

COMMUNITY ENERGY PLAN PROGRESS UPDATE

MILESTONE 4

July 2022

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	Community Initiatives				
Timeline	Activity	Partners/Resources	Estimated Emissions Reduction	Milestone Updates	
Switch Stratf	ord Program				
2021 - 2022	Stratford Switch (Originally Spear) is Canada's first multi-provincial energy efficiency and renewable program. It will provide 0% interest loans to residents making qualified energy upgrades. Savings from improved efficiency are intended to exceed payments, while also increasing the value of the home. Possible upgrades include solar and heat pump installation, high efficiency windows and doors, improved insulation, and more.	Partnering with PACE Atlantic CIC under a Property Assessed Clean Energy (PACE) Financing Model. Supported by \$14.1 million in funding from the Federation of Canadian Municipalities Green Municipal Fund, divided between the three municipalities (Stratford, Charlottetown & Wolfville) based on population.	the type of project, and the age and size of a home For houses that installed solar systems, based on the average sized array installed, an estimated 3.8 tonnes of CO2e is saved per household. The most common retrofit was the installation of a heat pump system. On average, about 63% of home energy use is for heating. Heat pumps on average save 20-40% on heating bills and reduce carbon emissions by between 53-67% when compared to a typical furnace. Source: University of California Davis Western Cooling Efficiency Center.	Completed. (2022) On March 10, 2021, the "Switch Program" Bylaw was formally adopted. With just over 145 project agreements, a total of \$2.3 million has been committed to residential energy efficiency projects. 40% of projects involved installation of heat pumps, 27% solar arrays and 20% going towards improving doors and windows, insulation, and other upgrades such as hybrid hot water heaters. As of July 2022, 87 projects have been completed and invoiced. The Town will begin exploring a potential expansion of the Switch Stratford program, however it is anticipated that a 0% interest rate will not be accessible in the future unless further financing is provided by other levels of government.	
2021 - (ongoing)	Free Energy Audits will be provided by PACE Atlantic through the Switch program so that Stratford residents are aware of available efficiency upgrades for their homes. This will also allow residents to know what provincial and federal rebates are available.	PACE Atlantic will set up energy audits with local contractor- Homesol Homes can be eligible for up to \$10,000 in incentives from Efficiency PEI. Home can also be qualified for up to \$5,000 in incentives through the new Federal Greener Homes Program.	improving insulation, to installing solar projects.	151 residents have had a free home energy assessment through the Switch program Energy audits will continue to be offered to residents for free, allowing them to qualify for various rebates.	

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Water Conse	ervation Initiatives				
2018 - (ongoing)	"Be Water Friendly" collaborative information campaign is a tri-municipal initiative to share valuable information about water conservation. Information such as how to fix leaks, how to read water meters, tips for reducing water use, and more, will all be included.	The City of Charlottetown, Town of Stratford and Town of Cornwall Stratford Area Watershed Improvement Group Website designed by TechnoMedia	using water, less energy is wasted on pumping water to	Ongoing. 60% of residents reported to having a good level of recognition with the program. Source: Stratford 2022 Annual Resident Survey Each year in March, Charlottetown, Stratford and Cornwall work together to run a week-long Fix-a-Leak Week campaign which involves promoting water conservation and finding and fixing leaks. We offer prizes and promote the initiative through the Be Water Friendly website, social media and radio ads.	
2018 - 2019	Universal water meter installation program throughout the town for all commercial and residential buildings. There will be no cost to residents to have the meter installed. All town residents will be required to install water meters.	Neptune Technology Group will be installing the water meters on behalf of the Town.	Currently the town uses 1.9 million liters of water per day. Water meter programs in other communities have shown a reduced water usage of 20 - 30 %.	Completed. (2019) All residential and commercial buildings are now required to have a water meter. The water meters have a leak symbol that will appear if a leak is detected in the home, which can help residents identify and fix leaks to avoid wasting water	

