

SACKVILLE

COMMUNITY ACTION PLAN UPDATE

MILESTONE 4

March 2020



Activity + Timeline	Partners/Resources	Estimated Emissions Reduction	Milestone 4 Updates
1. Anti-Idling Policy			
<p>Implementation of Anti-idling policy (developed around 2006) including education campaign and signage</p> <p>2011</p>	<p>Town of Sackville staff and council. Staff time to develop, implement, and enforce this policy was undertaken in 2010. Permanent signage paid for by town. Fines for idling could help cover the cost.</p>	<p>If the average midsize car were to idle for an hour it would use 0.76L of gas. This translates to 1.8 KG of CO2 for every hour a car idles. In addition, for every two minutes a car idles, it uses enough gas to travel about 1.5 km.</p>	<p>No municipal signage has been erected yet. No new drive throughs are allowed in Sackville according to Sackville's municipal bylaws.</p> <p>There is a document, from 2011 that talks about not allowing town vehicles to idle for more than 1 minute. An exception is made for fire trucks and other emergency vehicles during certain situations.</p>
2. Public Education and Energy Efficiency Campaign			
<p>Draft-proofing parties will bring together community members with EnerGreen builders to improve the efficiency drafty homes, and everyone who attends the parties will learn how to upgrade the efficiency of their own home</p> <p>2016-2017</p>	<p>EOS Eco- Energy, EnerGreen Builders Co- operative, NB Power</p> <p>EOS Eco-Energy has applied to the NB Environmental Trust Fund and will partner with EnerGreen Builders Co-op for the draft-proofing parties, and with NB Power to distribute their products</p>	<p>For the 6 parties, plus 12 guests that draft proof their homes too = 10,584kwh and 2667kg/year or emissions</p>	<p>Visit EOS's webpage on draft-proofing parties to learn more about the project (https://eosecoenergy.com/en/party/) and visit the EOS YouTube channel to see a video about the parties (https://www.youtube.com/watch?v=HfGgw6_6NTY&t=129s)</p> <p>From 2016 to 2019: 48 metric tonnes of emissions have been saved because of the project and 27 buildings have been draft-proofed.</p> <p>13 of the buildings have been in Sackville so far.</p> <p>As of spring 2019, emissions saved as a result of parties in Sackville equals 18.74 tonnes (annually) and counting.</p> <p>In the fall of 2019 and the winter of 2020, (still need to do 1 more party) 6 draft proofing parties were completed in Sackville, which has resulted in a further reduction of 4.13 tonnes.</p> <p>The total is 22.87 tonnes of annual CO2 emissions so far.</p>

