



Solar Nova Scotia

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Shaping Our Future Communities: The Importance of Community Energy Planning Marlene Moore, Green Power Labs Inc.

Community leaders and planners face the daunting challenge of re-shaping planning policies and strategies to a new standard; that of a sustainable community. It seems they must build a financially viable community with an enviable lifestyle using often limited financial resources. No easy task. It will require prudent planning, good information and smart use of existing resources. And it will require a better understanding of the complex relationship between built environment – a community's existing and planned commercial, public and residential buildings – and energy resource and demand. This understanding allows community leaders and planners to objectively judge the merits of proposed policies and strategies from energy, environmental and financial perspectives. And it means citizens are better able to understand, support and do their part to build a sustainable, economically vibrant community.

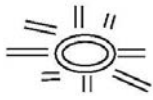
Broadly speaking, community energy planning involves three phases: first, mapping the available solar resource, second, rating the solar energy generation potential of the community, and finally quantifying and analysing the effectiveness of the solar energy projects in the community so as to determine the return on investment and financially justify the investment in solar technologies. (Continued on following page)

Historic Building Energy Issues – Doors & Windows

Article two in energy series on historic Buildings

By Bill Hockey – Architectural Conservation Services

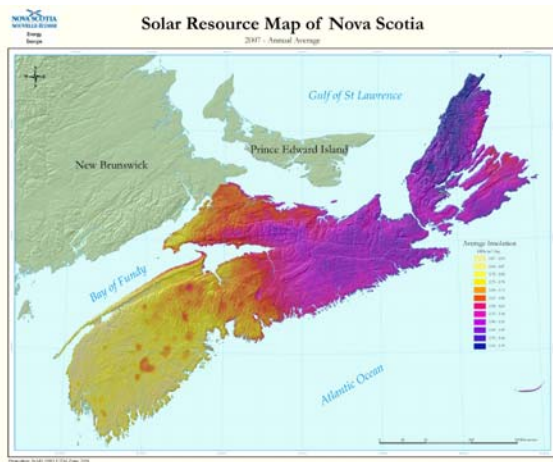
The high heat loss through the doors and windows of historic buildings is not caused by the way they are constructed, but largely through deferred maintenance. Failed putty, broken and cracked glass, rotten sills and missing flashings are some of these problems. Poorly maintained windows can account for up to 33% of the total heat loss of a building. (Cont. Page Three.)



Energy Planning (Continued)

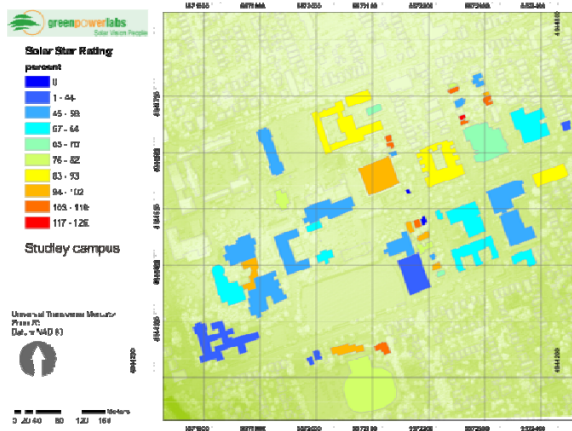
Mapping the Available Solar Resource

Solar Mapping identifies solar resource as a community energy asset and provides a solid basis for quantifying the energy output of applicable solar technologies. This benefits the community in making rational financial decisions based on fact in an economic setting of competing projects, limited resources, increasing prices, environmental protection and energy sustainability.



Rating Solar Energy Generation Potential

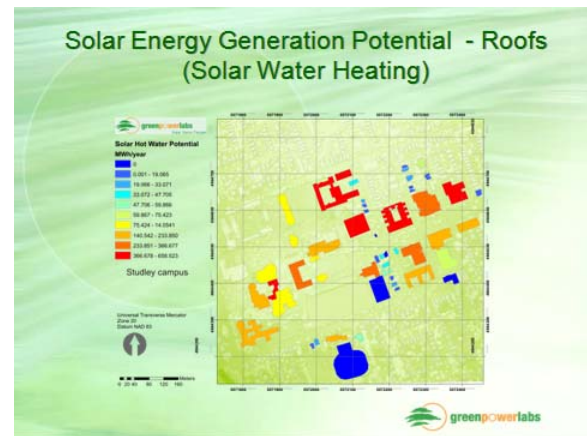
A five-star rating system measures a building's suitability to capture solar energy. The SolarStar™ Rating compares the solar energy yielded from a building with the yield from a building of the same size but optimized for active solar applications. The SolarStar™ Rating system provides an initial reference to identify the solar



resource potential and may be used as a first step in selecting candidate buildings for solar technology applications.