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2019 - 2022	Showerhead Exchange Program would allow residents the opportunity to exchange one, less efficient showerhead, for one new low-flow model. There is no cost to residents for this exchange.	Stratford Area Watershed Improvement Group	Many showerheads still use over 3.0 GPM (gallons per minute) of water. Residents would receive a low-flow head at 1.75 gpm. About 17% of water use is for showering. A low flow head can potentially reduce this by half.	Ongoing. Showerheads were purchased in bulk. All stock has been distributed to community members in exchange for older style shower heads. 62% of residents reported using low-flow showerhead models. Source: Stratford 2022 Annual Resident Survey	
2018 - (ongoing)	Low-Flow (4.8L) Toilet Rebate offers a rebate of \$50 per toilet up to a maximum of 2 toilets per eligible property as an incentive to replace older, less efficient toilets with new ultra low-flow models.	Stratford Area Watershed Improvement Group	About 27% of water use is for just toilets. By providing incentive to switch to low-flow models, water use can be reduced by upwards for 10-15%	Ongoing. So far, a total of \$21,150 in rebates has been received by community members. 60% of residents reported to having a good level of recognition to the program, and 61% utilized low flow toilet models. Source: Stratford 2022 Annual Resident Survey	
2018 - (ongoing)	Water Audit Program aims to reduce water use by providing homeowners with a free water audit that outlines their usage patterns, identifies leaks in their home and offers potential ways to save water.	Stratford Area Watershed Improvement Group is to partner with the Town of Stratford to preform audits.	The free audit will provide homeowners with a report detailing how water is being used and make recommendations to reduce consumption.	Ongoing (started offering audits 2018) 81% of residents reported to having a good level of recognition to the program. Source: Stratford 2022 Annual Resident Survey As of January 2022, we had completed 84 water audits and found a total of 4709 L/day of leakage during these audits.	

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Information	Campaigns				
, , ,	"Naturally Stratford" is a social media campaign to promote sustainability and share information about our natural environment here in Stratford.	· ·		Ongoing. At least once per week the Town creates a social media post related to sustainability or the natural environment. We also share work that the Environmental Sustainability Coordinator and summer students are doing, different environmental projects, and tips to be sustainable and get community members thinking about their environment in a different way.	
2017 - (Ongoing)	Campaign, which is a public campaign that will provide renewable energy education to Stratford Residents.	, , , , , ,	Depending on the effectiveness of this campaign, energy consumption in residential households could limit end use energy consumption growth to 2.3% through replacement of energy efficient appliances and lighting. This would be the equivalent of a 0.026 Tonne reduction in GHG emissions per person.	Ongoing. Waste not Wednesday is mainly delivered as a social media campaign, where every Wednesday the Town creates a post to share on our 3 social media platforms (Facebook, Instagram and Twitter) about a way to reduce waste of all forms, including reducing energy consumption. The scope of topics is more broad than just focusing on renewable energy education, but all relate to reducing GHG emissions.	
		Local radio stations would be the main partners, as radio ads would play in residents vehicles.	The average car creates about 1.8kg of CO2e while idling for just one minute, burring ~0.75L of gas.	The Town of Stratford has not officially begun a campaign, however the nearby City of Charlottetown has started a radio and social media ad campaign.	

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LED Lighting					
2023	LED Light Bulb exchange. Lighting is a category of energy use, which is very easy for people to understand and take advantage of. With the national standards now in place, lighting will contribute a large portion of GHG emission reductions for a very small price and effort if this action is done correctly. People would pay a low cost for the light bulbs while exchanging their old ones and all proceeds would go to a Rotary club campaign to help provide renewable power to a remote community in an impoverished country. This would act as both a fundraiser, and a green energy campaign.	Stratford Rotary Club have voiced their interest in partnering with the Town of Stratford to promote an LED light bulb exchange program.	Resources Canada, 4% of all energy used by residents is used for lighting. If the average person in Stratford consumes 3,675 KWh of electricity then 233 Tonnes of GHG emissions would be reduced if all residents were to replace their traditional light bulbs with LED's.	No program has been put in place yet, however Maritime Electric did run an LED lighting campaign in December, 2016 and had great success with that program. Efficiency PEI does not have a specific program at this time that focuses on lighting replacements but it does provide free lighting upgrades with its Home Energy Low Income Program (HELP). 32% of residents repot replacing older lights with LEDs in the last 12 months (2022), and 57% report changing to LEDs in the last 10 years Source: Stratford 2022 Annual Resident Survey	

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Green Build	ing Network Pilot Project			
Green Build	Adopt 2015 National Energy Code and National Building Code in Municipality in coordination with the provincial government	made to the Town Hall to reduce heat wasted. The Town Hall was built in 2003, before the 2010 National Building Code was adopted. A full Energy and Efficiency Audit would be required.	PEI follows both the 2015 National Building Code (NBC) and the 2015 National Energy Code for buildings (NECB) A new home built to the NBC energy efficient standard reduces CO2 emissions by 1.4 tonnes. If all homes were built to this standard, the total provincial CO2e reduction would be 550 tonnes annually. Adding the necessary features to meet new energy requirements in the NBC will increase the overall costs, however, increased efficiency will on average result in monthly energy savings of \$78. Energy efficient features alone will reduce energy consumption and save the homeowner over \$940 annually, based on today's oil prices. Source: "Building Standards in PEI," https://www.princeedwardisland.ca/en/information/a griculture-and-land/building-standards-in-pei	The 2015 National Building Code of Canada and the 2015 National Energy Code of Canada for Buildings, were both adopted by the town, regulated by bylaw number 50.

