatly assist funding opportunities.

Progress towards reducing GHG emissions will likely depend not only on increasing public awareness and education, but also on demonstrating economic incentives. Therefore, information about any potential funding sources should be widely distributed to the community and followed up with telephone calls or visits to obtain pledges of participation.

It is important to develop and nurture a philosophy throughout the community about the importance of energy conservation and sustainable development. Support from developers, residents, businesses, institutions and industry is vital to the success of the LAP and the community energy plan as a whole. Building up the knowledge base of renewable energy systems and networking with government and private industry helps to attract investment in new technologies as outside investors see the level of interest and commitment to sustainability throughout the community. The Strait Highlands Region should build upon currently available but underutilised local, renewable energy resources, while at the same time developing expertise and confidence in their ability to expand into newer technologies and attract investment to improve and transform the local economy.

Additional follow-up will be required with the business community to encourage participating in government incentive programs to reduce energy consumption and to share their experiences and successes with the wider community. This information sharing and a cooperative approach will be critical to maintaining long term interest and involvement in the LAP.

Regular revisions and updates of the LAP will be necessary to effectively monitor GHG reduction performance. Furthermore, this will help to identify and implement new technologies and approaches as they become commercialised. Revisiting the LAP will also encourage the development of additional projects as certain parameters (such as the cost of energy) change. Rising energy costs may very easily

bring certain actions into a much more feasible position for implementation as potential cost savings are increased. Implementation of these actions is a win-win for everybody in the Strait Highlands Region; good for the environment and good for the bottom line.

Appendix A  
Incentives/Rebates and Programmes Available

- △○□ For a **user-friendly directory on energy efficiency and alternative energy** programs across Canada that may not be listed here, visit [http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/policy\\_e/programs.cfm](http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/policy_e/programs.cfm)
- △○□ A **15% rebate (to a maximum of \$20,000 per project)** towards the installed cost of a **solar water or air heating system** is available from Conserve Nova Scotia. Projects that exceed \$20,000 may be considered and must be pre-approved; applicants may apply in advance with a detailed project description. For more information on program conditions, please visit <http://www.conservens.ca/consumerinfo/residential/solarhotwaterrebate> (water), <http://www.conservens.ca/consumerinfo/residential/solarairheatingrebate> (air) or call 1-800-670-4636
- △○□ Lights need replacing? Want to **reduce energy use by up to 40%**? Conserve Nova Scotia is **covering the extra costs** for replacing your lights with energy-efficient, High Performance T8 (HPT8) lights instead of regular T8s or T12s. This instant rebate involves **no paper work and no waiting for a rebate!** Just ask your electrical contractor to specify and purchase “High Performance T8 lighting”. For more information on Smart Lighting Choices, visit <http://www.conservens.ca/slc> or call [1-800-670-4636](tel:1-800-670-4636)
- △○□ Common things such as driving over 90 km/hr, idling, dirty filters and under-inflated tires can **increase your fuel consumption by around 50%!** Drivewiser is Nova Scotia’s fuel efficiency program that offers heaps of **fuel-saving driving tips** and they even offer **free presentations**. For more information, or to book a presentation, visit [www.drivewiser.ca](http://www.drivewiser.ca) or call (902) 420-8802 (toll free 1-800-665-5377; ask for Gina Patterson)
- △○□ Want to **save up to \$2,000** on your next **new vehicle**? The ecoAUTO Rebate Program encourages Canadians to purchase new fuel-efficient vehicles by offering rebates. 2006, 2007 and 2008 model-year vehicles purchased or leased (12 months or more) between March 20, 2007 and December 31, 2008 may be eligible (apply by March 31, 2009). Call 1-800-O-CANADA (1-800-622-6232) or visit <http://www.tc.gc.ca/programs/environment/ecotransport/ecoauto.htm>
- △○□ **Energy-use meters** are now available in **Public Libraries and Community College libraries** across the province that may be borrowed in order to evaluate how much electricity is being used by virtually any electrical device/appliance at home. This is particularly useful for demonstrating how much electricity is used by devices when they are turned off (known as **phantom loads**) and/or for determining the total amount of **power that is used by devices which ‘cycle on and off’** such as refrigerators. For support with the use of the meters, contact 1-800-670-4636 or visit <http://www.conservens.ca/meter>