Building Effective Solar Energy Projects

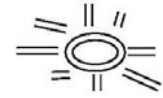
Community solar maps accurately determine the solar energy potential for all applicable solar technologies like solar water heating, solar air heating and solar power generation for every building within a community. Solar generation potential maps identify



and prioritize major public, commercial, industrial, recreational sites as well as residential areas for solar energy applications. Comprehensive *Solar Suitability Assessment* reports for buildings and houses deliver detailed information on the feasibility of solar energy applications including projected energy output, payback periods, and other critical data required for financial planning, technical due diligence, and system engineering.

Solar for Future Communities:

This approach to solar energy deployment within a community is easily adapted to planning future developments and optimising them from sustainability, financial and performance perspectives. Planning such community developments entails involvement in land development, community design, the siting of building and



residential structures so as to maximize the solar energy potential of future communities.

For more information visit [Solar Energy for Community Energy Planning](#)

Green Power Labs Inc. is an energy planning and engineering firm with a special expertise in solar mapping, monitoring and forecasting.

Doors and Windows (Continued)

Generally, if these elements are repaired and properly refinished, adjusted and modified with air seals, they will perform quite satisfactorily. Heat loss incurred through the glass of a single glazed window and around the window sash and frame of an old building can be reduced to as low as 8% of that for the building; however, it is not comfortable to sit near such a window. Well maintained single glazed windows with properly fitted storm windows are nearly as effective as sealed units and they cannot fail.

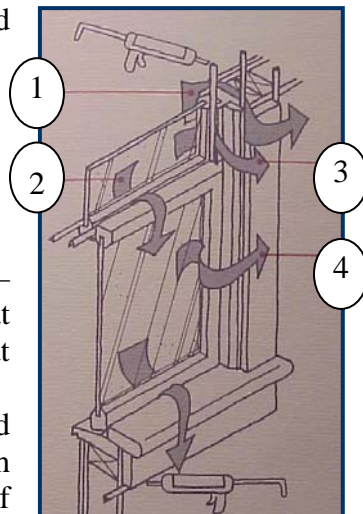
Typical window air leakage routes and recommended action is as follows:

1. Between the frame and the rough opening - seal cracks between trim and between trim and wall finish;
2. Between the sash and the frame - seal all fixed joints;
3. At operable joints – install V Clips – spring metal or plastic weather stripping at meeting rail and between sash and frame at jambs and sill;
4. Between glazing and sash – remove old putty, clean and prime wood surfaces with vapour-retardant paint and reputty. If necessary remove sash to ensure that all wood surfaces are sealed. Properly adhered putty and paint prevent air leakage between the glass and the sash;

If the windows have failed or been replaced previously, new compatible sashes designed to take advantage of new technologies can be installed in the original rough openings, and, if possible in the original frame. It

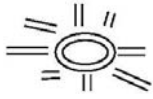
should be noted, the more complex the detail is the greater the chance of failure of that detail over time.

After one has repaired the windows and installed weather-stripping, the most economical way to improve heat retention at openings is by installing storm windows and doors as a second line of defence. Traditionally this has been provided by exterior storm windows; however, storm windows can be installed on the interior as well as the exterior. If one cannot repair the original storm windows, the new units selected should be compatible in design and construction with the building, and will reduce heat loss by conduction, convection and infiltration as well as protect the fabric of the original windows. These storms need to be able to be vented and have drainage for moisture. There are several approaches to interior storm windows. An interior storm can be fixed if the window is not going to be operable. The simplest solution is to remove



the trim holding the sash in place and replace it with a 12mm square bead of the same material, mount the storm against the new bead and then reinstall the original trim to hold the storm window in place. When screws are used to fasten this material it is simple to be able to remove such a window for maintenance. Other

interior approaches include a rigid plastic interior storm with a magnetic fastening system, or a plastic heat shrunk storm installed by the owner and removed in the spring. If you have specific questions about repair or replacement of windows, or installation of storm windows please write bill@archconserve.ca for a response.