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Electric Veh	icle (EV) Charging Stations				
2018 - 2023	Electric Vehicles currently only have access	Stratford will work to identify partners such	On average, an EV produces one fifth the GHG	Ongoing.	
	to one EV charging station within Stratford	as Holland College, Maritime Electric and	emissions compared to a regular gas-powered vehicle.	Stratford has installed 4 EV Charging Stations across the town,	
	and it is owned by the Town of Stratford.	Efficiency PEI to hire students and/or new		in partnership with Maritime Electric and Natural Resources	
	Commercial businesses need to realize the	graduates that will help provide financial		Canada.	
	profitability of having an EV charging	feasibility assessments for installing EV			
	station installed in front of their business.	charging stations on commercial properties		Based on numbers from the 2022 Stratford Resident Survey,	
				EV adoption has dramatically increased in the last 7 years	
	This program would help encourage			within the town, going from less then 1% to just over 5%	
	increased electric vehicle traffic in				
	Stratford that will reduce GHG emissions.				
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Active Transp	port Program				
2018 - 2024	Active Transportation Routes are a key component in reducing reliance on personal vehicles. Active transport paths are multipurpose pathways for pedestrians, bikers, and other forms of self propelled transportation.	\$25 Million Active Transport fund designed to help fund the expansion of walking trails, widen paved shoulders and to connect existing walking and cycling trails.	In 2018, 44% of PEI's GHG emissions came from transportation, and only 6.5 percent of commuters used some form of active transportation. To lower PEI's total GHG emissions, emissions from the transportation sector need to be reduced. Over 50% of Islanders live within 7 km of their workplace. Providing safe pathways will encourage more commuters to cycle or walk. Source: PEI ACTIVE TRANSPORTATION STRATEGY (2018)	In progress (2022) Since 2015, Stratford has increased the length of its active transport system by 44%. Various active transport projects have been completed, including the addition separate bike and pedestrian lane on the bridge connecting Stratford and Charlottetown.	
Public Transi	<u>l</u>				
2022 - 2026	Electric Bus Replacement, would reduce emissions caused by current diesel buses. Project would require purchase of EV buses, charging facilities, buildings to store the buses at night, solar and batteries to store the energy at night.	funding, 33.33% Provincial and 26.67% Municipal. Of the Municipal contributions, Stratford has a 15% stake. Rural Transit Solutions Fund, Zero Emission	Currently, the transit system accounts for 91.1 tonnes of CO2e emissions. The current plan would involve the purchase of 6 electric buses and 2 diesel buses. The solar array is currently planned to generate 500kWh's throughout the day, which will then be stored in a 1MWh battery bank.	In progress (2022) Funding has been committed for the purchase of the vehicles, along with the required infrastructure to support them.	

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2019	An On-demand Transit Pilot Project would allow residents in unserved areas to request a shuttle. Residents would book through an app the night before, and then would be picked up at their doorsteps with no extra charge besides the standard fare.	Request for a shuttle would be placed though the Kari app.	of Stratford that are not connected to the main transit system.	In 2019 a pilot for the project was attempted, however due to lack of utilization and large cost the pilot was cancelled. Instead, it may be more cost effective to work with the provincial government to modify one of the rural transit routes so that it services these areas.	
2019	Expansion of Transit Lines to include a weekend line, along with increased weekday lines would provide easier access to public transportation and reduce the need for personal vehicles.	T3 Transit This will add operating expenses to the municipal government. For each hour of service that is added to the existing bus schedule, there is \$50 per service hour, per day fee. If the current bus service was extended by 30 minutes each day (only Monday through Friday) then the additional annual cost would be \$6,300.	increase in ridership numbers in 2019. The average car carrying one person produces on	Completed. (2019) A 8:00AM- 6:00PM Saturday line was created in order to provide more access to public transportation. 2022 transit use is double what it was in 2015.	