<p>Direct installations of energy saving items (high-efficiency shower heads, insulation pipe wrap and 20 LEDs per home) in 60 households in the Tantramar Region</p> <p>2016-2017</p>	<p>EOS Eco-Energy has applied to the NB Environmental Trust Fund and will partner with NB Power to distribute their products</p>	<p>For 60 homes to get the direct install materials (an average of 20 led lights, 3 ft of wrap and 1 shower head) = 95.790 kWh and 24.139 kg/yr of emissions</p>	<p>LED light bulbs, high efficiency shower heads and hot water pipe wrap have been installed in 110 homes in the Tantramar region and counting.</p> <p>In year one of the program (2016-2017) EOS installed the retrofit items in 53 homes in the Tantramar region. For a total of over 32,000 kwh saved annually. This included 35 homes within the municipal boundary of Sackville for an annual savings of 19,137 kwh per year.</p> <p>In year two of the program (2017-2018) an additional 35 homes were visited by EOS staff and 21,079 kwh saved annually. Unfortunately, homes tracked by NB Power account number and so we are not sure which ones were located in Sackville.</p> <p>In year three, 9 houses had retrofit items installed. Three of those houses were located in Sackville, plus lightbulbs were handed out at the local food bank. This resulted in an annual 1,981 kWh reduction.</p> <p>In year four, EOS installed retrofit items in 13 houses in the Tantramar region. 8 houses were visited in Sackville, which reduced electricity usage by a further 6,388-kilowatt hours annually.</p> <p>As of winter 2020, over 27,500 kilowatt hours have been saved in Sackville because of the retrofit home install program and over 68 000 kilowatt hours in the Tantramar region.</p>
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<p>Climate Change Week raises awareness in the community of how our actions impact emissions. Community members are encouraged to drive less, buy local, eat seasonal, climate-friendly foods, and to find ways to reduce energy usage.</p> <p>2012 – present (ongoing)</p>	<p>EOS Eco- Energy, various community organizations</p> <p>EOS Eco-Energy received funding for climate adaptation that can be used to organize these annual events.</p>	<p>If more residents shop locally and eat locally grown food, it will reduce emissions by reducing the emissions from the individuals driving farther to get items, but also from the emissions created to ship the items. A litre of gasoline emits 2.38 kg of carbon dioxide. Local residents may also insulate their homes, use less water, turn off lights, etc. which would result in significant emissions reductions.</p>	<p>Climate Change week has been an annual event every winter since 2013. Some featured events over the years include school visits, a carbon pricing panel, wild edibles hike, a refashion show, climate change and forests talk, talks on energy efficiency, film festivals, eco-friendly crafts, etc.</p>
<p>Presentations on Saving Energy (tips such as benefits of clothes lines, importance of insulation, etc.)</p> <p>2015 (ongoing)</p>	<p>EOS Eco- Energy, NB Power</p> <p>No cost involved. Staff time to coordinate events and speakers, workshop venues.</p>	<p>If local residents make changes and install clotheslines, insulate their homes, use less water, and turn off lights, etc. significant emissions can be reduced.</p>	<p>Presentations have been done including:</p> <ul style="list-style-type: none"> • “How to Save Energy at Home” with Rob Robichaud of NB Power took place in Sackville. People learned about how energy works, how much power certain appliances take and ways to save energy at home. • EOS hosted a talk on “Living off the Grid” in winter 2015. It took place in nearby Dorchester and more than 50 people from around the Maritimes attended! Off-gridders shared their experiences and lessons learned and answered technical questions about solar arrays. • EOS had a booth at Sackville’s Midnight Madness community event in 2014 where youth were invited to make a candle holder out of jars and other recycled materials. • Other workshops in 2017-2018 included DIY Compost Bins, Zero Waste Living, a tour of Eco360 (local waste sorting facility). • Summer 2019 featured the first Annual Sustainable Home Show in Sackville. Hosted by EOS it had 500 visitors from across the Maritimes. There were 25 vendors, a collection of EV’s and their drivers and

			<p>presentations on saving energy, solar energy, a local renewable energy co-op, etc.</p> <ul style="list-style-type: none"> • Two solar home tours have been offered with more planned. In 2019 60 people participated and visited three homes. • Please see the EOS website for more details on projects and workshops: https://eosecoenergy.com/en/
<p>Bulk-purchase energy saving items such as LED light bulbs, programmable thermostats, low-flow showerheads, or clotheslines.</p> <p>2016</p>	<p>EOS Eco- Energy, maybe NB Power</p> <p>NB Power already offers incentives for some of these items. EOS may be able to coordinate bulk purchases but would need funding for staff time to coordinate.</p>	<p>If local residents make changes and install clotheslines, insulate their homes, use less water, and turn off lights, etc. significant emissions can be reduced. For example, if one household installs a clothesline and uses it twice a week, six months out of the year, they could reduce emissions by 75 kg CO2/year. Total CO2e reduction depends on how many people participate.</p>	<p>Free LED light bulbs, high efficiency shower heads and pipe wrap have been installed in 88 homes in the Tantramar region by EOS and in partnership with NB Power. This program is continuing. See above for more details on this program and the kWh savings so far.</p> <p>Did a bulk purchase of reusable food wrap in 2016-2017.</p> <p>Two solar panel bulk purchases have taken place since 2011. The first included 60kw installed in four homes. The second will involve over 45kw installed in seven homes.</p>

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3. Saving Water			
<p>DIY Rain Barrel workshop for residents of Sackville</p>	<p>EOS Eco- Energy, Eco-Container Co.</p> <p>Funding may be needed. Participants registration fees help cover expenses such as the rain barrel materials.</p>	<p>The average savings from a rain barrel is generally regarded as 4900L annually. Rain barrels have the potential to save Sackville a lot of water and energy.</p>	<p>Completed. During summer 2014 EOS and Eco-Container Co. hosted a workshop on how to make your own rain barrel. It took place at Sackville Community Garden. Participants learned a variety of designs and uses for rain barrels and how they can help save energy. Everyone received a 55-gallon food grade barrel to take home.</p>
4. Buy and Eat Local			

