


HALIFAX

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Item No. 11.1.7
Halifax Regional Council
March 31, 2015

TO: Mayor Savage and Members of Halifax Regional Council
Original signed by 

SUBMITTED BY: _____
Richard Butts, Chief Administrative Officer
Original Signed by _____
Mike Labrecque, Deputy Chief Administrative Officer

DATE: January 14, 2015

SUBJECT: **Solar City Pilot Program Summary**

ORIGIN

December 11, 2012 Regional Council Report: Award and Initiation of Solar City Pilot Program. The originally targeted 24 month pilot phase of Solar City Program is now complete.

LEGISLATIVE AUTHORITY

Under the HRM Charter, Section 79(1)(ad) The Council may expend money required by the Municipality for a system for the supply or distribution of electricity, gas, steam or other sources of energy.

RECOMMENDATIONS

It is recommended that Halifax Regional Council:

1. Approve the continuation of the Solar City Program for three years at no direct net cost to HRM;
2. Increase the budget for project account CD990001 Solar City Program by \$13,112,700 with funding as indicated in the Financial Implications section of this report;
3. Endorse the project initiation to include solar photovoltaic, solar air, and solar thermal technologies;
4. Direct staff to supply an annual report on the Solar City program; and,
5. Direct staff to implement the recommendations from the Grant Thornton report on the pilot project.

BACKGROUND

On December 11, 2012 Regional Council approved the start of the Solar City Pilot Program.

A new application of Local Improvement Charges

Solar City uses a modified form of Local Improvement Charges (LIC) to enable the applicants to finance their share of the cost of a solar system over a period of up to 10 years. Like LIC's, infrastructure is invested in the community while being deployed and financed by the city, and with charges applied against a property account until the infrastructure costs are paid off. This allows economies of scale in the deployment and financing of that infrastructure and at no direct net cost to the municipality and the general taxpayer. Typical municipal applications of LICs would be a water line or road extension to service a particular community. Solar City differs in that the infrastructure is on individual private properties, participation is 100% voluntary, and the asset is owned by the property owner. This modified form of LIC financing was enabled by legislation passed by the Province of Nova Scotia in 2010 amending the Halifax Charter (and the subsequently the MGA for other NS municipalities).

Because this financing concept was so new (Halifax was the first city in Canada to apply LICs in this way) and to manage any potential technical or program risks it was determined a pilot phase to the Solar City program should be undertaken. Regional Council adopted the following goals in 2012 to assess the success of the pilot program:

- Is the program financially self-sustaining, without impacting the non-participating HRM taxpayer?
- Are residents participating in sufficient numbers to justify?
- Is the program cost effective for homeowners?
- Are installations of high enough quality and quantity?
- Is the program simple enough to administrate effectively in HRM?
- Are there any risks to the municipality or homeowners that cannot be addressed thru contractual or program processes?

DISCUSSION

Summary of Pilot Project

With almost 400 participants installing a system, over 2500 homes expressing interest, and 800 people at public events, there has been significant community participation and interest in the solar City program. Homeowners installing a solar thermal system are experiencing a Return on Investment (ROI) of approximately 5% on average over 25 years. This assumes energy savings will increase by 2.2% per year because of increases in the price of fuel and electricity (source: U.S. Energy Information Administration's Annual Energy Outlook 2014). If a program participant elects to finance the cost of the system over 10 years, the interest cost reduces the ROI to about 3.4%.

The program has been implemented with minimum risks to the municipality. With almost 400 installations of solar thermal systems within two years, the program has had a positive impact on the adoption of renewable energy within the municipality. Based on the most recent industry reporting, the number of residential installations under the pilot program exceeds the number of residential installations Canada-wide on an annual basis. The 388 residents who installed system could save over \$5.5 million over the expected 25+ year lifespan of the system and reduce greenhouse gases by 16.1 million kg of CO₂. Significant employment of local contractors and manufacturing was also experienced. Additionally, over 1265 homes had water conservation measures implemented free of charge during their solar assessment and could save 320 million litres of water in the next 20 years and \$120,000 annually in water and heating costs.

Grant Thornton Project Assessment: Halifax retained Grant Thornton to complete an assessment of the Solar City Project with respect to achieving the project and municipal objectives. In addition to the

assessment, Grant Thornton made recommendations for improvement. Staff will be working to implement these recommendations over the next few months. The Grant Thornton assessment and recommendations are contained in Attachment One.