Solar Tours

Solar Nova Scotia will be offering two solar tours this fall before mid-November.

One will be in the St. Margarets Bay Area, the other will be in the valley area.

Send a note to info@SolarNS.ca to get on our mailing list and get up-to-date information as the tours are finalized.

FOSSIL FOOLS FILM FEST presented by the Ecology Action Centre

Tuesday, October 20, 7 pm - *A Crude*

Awakening: The Oil Crash / Captain Carbon - 90 minutes; **Wednesday, October 28, 7 pm** - *Kilowatt*

Ours / Decentralized Energy: What are we waiting For? - 74 minutes; **Wednesday, November 4, 7 pm** - *Home* - 93 minutes.

All films will take place at The Hub, 1673 Barrington Street, 2nd floor (over Certainly Cinnamon) and will be followed by a discussion.

Upcoming Solar Shelter Courses

Solar Nova Scotia is offering practical six evening, how-to courses on designing and building Solar Shelters, including Greenhouses, Solariums, additions and especially Solar Homes. Topics include Solar Basics, Climate Control, Site Designing, Shelter Designing, Solar Construction, and Making it Happen. This course is intended for the general public and for those in design and construction. Cost of the course is \$90.00 for an individual, \$150.00 couples in both locations. This includes handouts. An optional textbook, the *Canadian Solar Home Design Manual* is offered at \$30.00.

Don Roscoe - one of Canada's most experienced solar designer-builders - offers two, six-evening Courses. The first will run on Thursdays starting October 15, 2009 and ending on November 19. The location is Bloomfield Centre, 2786 Agricola Street, Halifax. (Enquiries and registration call 852-4758.) The second course will be located at Bridgewater High School on Mondays starting October 19, 2009 and run until November 23. (Enquiries and registration call 543-2274.)

Andy O'Brien, Solar Home Designer is also offering two, six-evening courses. The first one is in Middleton on Mondays starting January 18, 2010 and finishing February 22. The second is in Wolfville on Wednesdays starting January 20, 2010 and finishing February 24.

See SolarNS.ca for additional information and updates, regarding locations.

solar nova scotia membership

mail to: Solar Nova Scotia, 83 Old Scotts Road, McGraths Cove, NS B3Z 3V2

name: _____

co. name: _____

address: _____

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membership fees:

\$10.00 unwaged / retired / student

\$20.00 waged

\$200.00 corporate

\$ _____ donation

Tell us what you are interested in:

active solar

education

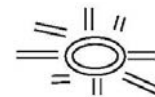
networking

passive solar

promotion

technical support

other: _____



The sun is rising on large scale solar in NS:

Large solar system delivers big savings for NS business.

By Shannon Lynch – Scotian Winfields

In 2008, Scotian WinFields formed a partnership with Doctor Solar in order to expand into and promote the solar energy industry in NS. With more than 20 years of experience installing solar thermal systems in Nova Scotia, Doctor Solar was a perfect fit for the community based Scotian WinFields team.

Early in the Spring of 2009, Scotian WinFields and Doctor Solar completed the installation and commissioning of a new 40 panel Solar Thermal System for preheating Domestic Hot Water at 21 Plateau Cres. , in Clayton Park , NS..

Killam Properties Inc. originally approached Scotian WinFields and Doctor Solar after they observed that their domestic Hot Water expenses at their Quinpool Towers property in Halifax were greatly reduced when compared to their other buildings. These significant savings in operating fees were the result of a 100 panel solar Domestic Hot Water preheat system installed in the building in 1987 . Killam contracted Scotian WinFields and Doctor Solar, who were involved with the original Quinpool Towers installation, to assess the solar potential of multiple Killam properties and to select a building for a new large scale installation.

An existing 41 Unit, multi-story apartment building located at 21 Plateau Crescent in Clayton Park was selected as the best candidate. In addition to other considerations, it was well suited for a solar solution, with no shading concerns and a flat concrete roof.

The system is composed of 40 Thermo Dynamics G-Series panels, 2 tube and shell heat exchangers and 1000 Gallons of storage in the form of 10 x 100 Gallon tanks. The

panels are rack mounted and face slightly West of True South in line with the building's roof orientation.



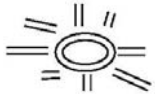
Above: Photo of solar array on roof
Below: Photo of storage tanks



One of the most interesting improvements to the new system was addition of a monitoring system connected directly to the Web.