Farmer's market growth, including some farms offering community supported agriculture (CSA) shares, which allows people to purchase more local food. 2011 – ongoing	Sackville Farmer's Market Volunteers, vendors, community members	Driving less saves fuel, which reduces emissions. One litre of gasoline emits 2.38 kg of CO2. Not only is the amount of CO2 emissions from the transportation of the food and goods reduced, but local residents also drive less when they buy local food and goods.	The Sackville Farmer's Market continues to be very successful and popular. They are currently looking for a larger location to accommodate the growing number of vendors.
Articles in newspaper could be written by local residents to educate fellow Sackville residents of how shopping local, buying local food and handmade items reduces emissions, in addition to helping the economy and community. 2016 (long- term)	Community members (potentially part of business community) No funding needed. Need to organize community members to write articles.	If more residents shop locally and eat locally grown food, it will reduce emissions by reducing the emissions from the individuals driving farther to get items, but also from the emissions created to ship the items. A litre of gasoline emits 2.38 kg of carbon dioxide.	The Sackville Tribune-Post has and continues to feature many articles on green living. The most recent one was on how to have an eco-friendly Christmas. The Tribune has featured many articles on EOS programs including solar panel bulk program, retrofit program, draft-proofing work parties, off-grid living, solar home tours, etc.

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5. Mount Allison University Energy Upgrades			
Mount Allison is encouraging active transportation by offering staff pedometers to encourage walking. 2015	Mount Allison University Mount Allison is funding project and charging staff a small fee to cover the cost of pedometers	By encouraging walking and active transportation, staff may reduce their driving and therefore reduce emissions.	This has not been continued.
Boiler Conversion to Natural Gas 2011-2012	Mount Allison University Mount Allison Facilities Management did the work and funding was part of Mount Allison budget.	The boiler was converted to be able to use natural gas (instead of Bunker A heavy fuel oil No. 5). Natural gas (consisting primarily of methane) generates 27% fewer CO2 emissions per BTU than heating oil when burned. It was also upgraded to be able to run the boiler feeder water pumps on	Completed

		demand to reduce energy use. These conversions will result in significant savings in terms of CO2 emissions.	
Campus Green Projects, including air hand dryers. 2012-2013	Mount Allison University Mount Allison Facilities Management did the work and funding was part of Mount Allison budget.	The carbon emissions of paper towels are 12.5g per use. Therefore, with thousands of students using the facilities daily, there is potential to reduce emissions significantly.	Completed
LED Lights upgrades on campus 2015 Ongoing	Mount Allison University Mount Allison Facilities Management did the work and funding was part of Mount Allison budget.	For example, at least 65 exterior lights were upgraded to LED. 65 LED lights x 0.225 t CO2e/annually = 204.75 t CO2e saved per year. (savings of 0.225 t CO2e based on NB Power's estimates)	Replacing existing fluorescent/HID lighting with LED equivalents.

5.1 Updates to the MTA Action Plan, since Milestone 3 was completed

5.1.1 Dining Hall Improvements

Adding variable speed drives and cooking-level controls to the dining hall kitchen-hood exhaust system to limit fan power usage and fresh-air tempering when no, or low-load cooking is taking place (completed)	Local food purchases 40% from NB, PEI and NS	Cooking oil is cleaned and reused 50% reduction in purchase of oil	Station in Jennings never touched by meat – 25% of students are vegetarian or vegan
Bulk purchases	Ventilation and lighting upgrades	Tray-less dining and scraping station – reduced post-consumer waste by 44%	Composting of all food waste
New dishwasher uses 50% less water	Wood fired pizza oven replaced energy heavy electric oven		
Boiler Plant Improvements			
Converted fuels from Bunker Oil to Natural Gas; Converted to computerized combustion controls to increase boiler efficiency; Converted boiler feed and condensate return pumps to variable speed; Installed a small boiler specifically for summer loads, to avoid running the larger boilers unnecessarily. (completed)	Employ more variable speed drives on boiler fans, etc. and add additional computerized combustion controls and operating controls to further enhance efficiencies (in progress)	Reviewing the option of the addition of a renewable-energy boiler option (woodchips)	
Residence Improvements			
Addition of heat recovery in buildings with exhaust systems running more than 14 hrs per day (e.g. Windsor Hall, Campbell Hall, etc.) (completed)	Major residence renovations – energy efficient features – low flow, dual flush, LED lighting, etc., insulation of exterior walls (non-existent prior to renovation), roof replacements, new windows for some: -Campbell Hall (2004)	-Dump & Donate for year-end move out in residences -C3 campaign every year -Eco-rep program in residences	-Furniture sourced locally; many items made with recycled material -LED lighting throughout the residence system