Pilot Phase Budget: The original Solar City Pilot phase had an overall budget of \$8,166,500 and was designed to be operated on a user pay model and at no direct net cost to the municipality (and non-participating taxpayers). Program costs were also offset by grants and low interest loans. The Nova Scotia Department of Energy provided an additional grant of \$100,000 in March 2013 that was used to support the development and rollout of a low cost internet monitoring of systems which increased the budget to \$8,266,500. The budget was designed to allow up to 1,000 homes to participate in the program. As of January 27, 2015, 388 homes have signed agreements and have either had a system installed or are due over the next two months. The total committed budget as of January 27, 2014 is approximately \$4 million. 91% of homeowners participating in the program choose to finance the system through the municipality up to 10 years at an interest rate of 3.5%.

Next Steps

With the viability of the financing mechanism and administration of Solar City demonstrated, it is recommended to continue the program while supporting all solar technologies. Other municipalities in Nova Scotia and Canada have launched programs utilizing the same financing mechanism targeted at a variety of efficiency measures, including Berwick (offering heat pumps), District of Lunenburg (offering efficiency projects), and Richmond County (offering efficiency projects). A continued prescriptive focus on solar is recommended due to capacity and the complexity of evolving the program to more broader based energy efficiency measures at this time.

Solar technologies that would be supported will include solar thermal (as currently offered), solar photovoltaic (which will generate electricity) and solar air (which provides space heating). Halifax has seen the cost of photovoltaic systems decrease rapidly over the last five years (from over \$10/watt to less than \$3/watt for corporate projects). Factoring in rebates from Efficiency Nova Scotia, a typical residential solar thermal system will cost about \$8,000, a typical 4 kw photovoltaic system could cost about \$14,000, and an air system \$1,800. A range of technologies and systems will allow more residents to participate and create more broad based opportunities for the local solar industry and vendors. The following table summarizes some of the key financial metrics of the three solar technologies:

	Solar Thermal	Solar Photovoltaic	Solar Air
Average Total Cost of System (1)	\$ 9,300	\$14,800	\$ 2,300
Grant from Efficiency NS	\$ 1,250	\$ 700	\$ 500
Net Cost to Homeowner after Grant	\$ 8,050	\$14,100	\$1,800
Est. Annual Energy Savings (2014 costs)	\$ 435	\$ 900	\$ 150
Payback Period (including 10 Year LIC Interest) (2)	19	16	13
ROI (including 10 Year LIC Interest) (2)	3.4%	5.1%	8.1%

Notes to table:

1. Cost figures include HST and are estimates only and are subject to change based on tender prices and individual system characteristics.
2. Payback period and ROI assumes that energy costs and therefore savings will increase by an average of 2.2% annually (source: U.S. Energy Information Administration's Annual Energy Outlook 2014 for 2012-2040).

Purpose: The purpose of extending the Solar City program is to meet the municipal Community Energy Plan, Economic Strategy, and Regional Plan objectives. The Solar City program allows residents to adopt solar energy by aggregating the purchasing, financing and quality control to achieve economies of scale cost effectively.

Community Energy Plan: Halifax was signatory to the World Energy Cities Partnership Calgary Climate Accord which commits Halifax to a 20% GHG reduction by 2020 (which the community is tracking well on) and 80% by 2050. The objectives of the new CEP are: Increased Residential Energy Choices, Increased

Opportunities for Halifax Businesses to participate in the Energy Sector, Reduced Cost for Businesses, and Municipal Leadership.

Economic Strategy: Leadership on Environment was recognized as one of Halifax' municipal strengths in the Economic Strategy. One of the 5 year objectives of the strategy under Business Climate is that Halifax is recognized for its Clean and Healthy Environment. The net zero cost financing innovation within the program will continue to stimulate the local solar industry.

Regional Plan: HRM's vision for the future is to enhance our quality of life by fostering the growth of healthy and vibrant communities, a strong and diverse economy, and sustainable environment.

In order for the community to meet its 2050 community reduction target, action outside the electricity emissions, managed by Nova Scotia Power, is required. Nova Scotia Power has recently submitted its 2015 Integrated Resource Plan, which demonstrates progressive reduction of emissions from the electricity sector positioning the community to achieve success with action focused on:

- Reducing emissions from residential and commercial space heating;
- Reducing emissions from residential and commercial hot water; And,
- Reducing emissions from transportation.

And, specifically action is required to reduce use of furnace oil and gasoline.