## Education and Capacity Building:

### Incentives/Rebates and Programs Available

This information sheet provides you with useful information on incentives/rebates and programs to help you reduce your energy use, greenhouse gas emissions and costs. Contact details are provided for each program, while the Strait Highlands Regional Development Agency may be contacted for further general information at (902) 625-3929, [info@strait-highlands.ns.ca](mailto:info@strait-highlands.ns.ca) or visited on the internet at <http://www.strait-highlands.ns.ca/>. **Please note that icons show you what programs or incentives you may be eligible for:**

#### Eligible Applicants\*:

- △ - Homeowners
- - Institutions/Schools
- - Industrial/Commercial

- △ **Each homeowner** is eligible for **up to \$6,500 in rebates** by having their existing home’s energy performance evaluated through an energy audit. This program focuses on ‘keeping the heat in’. See <http://www.conservens.ca/energuide> or call 1-800-670-4636 for a list of rebates
- △ People **planning to build a new home** can register for the EnerGuide for New Houses program by submitting their building plans to be analysed with the federal government’s energy analysis tool, at which point potential energy efficiency upgrades can be recommended prior to construction. After the home is built, an energy evaluation is performed to determine the final EnerGuide rating; depending on the final rating, participants can receive a **rebate of up to \$1,000 and a 10% rebate on the premium of their CMHC mortgage loan insurance**. For more information, call 1-800-668-2001 or visit: <http://www.conservens.ca/energuidefornewhouses>
- Conserve Nova Scotia supports **licensed child care facilities** that wish to make their buildings more energy efficient by offering **free energy evaluations and rebates for efficiency upgrades** to qualifying child care facilities. For more information, call 1-800-670-4636 or visit <http://www.conservens.ca/childcare>
- Conserve Nova Scotia offers **educational programs and activities on energy efficiency and conservation** to Nova Scotians of all ages. For more information, call 1-800-670-4636 or visit <http://www.conservens.ca/education>