	<ul style="list-style-type: none"> -Bennett House (2012) -Bigelow House (2013) -Thornton House (2016) -Windsor Hall (2019) 		
Academic Building Improvements			
Optimization of lab/fume-hood exhaust system in Barclay building (Supply air is matched to exhaust air) (completed)	Reviewing the option of adding exhaust-air heat recovery to the Barclay lab exhaust fans to recover waste energy and preheat make-up air.		
General Improvements			
Implementing insulation repair/addition work throughout the steam tunnels and mechanical rooms to mitigate wasteful energy losses from energy transfer piping. (On going)	Reviewing/Implementing “load-shedding” and building start-stop programming in order to minimize electrical load peaks on campus, thus reducing the NB Power “Demand Charges” whenever possible (planned for after power meters are installed)	Implementing “Energy Dashboards” across campus for social-awareness in the student-body as it relates to energy/water usage.	Implementing/Optimizing building heating water temperature controls to minimize pump run-time and minimize steam usage while still providing comfortable temperatures across campus (reducing heating water temperatures as much as is practical).
Transitioned to occupancy sensors from standard on/off light switching	Implementing individual building, and campus-wide energy metering (steam, water, and power) in order to proactively identify energy consumption anomalies in the future; allowing the campus to catch issues with systems/operations prior to excessive energy waste taking place.	Implementing/Optimizing night-set back controls sequences in its buildings to reduce building mechanical/electrical systems run-time during unoccupied times, holidays, snow-days etc.	Replacing constant speed pumps with new variable-speed controlled pumps to reduce waste-full mechanical pumping power when not required

Reduced carbon footprint by switching to electrical utility vehicles from fossil fueled trucks	Electrical utility vehicles are equipped with solar panel charging systems	Switched to environmentally friendly chemicals for lubricants and graffiti removal	
Transitioned to LED lighting technology from Fluorescent/Incandescent/or other	Transition to variable speed drive fans and motors in ventilation systems	Right sized grounds equipment to eliminate unnecessary large trucks etc.	We plan to improve annual snow and ice management equipment and processes with the implementation of a brining solution and equipment. This will reduce the amount of salt used on campus and align us with environmental best practices.
LED Lights upgrades on campus 2015 Ongoing	Mount Allison University Mount Allison Facilities Management did the work and funding was part of Mount Allison budget.	For example, at least 65 exterior lights were upgraded to LED. 65 LED lights x 0.225 t CO2e/annually = 204.75 t CO2e saved per year. (savings of 0.225 t CO2e based on NB Power's estimates)	Replacing existing fluorescent/HID lighting with LED equivalents.

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6. Youth and Schools			
Students will do their best to turn off lights, recycle more, walk to school, etc. This project can be implemented immediately.	Students in grades 5 to 8 Funding not needed. Students could make posters to put up around their school.	Saving energy with these simple steps will help contribute to emissions reductions.	Marshview Middle School in Sackville began three stream waste separation in 2017-2018 school year. They are a model for other schools and the rest of the schools in the Tantramar area hope to follow. Marshview has now won awards for its proper waste separation and diversion of waste from the landfill. Salem School now has a 1.5kw solar array helping to power the school. Tantramar High School has a building powered entirely by solar as well and Marshview Middle School has plans for solar in 2020 in partnership with EOS Eco-Energy.
Playing outdoors instead of playing video games This project can be done immediately.	Youth (adults could do this too) No funding needed.	According to ca.complex.com, just one hour of gaming time spent on an Xbox 360 will use 0.3kwh of power. This translates into 76g of GHG emissions. Thus, if youth play outdoors instead of gaming, they will not use any energy but their own.	The Town of Sackville began offering the Trail Blazers Program after school and it is extremely popular, always having a waiting list. It keeps kids exploring outside rather than playing video games inside.

