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FCM's Sustainable Communities Conference
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LONDON 2015

Halifax Solar City

The Next Great Idea: Promising Technologies and Solutions

#2015SCC

PROJECT CONCEPT

FACT:
HRM has the oldest independent solar panel manufacturer in the world…

- $8.5 million pilot project to encourage individual homeowners to install solar panels for heating domestic hot water
- Typically 1-2 solar hot water panels
- Financing through Property Tax supplement, similar to LICs (Approx. $850/year over 10 years at 4.5%). First jurisdiction in Canada successful with this model.
- User pay
- Cash flow neutral to municipality
- 500 – 1,000 homes
- Economies of scale purchase & install

A Brief History:

- Project initiated in July 2010 – focus on Solar to start
- Vision – first Solar City in Canada!
- Framework is more than just the Financing Mechanism
- Key concepts – residential focus, turnkey contracting and financing, achieve economies of scale and quality assurance
- Easy to make a decision to participate because of good data and simple process

HALIFAX
REGIONAL MUNICIPALITY

Solar City Feasibility Report

123 XYZ Street, Halifax, NS

THERMO DYNAMICS LTD

Date: May 29, 2013 File No. 43####

1. SITE ASSESSMENT

Solar Collectors:

Number of Collectors: 2
Collector orientation from due south: 48° (Optimum is 0° or due south)
Slope of collectors on the roof segment: 26.5°

Figure 1: Approximate location of collectors and exterior piping (not to scale)

Homeowner's Information:

No. of Residents	Domestic Water Heating Fuel	Water Consumption (m^3/yr)	Home Electrical Consumption (kWh/year)	Home Heating Fuel	Home Fuel Consumption (L/year)	Total Energy Consumption (kWh/year)
3.5	Electricity	294	8,459	Oil	3,598	46,748

2. ENERGY, FUEL COST AND GREENHOUSE GAS SAVINGS (CALCULATED)

Current Energy Consumed by Domestic Hot Water System (kWh/year)	Solar Fraction (hot water needs met by solar energy)	Estimated Annual Fuel Savings (kWh of Electricity)	1st Year Estimated Savings	Estimated Greenhouse Gas Reduction (kg CO_2e/year)
4,793	62%	2,948	$454	2,129

Estimated Return on Investment: 8.6%

Savings estimates are based on the following assumptions: initial energy price is $0.154 per kWh of Electricity; 60 litres/day/person baseline hot water consumption; hot water supply of 55°C. Return on investment estimate is based on 5% per year energy cost escalation over 25 years, and a lump sum payment of $7,796.35 (includes all rebates and taxes).

Calculations are based on best available information at the time of screening. The Halifax Regional Municipality or Thermo Dynamics makes no warranty or guarantee of actual energy savings.

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FEASIBILITY REPORT

- Details of proposed solar system, including sketch of installation on home
- Homeowner's energy and water consumption information
- Basic assumptions used in assessment
- Reductions in fuel, costs and greenhouse gas emissions
- Estimated ROI with assumptions
- Notes and specifications

Visit: www.halifax.ca/solarcity

Key Findings

- Offers simplicity to residents
- Assists homeowners on financing renewables
- Low risk to municipality
- Helps support the CleanTech sector / Green Economy
- Captured the imagination of residents
- With 380 homes signed: displaced 50,000litres of oil, 750,000KWh, GHGs 700 tonnes

Next Great Idea

For Halifax:

- Review of solar program underway and potential rollout of Solar City 2
- Continue the partnership of municipality and residents in advancing renewable energy at neighbourhood level
- Possible direction subject to further staff review and council approval:
  - Build on Success of Solar City and offer residential Solar Hot Water, Solar Thermal (Air), and / or Solar Photovoltaic
  - Continue financing through self contained Local Improvement Charge type financing mechanism
  - Continue to act as combined contracting agent, rebate consolidator, and financing solution for simplicity to residents
  - Include small commercial properties

Great Idea for Other Municipalities

- Use the model and apply to other renewable energy and energy efficiency projects that make sense in your community
- More Nova Scotia municipal models:
  - Town of Berwick using model to support homeowners with heat pump / energy efficiency projects (audits)
  - Richmond County Energy Efficiency - insulation
  - Lunenburg Energy Efficiency - thermostats
- Other possible applications to meet local objectives: heat pumps, small commercial properties, small wind solutions, biomass.