The municipal Solar City program has minimal risk and no direct net cost to the municipality, while also directly reducing community greenhouse gas emissions. Alternative municipal actions include investment and effort in developing district energy solutions and transitioning transportation fleets to natural gas, which have higher development and implementation costs.

Specific Goals of Solar City 2.0:

1. Target 450 installations from a variety of solar technologies annually.
2. Increase the opportunities for residents and businesses to save money and reduce their environmental footprint.
3. Continue to administer the program on a cost neutral basis for the municipality.

Upon completion of the solicitation activities required to initiate the extension of Solar City, the Council Award report will also include an updated budget, participation targets, and a measurement framework.

FINANCIAL IMPLICATIONS

The Solar City Program is designed to have no direct net cost to Halifax and therefore has no impact on the Operating, Project and Reserve Budgets. The total cost of the program is funded through Efficiency Nova Scotia grants and program participants. However, factors such as the specific timing of expenditures, variations in short-term interest costs, program take-up, pre-payments of loan balances and the cost-sharing rules means there will likely be some variation from full recovery of direct program costs. The program is designed so that such variations should be modest with any shortage or excess being covered by HRM's general tax rate.

Based on annual target of 450 installations of solar thermal (250), solar photovoltaic (100) or solar air (100) systems the annual budget for Solar City is \$4,370,900, with a three year total of \$13,112,700. The program is designed to be administered to fully recover direct program costs, hence there should be no net impact to the HRM Project and Operating Budgets. The Solar City program would be administered on a user pay model, with a municipal administration fee of \$920 (\$230 for solar air) charged to cover staffing and program operating costs.

As with the pilot, an interest rate of 3.5% will be applied to any participants using the LIC financing mechanism. When compared to HRM's recent cost of borrowing through the Municipal Finance Corporation (2.613% weighted average over 10 years for debenture issue 2014B1), this interest rate provides a pre-payment risk premium of 0.887% which is about one-quarter of the total interest rate charged to participants. Pre-payment risk occurs because while participants can pay off their LICs early

to save interest, HRM is unable to do the same with debentures. Therefore, if HRM did not charge a pre-payment risk premium, there would be insufficient LIC revenue to off-set all the interest costs to HRM from the debenture. As a result, the program would no longer be cost neutral to HRM and, by extension, the non-participating HRM taxpayer. Staff have determined that the risk premium is sufficient to ensure that the program would still be cost neutral if up to 25% of participants elected to pay-off their entire invoice upon receiving it so that they paid no interest. During the pilot phase of this project, only 9% of participants paid off their entire invoice upon receiving it. Any additional risk premium collected during the pilot phase and, if approved by Council, the extension of this program that is not required to cover pre-payment risk would be used to defray bridge financing costs. Bridge financing costs are incurred between the time project expenses are incurred and when the municipality is able to debenture those expenses. During that period, the funds are not available for other purposes which represents either an opportunity cost or lost income from the investment of those funds.

Although the LIC financing provided under this program will increase HRM's overall debt levels, it will not increase the level of debt funded by the general tax rate. The level of general-rate-funded debt is an important factor in determining HRM's capacity to borrow in the future. Specific targets for general-rate-funded debt reduction are included in the revised Debt Servicing Plan, approved by Regional Council on November 17, 2009.

In the current fiscal year \$432,500 of funding has been secured from the Province of Nova Scotia through Efficiency Nova Scotia as a rebate towards the anticipated systems in the first year. The remaining cost is the responsibility of the homeowner program participants – who either can choose to pay for the system 45 days after receiving an invoice or finance it up to 10 years through an LIC. (In the pilot phase 91% of participants choose to finance the installation).

Future year rebates are uncertain at this time, and if the rebates of \$432,500 are either increased or decreased – or other new incentives available, these would be passed on directly to homeowners. HRM is not contributing any funding to the project. If the rebates are decreased it would be necessary to determine if the increased costs to participants would still be offset by energy savings over a reasonable payback period.

HRM will administer all loans to homeowners through the LIC mechanism provided for under the Solar City By-Law S-500. The rate of financing to homeowners will be set at 3.5% in the first year, which is the same rate as the pilot. Homeowners can choose to pay off their loans early at any time without interest penalty.

Included in the project budget is \$120,000 annually in staff costs to administer the pilot program over 36 months. Staff of 2.0 term FTEs will be required, and will require an immediate extension of one of the current positions.

