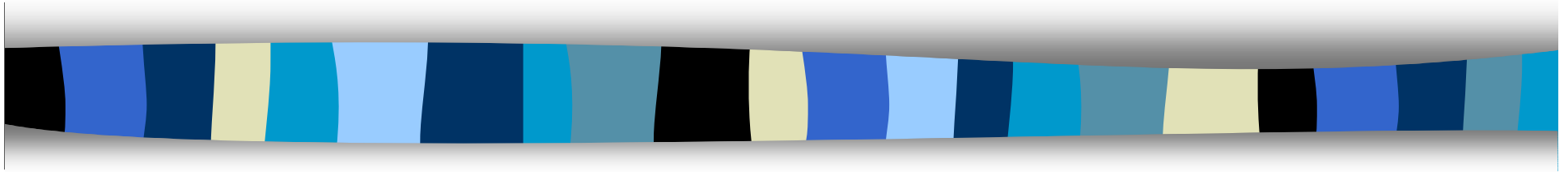


Downtown Toronto Community Solar Projects



Lessons Learned:
Ideas for the Future
CANSIA - November 2007



Presenters

- David Booz, Downtown West Solar Energy Project
- Jed Goldberg, West Toronto Initiative for Solar Energy
- Tim Grant, Downtown West Solar Energy Project
- Ken Traynor, West Toronto Initiative for Solar Energy



Saw success of RISE project in East Toronto, 05/06

- Decided to replicate project in our own areas
- Build on general interest in solar energy
- Take advantage of Ontario's new Standard Offer Contract program.



Why Organize a Community Solar Project?

- Improves access to solar energy technology for non-technical homeowners
- Broadens knowledge of solar energy technology and other sustainable energy opportunities
- Decreased Cost of Sales for vendors
- Geographical Efficiencies
- Political impact



Community solar system buying group model

- Groups solicit bids for solar system packages from vendors
- Select their preferred vendor
- Present the selected packages to homeowners in their local communities
- Homeowners purchase systems directly from the preferred vendor or vendors.



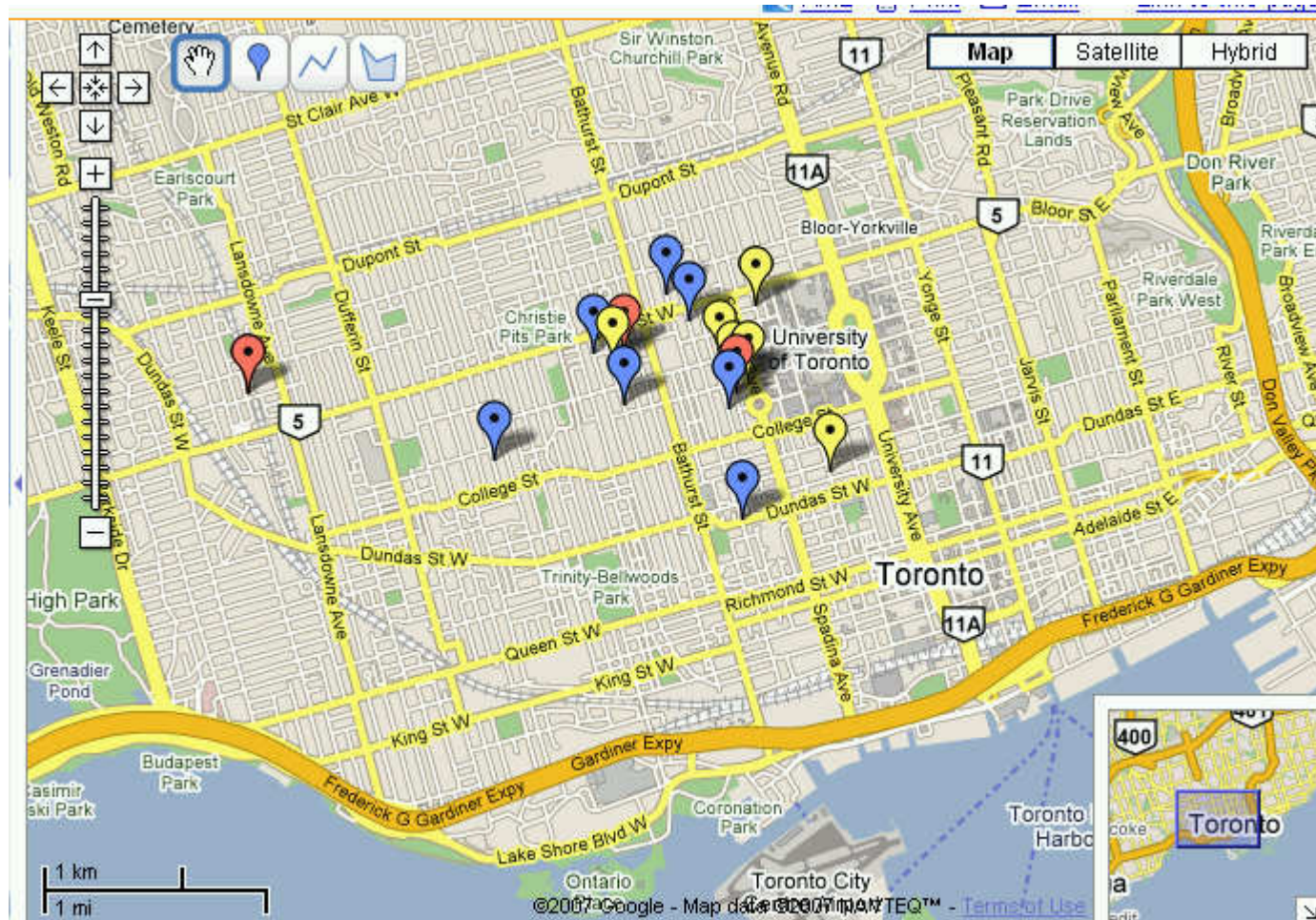
Downtown West Solar Energy Project (DWSEP)

- 225 people attended meetings in the area bounded by University Ave. to Ossington Ave., Dupont St. to Queen St. West, in May 2007
- 87 Households, signed up for vendor visits for a potential 70 SDHW and 66 PV systems
- 10 SDHW contracts signed (8 installed)
- 10 PV contracts signed (8 installed)
- First PV SOC connection Oct 30, 2007

Dual Meters Willcocks St.