\* Please note there are some eligibility exceptions for certain programs

- Conserve Nova Scotia's "It Starts With Me" school **fundraising opportunity for schools** involves selling **energy efficient products** (LED nightlights, CFLs and water conservation kits) at a **competitive price**, while educating the students on greenhouse gas emissions and climate change. The **school keeps half of the proceeds**. For more information, call 1-800-670-4636 or visit <http://www.conservens.ca/consumerinfo/education/schoolfundraisingprogram>
- Under the EcoENERGY Retrofit Incentive for Industry, Natural Resources Canada offers **\$10 per gigajoule (GJ) of energy saved**, up to 25% of the total eligible project costs (to a **maximum of \$50,000 per application**). Note that more than one application may be submitted per business (for different components/projects) to obtain more than \$50,000. For more information, call 1-800 O Canada (1-800-622-6232) or visit <http://oee.nrcan.gc.ca/industrial/financial-assistance/retrofit/details.cfm?attr=24>
- Nova Scotia Power is offering a new program aimed at helping **commercial and industrial customers** reduce their power consumption. Incentive amounts depend on individual projects, with a **maximum amount of \$1,000 for a preliminary energy audit, \$15,000 for a feasibility study and up to \$500,000 (or 50%) of eligible costs for implementation**. This program is available to customers with a typical peak demand of 250 kW (250 kVA) or higher, but will consider other opportunities where potential reductions exist. For information and conditions, call 1-800-428-6774 or visit [http://www.nspower.ca/customer\\_service/business/cicustom/](http://www.nspower.ca/customer_service/business/cicustom/)
- **Farmers** may take advantage of the Advancing Canadian Agriculture and Agri-Food (ACAAF) program; a \$240 million program that aims to position Canada's agriculture and agri-food sector at the leading edge to seize new opportunities. The program ends March 31, 2009 and has **approximately \$800 000 worth of funding left**. The program is available to projects that are delivered using an **innovative industry-led approach** at both the national and regional levels. It is recommended that any applicants **submit their application as soon as possible**. For more information, call (613) 759-6557 or visit [http://www.agr.gc.ca/acaaf/index\\_e.html](http://www.agr.gc.ca/acaaf/index_e.html)
- The Eco-Efficiency Centre at Dalhousie University (<http://eco-efficiency.management.dal.ca>) works with partners to build a competitive economy that is sustainable for future generations. Services offered include **'environmental and energy reviews'** and the **'eco-efficiency business assistance program'**. They may also be reached toll-free at 1-888-370-8111
- Natural Resources Canada offers a **25% rebate** towards the installed cost of qualifying **solar water or air heating systems** for businesses, industries and public institutions until March 31, 2011. For more information, call 1-800 O Canada (1-800-622-6232) or visit: <http://ecoaction.gc.ca/ecoenergy-ecoenergie/heat-chauffage/index-eng.cfm>
- The resource recovery fund board (RRFB) has **funding available** for municipal, business and community projects that **divert waste from landfills, including waste to energy projects**. For more information, call 1-877-313-RRFB (7732), visit the RRFB's funding applications link at <http://www.rafb.com/pages/forms.html> or e-mail [info@rafb.com](mailto:info@rafb.com). You can also visit their business development programs link, which has information on programs that **fund innovative research and development initiatives**: <http://www.rafb.com/pdfs/bizdeveng.pdf>
- The Atlantic Canada Opportunities Agency (ACOA) can provide an **unsecured, interest-free loan** towards the eligible costs of a **new establishment, expansion, modernization or a project that improves competitiveness**. Their contribution is repayable on a time schedule tailored to individual circumstances. The maximum level of assistance under the program is **50% repayable for hard costs and 75% repayable for soft costs**. For more information, visit <http://www.acoa-apeca.gc.ca/e/financial/business.shtml> or call 1-888-576-4444
- Under the Ecotrust for Clean Air and Climate Change, the government of Canada has made **\$42.5 million** available to support projects that **reduce greenhouse gas emissions and other air pollution** in order to facilitate the **growth of a sustainable economy** in Nova Scotia. For more information, call (902) 424-8269 or visit <http://www.gov.ns.ca/ecotrust/>
- △○ Groups interested in making a **bulk purchase of CFL lights to distribute at no cost** to employees, customers, clients or members will be able to apply for a **\$1.00 per lamp subsidy** under Conserve Nova Scotia's CFL Partnership Incentive. For program conditions, call 1-800-670-4636 or visit <http://www.conservens.ca/cflpartner>
- △○ Conserve Nova Scotia may hold another **LED Holiday light exchange** during the holiday season. For more information, call (902) 424-0790. LED lights use less than **1% of the power** of traditional (incandescent) lights, **last at least 10 times longer** than traditional bulbs, produce very little heat and contain no glass
- △○ Conserve Nova Scotia's website <http://www.conservens.ca/> has a wealth of **information and programs on energy efficiency and conservation** for the residential, business and transportation sectors. Alternatively, Conserve Nova Scotia's 'Energy Information Line' (**1-800-670-4636**) provides Nova Scotians with **toll-free energy efficiency advice** from Monday to Friday, 8:30 a.m. to 4:30 p.m.
- △○ For detailed information on **reducing energy usage and costs** (in both new and existing homes), visit <http://www.conservens.ca/consumerinfo/residential/reducingenergybills>