The proposed project budget would be financed as follows:

Budget Summary:	<u>Project No. CD990001- Solar City Program</u>	
	Total Project Cost (over 3 years)	\$13,112,700
	Province of Nova Scotia (via Efficiency NS Rebate) (projected over 3 years)	(\$1,297,500)
	Homeowners participating in the Program	<u>(\$11,815,200)</u>
	Net Cost to HRM	<u>\$ 0</u>

An annual staff review and report on participation, realized program costs and realized borrowing incurred will be completed and provided to HRM Regional Council. The annual review of the program will include an update on the appropriate interest rate to charge homeowners and any recommendations to HRM Council on adjustments and the budget for the following year.

COMMUNITY ENGAGEMENT

There has been extensive community engagement on this project as per the background and discussion sections. The Solar City program will hold three open houses this spring and summer to review the new program with the public.

ENVIRONMENTAL IMPLICATIONS

The Solar City program will encourage the adoption of up to 450 solar systems per year over the next three years that will reduce electricity, oil and natural gas use. The annual greenhouse gas reductions will be approximately 840,000 kg of CO₂e and accumulate to over 63 million kg of CO₂e reductions based on a 25 year lifespan of the systems and the projected three years of programming.

ALTERNATIVES

Regional Council could choose not to continue the Solar City Program.

ATTACHMENTS

Appendix A: Grant Thornton Review of Solar City Pilot

A copy of this report can be obtained online at <http://www.halifax.ca/council/agendasc/cagenda.php> then choose the appropriate meeting date, or by contacting the Office of the Municipal Clerk at 902.490.4210, or Fax 902.490.4208.

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Grant Thornton

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Solar City

An Assessment of Halifax Regional Municipality's (HRM) Solar City Project

January 20, 2015

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Introduction

As Nova Scotia's largest municipality, the Halifax Regional Municipality (HRM or Halifax) is an important catalyst for the long-term sustainability of the province from both economic and environmental perspectives. This is reflected in Halifax's 2014 regional plan:

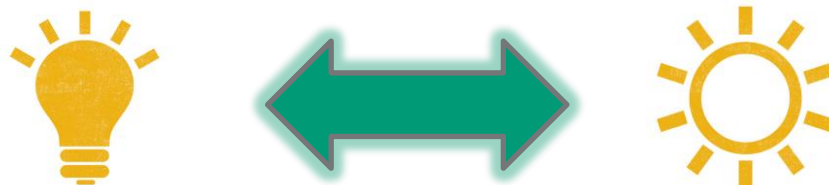
HRM's vision for the future is to enhance our quality of life by fostering the growth of healthy and vibrant communities, a strong and diverse economy, and sustainable environment.

With its eye on alternative energy solutions and with consideration to Halifax's solar potential, HRM developed the Solar City Program, which was approved by Council in December 2012. Through this program, Halifax aimed to simplify the process for residents pursuing solar energy options by:

- Arranging free site assessments for interested homeowners;
- Providing access to market prices while coordinating the installation contracting for homeowners who agree to proceed with the program; and
- Offering access to specific grants along with a financing option to spread costs over a period of time.

According to the HRM's website, the program offers average annual savings of \$425, a 7-9% return on investment over 25 years and the overall benefit of reducing greenhouse gas by 1,700 kg per year per household that adopts solar energy. From inception to the end of December 2014, over 2,000 assessments were completed, with over 370 contracts signed. The program was designed as a pilot project, the results of which would assist Halifax in determining whether to continue the program under similar model.

With the pilot nearing its end, HRM engaged Grant Thornton LLP to perform a review of management-prepared data to assess the achievement of the objectives of the Solar City project.



Project assessment procedures

Grant Thornton LLP conducted a preliminary meeting to discuss the project and confirm the objectives of the review. The project contact was identified and critical issues were discussed to ensure that Grant Thornton addressed all concerns and provided utmost value to the HRM.