	Corporate Initiatives				
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Town Hall an	nd Community Center				
	Solar Panel Installation, which would provide a net zero Town Hall. Panels could either be installed on the roof, or beside the building on the ground.	FCM Green Municipal Fund and Local solar contractors.	Town Hall's total energy use to net-zero. This would be equivalent to about 79 tons of CO2e.	Quotes have been attained from various local solar providers. Due to the buildings high power usage at peak demand, no battery system would be required to reach the net zero target. A roof mounted installation is estimated to have an extra cost of over \$25,000 due to extra bracing and replacement of parts of the roof.	
	Energy Audit and Efficiency Upgrades can be made to the Town Hall to reduce heat wasted. The Town Hall was built in 2003, before the 2010 National Building Code was adopted. A full Energy and Efficiency Audit would be required.		system. Due to its size, it is also the Town's largest consumer of energy, causing 135 tonnes of CO2e emissions per year. Improved insulation and other efficiency upgrades could reduce emissions by between 13.5 and 52 tonnes	Various improvements have been made to the building over time, including improving the improving insulation. The HVAC system for the entire building has updated and automated. The heat pump has been reconfigured into a closed loop system. Sensors were installed in ductwork to monitor supply air temperature, and trending of system operation is now possible.	
	LED Retrofit. The majority of the light fixtures are currently fluorescent or incandescent bulbs.		reducing lighting cost by half.	Ongoing. Older fluorescent style lights are in the process of being replaced with LED fixtures. Approximately 20% of lighting fixtures have been converted to LED.	
	tions Upgrades	,			
	Pondside and Cable Heights Solar Energy System's would provide net zero operations, and act as a backup power system, increasing redundancy.	Investing in Canada Infrastructure Program (ICIP)	, , ,	Unsuccessful application to ICIP for funding. Alternate funding streams are being explored.	

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Crossroads C	Community Centre				
2017	The Crossroads Community Centre should be fully renovated and made more efficient. A full energy audit would be required.	Efficiency PEI provides rebates for energy efficient products, including heat pumps, insulation and photovoltaic systems.	Improving the efficiency of insulation would allow the installation of a heat pump. Due to the age of the building, these measures will dramatically reduce the amount of wasted energy.	Complete. (2018) This building has been retrofitted to be more efficient. Windows and insulation has been improved and a heat pump has been installed. A photovoltaic system is feasible to power both the nearby baseball field lights and the Community Centre, however there is no current plan in place, due to the large cost.	
Fire Hall	1				
2017 - 2023	The Stratford Fire Hall is currently set to be fully decommissioned and replaced with a larger, modern building. This building is designed for net zero operations, by being dramatically more efficient, and ready for solar. Once construction of the building is complete, fire, ambulance, and police are planned to move into the building.	Supported by \$6.9 million in funding from the provincial government. Operation of fire and police services are funded by the Town. Emergency Medical Services are funded by Island EMS.	Once solar is installed, the building will be able to operate with zero emissions, compared to the older fire station's 30 tonnes of CO2e.	Complete (2019) As of 2019, construction of the Station is complete, with Fire, EMS, and Police all moving into the building. The station utilizes geothermal heating, high efficiency insulation and windows, LED lighting and thermal shading, in order to reduce the energy needed for heating and cooling. No solar array is installed yet, however the building is ready for installation once funding is approved.	
Cotton Cente	er				
2021	Cotton Center Energy Retrofits would improve the overall energy efficiency of the Cotton Center, and reduce waste energy due to lost heat. We should also replace the 50-year-old boiler and improve the insulation. Retrofits would also include the addition of lights along the Cotton Park trail.		Despite being one of the towns smallest buildings, the Cotton Center is the second largest consumer of energy. The total yearly consumption is 531GJ. Energy retrofits are predicted to make the building 35% more efficient.	Partially completed. (2020) An energy audit was conducted, and a heat pump was installed to replace aging boiler. Solar and further upgrades are unlikely due to the age of the building. A new youth center is proposed as a part of the planned community campus.	