## END NOTES

- <sup>1</sup> A listing of municipal participants may be viewed at: <http://www.sustainablecommunities.fcm.ca/partners-for-climate-protection/> [18, November 2008].
- <sup>2</sup> Status details of municipal participants may be viewed at: [http://www.sustainablecommunities.fcm.ca/Partners-for-Climate-Protection/Milestone\\_Status.asp](http://www.sustainablecommunities.fcm.ca/Partners-for-Climate-Protection/Milestone_Status.asp) [18, November 2008]
- <sup>3</sup> Visit <http://www.strait-highlands.ns.ca/> [5, December 2008] and click on ‘Strait-Highlands Green Action – News and Publications’ to view reports from Milestones One and Two.
- <sup>4</sup> Visit [http://www.sustainablecommunities.fcm.ca/files/PDF/final\\_CP\\_eng\\_layout\\_2003.pdf](http://www.sustainablecommunities.fcm.ca/files/PDF/final_CP_eng_layout_2003.pdf) [27, November 2008] to view the document.
- <sup>5</sup> Visit <http://www.bluelineinnovations.com/> for more information, or to order a PowerCost monitor.
- <sup>6</sup> More information may be found at: <http://www.gov.ns.ca/ecoNovaScotia/> [29 November 2008].
- <sup>7</sup> For more information on this rebate programme (administered by Environment Canada), visit: [http://www.ec.gc.ca/incitatifs-incentives/gc\\_fi\\_search\\_display.asp?id=95&jurisdiction=8&actionArea=5&keyword=](http://www.ec.gc.ca/incitatifs-incentives/gc_fi_search_display.asp?id=95&jurisdiction=8&actionArea=5&keyword=) [29, November 2008].
- <sup>8</sup> View <http://www.conservens.ca/consumerinfo/residential/solarhotwaterrebate> [23, October 2008] for more information on this incentive.
- <sup>9</sup> View <http://ecoaction.gc.ca/ecoenergy-ecoenergie/heat-chauffage/index-eng.cfm> [23, October 2008] for more information on this incentive.
- <sup>10</sup> For more information and conditions, visit <http://www.conservens.ca/energiguide> [29, November 2008].
- <sup>11</sup> Visit [http://oe.nrcan.gc.ca/corporate/statistics/neud/dpa/policy\\_e/programs.cfm](http://oe.nrcan.gc.ca/corporate/statistics/neud/dpa/policy_e/programs.cfm) [03, November 2008] to search this directory.
- <sup>12</sup> Visit [http://www.ec.gc.ca/incitatifs-incentives/index\\_eng.asp](http://www.ec.gc.ca/incitatifs-incentives/index_eng.asp) [29, November 2008] to search this directory.
- <sup>13</sup> Philbin, Ann. 1996. Ford Foundation, Capacity Building in Social Justice Organisations. Viewed: [http://www.allianceonline.org/about/capacity\\_building\\_and\\_1.page](http://www.allianceonline.org/about/capacity_building_and_1.page) [18, November 2008].
- <sup>14</sup> The Energy Information line phone number is 1-800-670-4636.
- <sup>15</sup> Application form and FAQs may be found at: <http://www.gov.ns.ca/heatsmart/pubs/Zero-Interest.pdf> [26, November 2008].
- <sup>16</sup> The SEIS may be found at: <http://www.smartmeter.com/gate.jsp> [24, November 2008].
- <sup>17</sup> Visit <http://www.bluelineinnovations.com/> [21, November 2008] for more information, or to order a PowerCost monitor.
- <sup>18</sup> More information may be found at: <http://www.conservens.ca/consumerinfo/residential/realp> [24, November 2008].
- <sup>19</sup> Visit <http://www.gov.ns.ca/coms/housing/index.html> [21, November 2008] for more information.
- <sup>20</sup> Visit <http://www.bluelineinnovations.com/> [21, November 2008] for more information, or to order a PowerCost monitor.