Specific review procedures performed include the following:

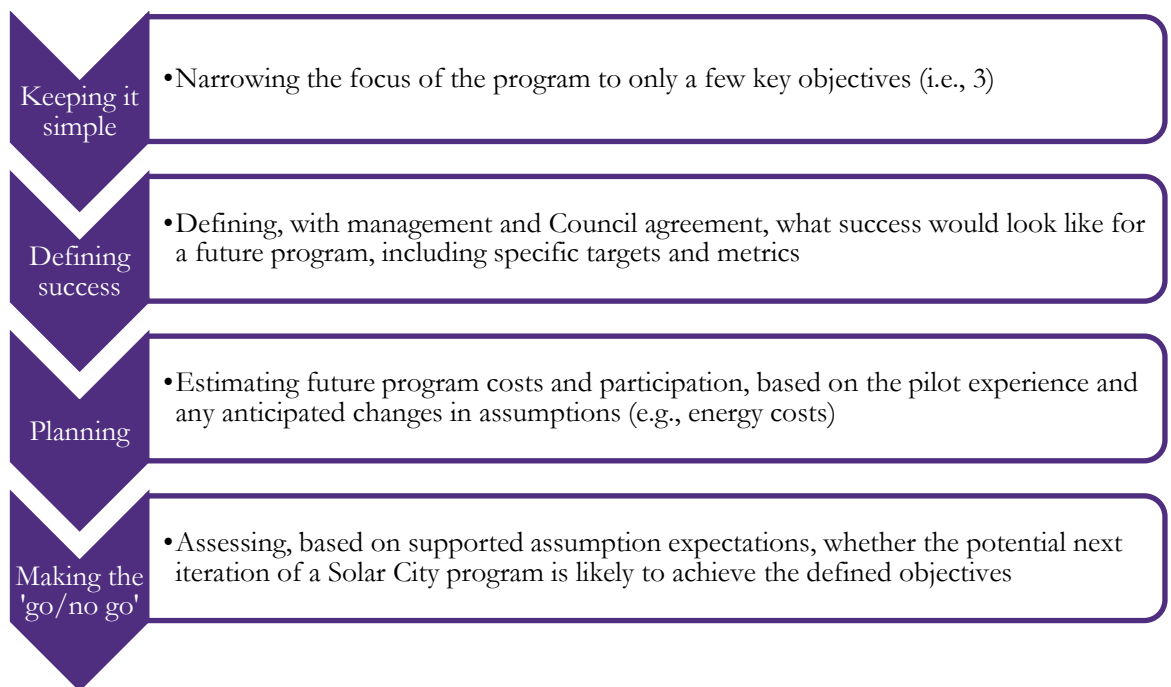
- 1 Collected and reviewed pertinent documents, such as the Solar City Project award, budget sheets, the master program tracking database, financial summaries from SAP and the master tracking sheet, progress reports to Committees/Council and examples of the initial assessment, RETScreen, feasibility report, and commissioning report for three homeowners. As part of this review, we viewed the information supporting management's comments regarding the achievement of program objectives and relied upon the sources identified by management (i.e., we did not verify the accuracy or completeness of source data).
- 2 Categorized project objectives in the form of a triple bottom line: social, financial or environmental.
- 3 Conducted interviews with designated HRM staff and members of management, as well as identified stakeholders, including three suppliers and a sample of ten homeowners.
- 4 Compared observations with confirmed objectives and concluded whether or not objectives were met, at the point of time of the assessment, based on the data provided.
- 5 Discussed/reviewed results with management, who provided feedback and input.

Excluded from this review was an audit of the pilot project financial results, and any other procedures not listed above.

Summary of our observations

HRM defined at least 11 objectives for the Solar City Pilot Program, with a primary objective being the financial self-sustainability of the pilot project. Based on the information provided by management, including their financial projection for the project up to December 31, 2014, the pilot is expected to pay for itself. Further, the pilot has succeeded in meeting its environmental objectives and has partially met its financial and social objectives. The observations and assessment results for each objective are included in the 'Assessment of objectives' section of this report

The results of the pilot will be a key factor in any decision made by Council regarding next steps for Solar City (i.e., continuation of the program in its current form, changes to the program or a discontinuation of the program). Additional considerations when making this decision can be found in the 'Next steps' section of this report and include the following process:



Assessment of objectives

Objectives	Observations	Objective met? ✓ = met ≈ = partially met
A Environmental		
1 Improve the environment	<ul style="list-style-type: none"> - For the 372 homeowners accepting HRM's offer to participate in the program as at December 31, 2014, the estimated annual ECO² displacement approximates 628,000 kg/year (as per HRM's master program tracking database). 	✓
B Financial		
2 Program is financially self-sustaining, without impacting the non-participating HRM taxpayer	<ul style="list-style-type: none"> - The program design involved fixed costs being passed along to the homeowner in the form of fees (e.g., water conservation, quality control and administrative costs) or being covered by grant funds (where eligible). - Based on HRM's financial forecast for the Pilot Program as at January 16, 2015, there is an estimated excess of revenues over expenses. 	✓
3 Residents are participating in sufficient numbers to justify	<ul style="list-style-type: none"> - A specific target was not set for this objective. - The pilot was capped at 1,000 participants. Over 3,000 homeowners submitted interest forms online with almost half receiving offers to participate in the pilot. - As at December 31, 2014, over 370 agreements were signed by homeowners. See next step recommendation 2a - Based on the actual level of participation being less than the cap used in the budget, in April 2014, management increased the fee charged to homeowners to cover the administrative costs of the pilot. 	≈
4 Program is cost effective for homeowners	<ul style="list-style-type: none"> - The achievement of this objective is subjective and dependent upon how individual homeowners define cost effectiveness. - Program participation offers were sent to homeowners with feasibility assessments showing a return-on-investment (ROI) of 2% or higher. - The price to homeowners was reduced with rebates available to those participating in the program. See next step recommendation 2c - Long-term realization of the ROI is dependent upon the initial assumptions holding true (primarily those related to equipment life, maintenance cost and the average annual growth rate for fuel/electricity). See next step recommendations 2c, 3c - All of the 6 homeowners surveyed, who did not accept HRM's program offer, stated cost as the reason for not participating. 	≈

Objectives	Observations	Objective met? ✓ = met ≈ = partially met
5 Installations are of high enough quality and quantity	<ul style="list-style-type: none"> - Quality: After the install, the contractor goes through a Commissioning Report checklist with the homeowner and the homeowner signs off; however, HRM did not track whether homeowners had issues for a period of time subsequent to the install. See next step recommendation 3d - Quantity: See comments for objective B3 above. 	Quality – ≈ Quantity – ✓
6 Program is simple enough to administrate effectively in HRM	<ul style="list-style-type: none"> - Administration involved: developing and reviewing documents to be used (e.g. contracts), arranging advertising and community meetings, receiving registration information, coordinating initial site assessments, communicating results to homeowners, extending offers, communicating new acceptances to the contractor, maintaining the master program tracking database, monitoring and reporting program results, and working with consultants. - Two full-time equivalents were assigned to perform this work, with support from a Project Manager, the Director of the Department, Finance, Legal, Communications and IT. - After the pilot closes, the amounts owing from homeowners repaying loans will be included on their property tax bills. 	✓
7 Benefit to home owner - access to financing	<ul style="list-style-type: none"> - HRM received a loan from the Federation of Canadian Municipalities that was used to fund loans to homeowners. - When accepting the HRM's offer to participate in the program, homeowners had the option to pay in a lump sum payment or accept the terms of a low-interest, 10 year loan. 	✓
C Social		
8 Benefit to homeowner – simplicity	<ul style="list-style-type: none"> - The online registration process did not function as expected at the onset of the pilot, resulting in submissions not all being accepted the first time they were sent. - We conducted a survey consisting of 4 homeowners who accepted the HRM's offer to participate in the program and 6 who did not. In summary, the results were mixed in terms of the ease of use of the program. <p>See next step recommendation 2b</p>	≈
9 Benefit to homeowner - quality assurance	<ul style="list-style-type: none"> - See comments for objective B5 above. 	≈
10 Leadership in environment/energy/ economic development and community engagement	<ul style="list-style-type: none"> - First project of its kind in Canada - The online interest forms received from the over 3,000 homeowners included comments referring to: <ul style="list-style-type: none"> ▪ Solar City as a fantastic, amazing, excellent and great program/opportunity ▪ Being impressed ▪ HRM as being innovative and demonstrating leadership - The HRM and the primary contractor received the following awards: <ul style="list-style-type: none"> ▪ Federation of Canadian Municipalities 2015 Energy Program of the Year ▪ Union of Nova Scotia Municipalities Climate Leaders Award (Fall of 2013) ▪ Canadian Solar Industry Solar Thermal Project of the Year, 2013 Game Changer Award 	✓