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Wastewater	Treatment Facility				
2017 - 2021	The Stratford Wastewater Treatment Plant is the largest consumer of electricity compared to all other infrastructure maintained by the municipality. An agreement has been established between the City of Charlottetown, the Province of PEI and the Town of Stratford which will transport Stratford Municipal sewage to the Charlottetown Sewage Treatment Plant via a piping system anchored to the Hillsborough Bridge. The reclaimed land is currently planned to become a public park.	Clean Water and Wastewater Fund. City of Charlottetown and Charlottetown Pollution Control Plant.	energy efficiency retrofits can drastically decrease operational costs. During the implementation of the Stratford/Charlottetown Sewage connection there should be a rigorous evaluation of how to make the operating systems as energy efficient as possible. Depending on the amount of work completed for this	Completed. (2021) The town intends to turn the decommissioned lagoon area into green space to create a more inviting entrance to the community. Reclaimed space will also be integrated in future waterfront development. Each month, an average of 132 720 m3 of wastewater is now being transported to the Charlottetown Sewage Treatment Plant.	
LED Street Li	l ghts				
2017 - 2023	LED Street Lights are typically 75% to 80% more efficient then high pressure sodium, the most common streetlight in Stratford.	Maritime Electric rents streetlights to Stratford. Any repairs or replacements are handled by Maritime Electric. Lights can be retrofitted if paid for and requested by the town.	this number by upwards of 70% or 72 tonnes of CO2e.	Ongoing. Currently (2022) the town has 954 streetlights, with 632 of those being LED, 326 being high pressure sodium (HPS) and 13 being halogen. In 2015, 635 of the lights were HPS and only 260 were LED. So far, 326 HPS lights have been replaced with LED. Maritime Electric is currently in the process of replacing the majority of streetlights with LEDs	

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Solar at Maintenance Building							
	Although the maintenance building does not consume a large amount of electricity it still consumes enough for a solar panel installation to be feasible. This would also reduce the need for oil for heating. A roof mounted system would be the best application for this type of building.	Investing in Canada Infrastructure Program (ICIP)	solar could easily allow the building to run at net zero.	Quotes have been attained from various local solar providers. Due to the low power consumption, only a few panels would be required.			
Electric Vehicle Fleet Conversion							
(As vehicles retire)	Converting the towns current diesel and gas powered light and heavy duty trucks to electric would both reduce emissions and reduce fuel and maintenance costs.	Zero Emission Transit Fund (INFC)	tonnes of CO2e emissions. Converting each of these vehicles to electric would reduce this number to around 10 tonnes of CO2e.	The town currently has a tender out for a full electric vehicle, however due to high costs and limited supply, an EV purchase in the near future is unlikely. Will likely become more feasible as cost of EV's come down and fleet vehicles retire.			

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Community	Community Campus							
2021 - 2038	Construction of a Community Campus, including a high school, sports complex, business park, and youth center will reduce Stratford residents need to commute daily to Charlottetown. The Recreational and Cultural faculty is planned to include youth gathering spaces, gym, ice rink, multi-use fields, a pool and a daycare. The total estimated size is between 110,000 sq. ft and 125,000 sq. ft. Buildings are planned to meet latest efficiency requirements, with the goal of achieving net zero.	Recreation and Culture Facility will be owned and operated by the Town, with 73.33% of planned funding from the Investing in Canada Infrastructure Program	Stratford also lacks some recreation facilities such as a rink or a pool area. Providing these facilities locally will reduce commute times and congestion on the one bridge crossing to Charlottetown.	Phase one of the project (roads and infrastructure) is currently in progress. A request for proposals will be required for the conceptual and detailed design of the Recreational Faculty.				
2023 - 2025	Construction of a Solar Field is planned for the future community campus. Solar will provide power for nearby streetlights and for the planned pumping station.	Investing in Canada Infrastructure Program (ICIP) Construction would be completed by a local solar contractor.	Lighting for the sports field assumes 4 hours of operation for 100 days per year. This equates to 18,800 kwh/yr. This would require a 17 kW array For the sports complex, based on a planned area of 52,009 m2, power consumption is estimated at 19,097,640 kwh/yr. To be powered completely by solar a 17.4 MW array would be needed. Source: 2021 - Stratford Community Campus Masterplan	A 3,650 m2 solar array is currently planned, which would power the sports field lights, the site service station and the pathway lighting. In progress (2022) Construction of the solar field has been approved. Construction will be completed alongside of phase 1 and phase 2.				
2023 - 2028	Building a modern Youth Center will allow the decommissioning of the aging Stratford Cotton Center, as the Cotton Center is one of the towns oldest and least efficient buildings. The planned Youth Center would be integrated into the new recreational center.		Due to the age of the Cotton Center, a large amount of energy is wasted due to heat loss. The recreational center will be built to modern standards, incorporating sustainable design, and high efficiency	Currently, 3000 sq. ft of the new recreational center are dedicated to space for the Youth Center.				