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<p>Meatless Monday:</p> <p>Marshview Middle School students will work with teacher and cafeteria to offer meatless dishes every Monday.</p> <p>2015-2016 school year</p>	<p>Students, teachers and cafeteria staff</p> <p>No funding needed. Meeting time with students and staff, vegetarian and vegan recipe ideas would be needed.</p> <p>Meatless Monday and Meatout Monday non-profits have resources available for free.</p>	<p>According to www.cok.net, eating meatless meals one day a week could save 3.6 kg CO2 per person per year.</p>	<p>They do not yet offer meatless Mondays but they started recycling, composting and diverting waste from the landfill in 2017.</p>
7. Solar Energy			
<p>Solar panel bulk purchase: coordinate a bulk purchase of solar panels to help reduce upfront costs.</p> <p>2015-2016</p>	<p>EOS Eco- Energy</p> <p>EOS received funding from the NB Environmental Trust Fund to promote solar energy across the Tantramar region.</p>	<p>The average family of 4 in Canada uses 9600 kWh of electricity annually. In New Brunswick, this translated into 2419kg of CO2. Thus, each house that switches to solar in Sackville could save a significant amount of GHG emissions. Approximately 15 kW of solar panels will be installed as a result of the bulk purchase.</p>	<p>The first solar bulk purchase was coordinated in 2015/2016 and it involved 4 homeowners, and the installation of 60 solar panels.</p> <p>The second solar bulk purchase was coordinated in 2019/2020. As of early February 2020, 7 homes were going ahead with purchasing and installing solar panels. One installation was completed, a 4.96kw system with 16 panels installed. With the other projects, a total of 45.57kw, 131 more panels, will installed.</p>
<p>Solar Co-operative</p> <p>Explore the potential for forming a solar or renewable energy co-operative. Hold public meeting to gauge interest, and form group of individuals to make plans.</p> <p>2015-2016</p>	<p>EOS Eco- Energy</p> <p>EOS received funding from the NB Environmental Trust Fund to promote solar energy across the Tantramar region.</p>	<p>The average family of 4 in Canada uses 9600 kWh of electricity annually. In New Brunswick, this translated into 2419kg of CO2. Thus, each house that purchases solar power or contributes to creating solar power to offset non-renewable energy sources, could save a significant amount of GHG emissions.</p>	<p>Beausejour Renewable Energy was incorporated in 2017 and is located in Sackville. It is working on its first investment project. More can be learned at: https://beausejourcoop.wordpress.com</p>

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<p>Solar Potential Mapping</p> <p>Mapping of every rooftop in Sackville will show the potential for solar energy collection. It will help promote solar as a viable energy source.</p> <p>2015-2016</p>	<p>EOS Eco- Energy, South East Regional Service Commission</p> <p>EOS has received funding from the NB Environmental Trust Fund to promote solar energy across the Tantramar region.</p>	<p>One solar hot water system could save 500 kg of CO₂/year and 2000 kWh of electricity per year. Solar PV arrays would save even more. The exact amounts will depend on how many solar systems are installed.</p>	<p>This was completed.</p>
<p>Off-grid classroom at Salem Elementary School</p> <p>Off-grid classroom with six 255-watt solar panels will reduce energy costs and educate youth about renewable energy</p> <p>2015-2016 (installation)</p>	<p>RCE Tantramar, Salem Elementary School, EOS Eco-Energy</p> <p>Funding from the Mount Allison University Green Investment Fund disbursed by EOS Eco- Energy</p>	<p>This project has the potential to produce 1.53 kWh of energy when it's sunny. The classroom will be able to power itself and will contribute to significant reductions in CO₂ emissions.</p>	<p>This was completed in 2016. The school has a 1.5kw solar array that feeds into the entire school building, it is not off grid. It has generated more than 5.5MWH of power since 2016.</p>
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<p>Workshops on Solar Energy. Workshops on a wide range of topics such as solar panels, off grid living, solar hot water, solar design, smart energy communities, etc. will be provided with a variety of speakers</p> <p>2015-2016</p>	<p>EOS Eco-Energy will coordinate the workshop series. EOS has received funding from the NB Environmental Trust Fund to promote solar energy across the Tantramar region.</p>	<p>The average family of 4 in Canada uses 9600 kWh of electricity annually. In New Brunswick, this translated into 2419kg of CO₂. Thus, each house that switches to solar in Sackville could save a significant amount of GHG emissions.</p>	<p>Off grid talk with Wendy Keats took place.</p> <p>Solar Energy workshops have taken place with Fundy Solar and EOS Eco-Energy.</p> <p>Solar Home Tours were conducted in 2015 and 2019 with more planned for the future.</p>