Objectives	Observations	Objective met? ✓ = met ≈ = partially met
11 Local Economic Development, in terms of: <ul style="list-style-type: none"> ▪ Utilizing local manufacturing/labour ▪ Creating an estimated 40-60 new jobs ▪ Estimated average \$330/year savings to individual homeowners 	<ul style="list-style-type: none"> - Local vendors included the contractor, subcontractors and consultants. - HRM did not track or monitor job creation. See next step recommendation 3d - For the 372 homeowners accepting HRM's offer to participate in the program as at December 31, 2014, the estimated savings is \$434/year (as per HRM's master program tracking database). The energy cost escalation assumptions used to determine estimated cost savings do not reflect the current trends in oil prices. See next step recommendation 3c 	≈

Next steps

With the Solar City Pilot Program soon coming to an end, HRM is determining whether the Program should continue. To assist the HRM with this important decision, we offer the following considerations:

- 1 **Program purpose:** Key to any HRM initiative is having a clear definition of desired outcomes and what will success look like. Once specific objectives are defined, and to ensure the municipality experiences the best value for its efforts and costs, HRM should:
 - a Identify and assess options, including a potential next iteration of the Solar City Program, that would allow the HRM to achieve these objectives. This analysis should consider the costs and benefits of each option, including the additional considerations listed below and HRM's desired role (e.g., currently financier, facilitator, marketer, and social benefits improver for the pilot program).
 - b Based on the analysis, a recommendation should be made for moving forward.
 - c Determine how the program/initiative should be funded, including whether there are objectives that may warrant costs or portions of costs being born by the general taxpayers, such as social and indirect benefits.

- 2 **Factors influencing potential program participation:**
 - a Interest: Using information provided from the 3,268 residents who expressed interest in the program as to why they ultimately did or did not proceed with the program, determine the estimated potential future participation for another program
 - b Pre-screening: Using the results of the pilot, define the factors contributing to quality, effective, and positive results (e.g., people being home during the day using water, structural issues). This could provide homeowners with a form of self-assessment that may reduce the number of site assessments for homes that may not qualify, and could provide increased general awareness of energy saving options.

- c Estimated return on investment: What would the current assumptions be related to the determination of ROI?
 - i. Will there be changes to installation and equipment costs?
 - ii. To what extent will rebates be available to reduce the cost of installation and monitoring to the homeowner?
 - iii. How does the life cycle cost of the solar panels and related equipment impact ROI (i.e., what is the estimated incremental repair and maintenance cost related to a new system versus an existing heating system)?
 - iv. What is the risk that, in our climate, the solar panels and related equipment will not reach their estimated life?
 - v. How will the current energy prices and estimated annual escalation costs for energy impact ROI calculations?
 - Pilot Program used an escalation of 5%
 - The US Energy Information Administration's Annual Energy Outlook 2014 annual growth rates for 2012-2040 include 2.5% for distillate fuel oil and 2.2% for electricity.
 - d Access to financing: What level of financing will be available? What level is anticipated to be needed?
 - e Fixed costs: Will homeowners continue to be willing to pay a fee to cover fixed costs? If so, what dollar amount would be considered acceptable before homeowners may wish to arrange the install themselves?
- 3 **Measuring the success of HRM activities:** Based on discussions related to the Pilot Project, HRM defines objectives for its operations and programs and, where practical, monitors progress toward these objectives. Through our work, we have discussed with management the challenges related to performance measurement and opportunities to deal with the challenges, including:
- a Tailor the number of objectives to the size of the program;
 - b Ensure objectives, expectations and targets are clearly defined to promote consistent understanding (i.e., SMART goals). Defining potentially vague terms, such as 'reasonable', can help reduce the risk of a taxpayer's definition varying from that of HRM.
 - c Retain documentation to support key calculations, assumptions and changes to those calculations in a location that is easily accessible and known to those responsible for the program; and
 - d Define expected project/program reporting at the beginning of the program to help ensure that required data is being tracked and available for reporting. This will include defining the frequency for monitoring financial results, comparing SAP figures to program tracking figures and considering the continued appropriateness of relevant assumptions.

Restrictions and qualifications

This report was prepared for Halifax, to provide an independent assessment related to the achievement of pilot program objectives, based on specific management-generated reports for the project up to December 31, 2014 and discussions with management, three contractors and 10 homeowners. We specifically disclaim any responsibility for losses or damages incurred through the use of this report for any other purpose.

We acknowledge that Halifax is bound by the Freedom of Information and Protection of Privacy provisions of the Municipal Government Act and agree that Halifax may use its sole discretion in any determination of whether and, if so, in what form, this Report may be required to be released under this Act.

We reserve the right, but will be under no obligation, to review and/or revise the contents of this report in light of information which becomes known to us after the date of this report.



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