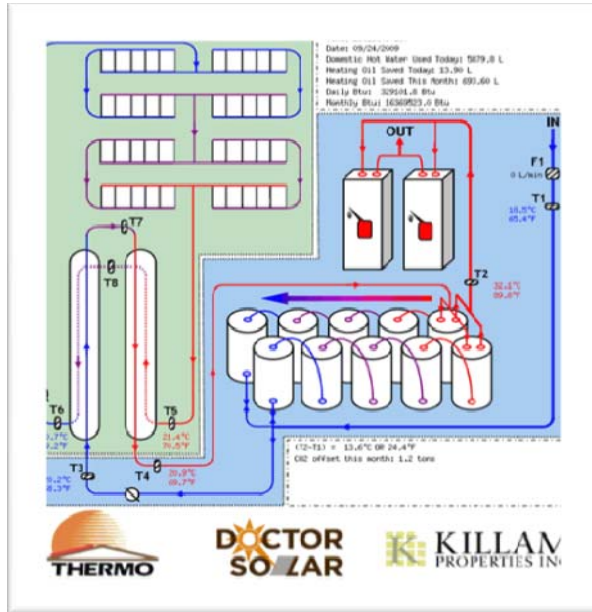
This monitoring system takes multiple readings every minute and uploads this data to a web based display. The data can then be organized & presented as various graphs which are updated every 60 seconds, 24 hrs/day.

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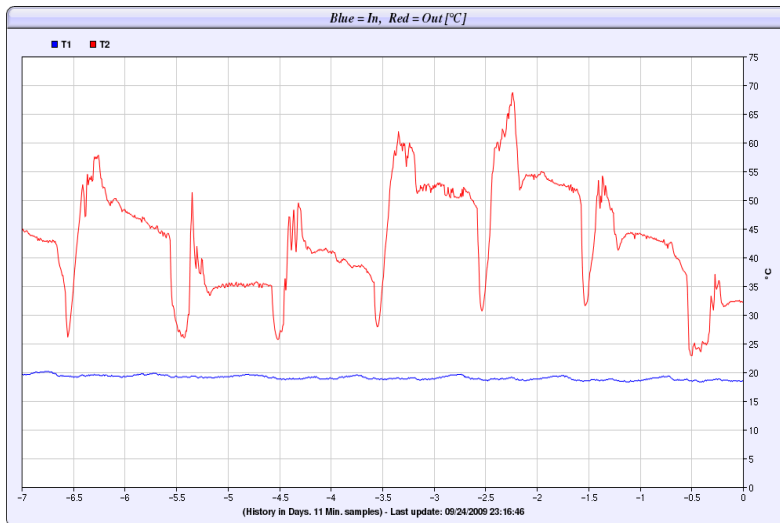


Solar Nova Scotia Fall Insert

This has shown itself to be a very valuable tool. The client is able to see immediate results and analyze performance. Once a performance pattern is established, the monitoring system can also help to identify concerns if abnormal patterns appear.



Below: a 7 day graph depicting the system's performance during 1 week in September.



To see the live monitoring system and a detailed description, go to: www.scotianwindfields.ca/projects/solar/21-plateau-cres-halifax-nova-scotia

Killam Properties Inc. is very happy with their new solar system. So far, its performance has met or exceeded the original monthly performance estimates. This will mean Heating Oil savings in excess of the originally predicted 7000 litres/yr and more than 25 Tonnes of CO₂ emissions eliminated annually. It is proving once again that large scale solar thermal installations make great business sense. For Killam, the system hedges against energy price volatility, delivers long term savings and demonstrates their commitment to going Green. With the guidance of Scotian WindFields and Doctor Solar, Killam was also able to access ten's of thousands of dollars in rebates on their system. It is likely that the system will pay for itself in just 6-8 years and provide decades of service.

It is no surprise that Killam is now looking at reproducing this model in several more of their buildings. At Scotian WindFields and Doctor Solar we believe that this model has excellent potential for all large commercial buildings, pre-existing and new construction. We look forward to continuing to develop this growing market in NS by shining the spotlight on solar thermal energy.

For further information on this or other large solar thermal systems, visit www.scotianwindfields.ca or contact Scotian WindFields and Doctor Solar at solar@scotianwindfields.ca or call 1-877-798-5085.

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Shannon Lynch works with Scotian WindFields on Solar Business Development.