DWSEP Installations



Major Street



Robert St.



Willcocks Street





Residents' Associations:

- Project was a program of the Harbord Village Residents' Association where Tim Grant and David Booz serve on the board
- Initiated following presentation by Ron McKay of RISE at an HVRA general meeting.
- DWSEP elected to work with other local Residents Associations and Ratepayer Groups as sponsors
- Met with leaders of each association and gave presentations at group meetings.



Preliminary Public Meetings:

- Working with city councillor Martin Silva, organized two Public Meetings Sept/06 to publicise the project, and solicit community participation.
- Councillor Silva distributed 44,000 flyers to every home in the ward and provided some staff time for project support.
- Meetings generated a list of over 250 interested people from which a committee was formed.

Sept. Public Meeting Flyer

Co-sponsored by the
Harbord Village Residents
Association and the Disturist
Queer Neighbourhood
Association

Councillor Martin Silva invites you
to a public meeting to talk about

Learn what is possible to participate
in a bulk purchase of solar water heating
and/or solar photovoltaic systems for your home.
Partners of multi-unit buildings

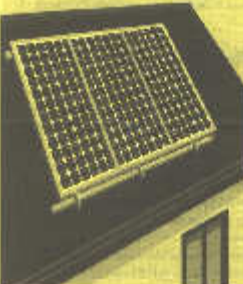
Downtown West Solar Energy Project

Join us on

**Tuesday, Sept. 26, 7-9pm at
St. Stephen's in the Fields Church,
365 College Street, 3 blocks west of Spadina.**

OR

**Wednesday, Sept. 27, 7-9pm at
Harbourfront Community Centre,
627 Queen's Quay West (at Bathurst).**



Guest speakers will describe the costs and benefits of installing solar water heating and electricity-producing photovoltaic panels on a multi-unit building. Representatives of the Harbord Village Residents' Association will also be on hand to provide information on a bulk purchase of solar energy systems. The September 26 meeting will focus on the use of solar on homes, while the September 27 meeting will focus on multi-unit buildings.

See the back of this flyer for more details. For more information, or to be notified of future meetings, please contact Jennie Lee from Councillor Silva's Office at (416) 392-4044 or via "Lee22@toronto.ca".

Why Participate in a Bulk Solar Purchase?



THE FACT: The provincial government will begin paying 42 cents per kilowatt-hour for solar electricity generated by homeowners and other small-scale producers. This incentive program offers "renewable energy pull" in North America in ways that decrease solar system costs. See solar energy consultant Paul Goss.

THE ADVANTAGE: For solar energy in the Greater Toronto Area to become more people accept. We enjoy more financial advantage than do leading solar energy markets Germany and Japan. Because solar hot water and electricity production is greatest during Ontario's energy consumption peak — hot, sunny summer afternoons — maximizing hot water and electricity use for solar would have a number of community-wide benefits. Cleaner air is just of these.

THE WIN: A group of 20-30 versatile residents banding together to purchase identical solar electricity systems for their own homes. The FSE (Renewable Initiative for Solar Energy) initiative quickly grew in popularity and gained the attention of local politicians and media. (See www.solarweb.ca for more information). Since they aimed a dual commitment in the STAG program to organize dual-unit bulk purchases, here in the City of Toronto, the Harbord Village Residents' Association is sponsoring a bulk purchase of solar water heating systems and electricity-producing photovoltaic systems and the District of Downtown West's residents' association is joining in. It is expected that owners of multi-unit buildings will be able to take advantage of the lower prices derived from a bulk purchase of these systems for their buildings.

THE PUBLIC MEETING: This will depend on the number of participants and the number of solar panels or photovoltaic systems that members elect to own. The payback hinges on the costs of the Standard Offer Contract offered by the Province of Ontario, but could be in the neighbourhood of 15-20 years. By contrast, solar water heating systems for individual homes cost \$2,000 to \$4,000 and have a payback of 5-7 years. Energy prices continue to rise, the payback will be shorter. Once your investment is paid off, a solar electric system will continue to earn revenue and solar water heating systems will be producing hot water into the future. But a solar system is an improvement to your home. Like a cost-effective energy loan, you can also expect that the value of your home will increase.

THE PUBLIC MEETINGS: Tuesday, Sept. 26, 7-9pm at St. Stephen's in the Fields Church, 365 College Street, 3 blocks west of Spadina; and Wednesday, Sept. 27, 7-9pm at Harbourfront Community Centre, 627 Queen's Quay West (at Bathurst) with a live Q&A.

- * Find out more detailed about plan.
- * Answer questions and get advice from community members.
- * Discuss Ontario's Standard Offer Contract and where we can do to improve it (applicable for small energy producers).
- * Decide who, how, when to be done and how to coordinate all residents to get the project going.

For more information, or to be notified of future meetings, please contact Jennie Lee from Councillor Silva's Office at (416) 392-4044 or via "Lee22@toronto.ca".



Downtown West Multi-Unit Solar Energy project

- Meeting at Harbourfront generated interest from residents of condominiums and co-operatives which would require a different model.
- Formed a separate project to explore opportunities for solar energy in multi-unit buildings.



Potential Vendors


- Developed list of vendors – from CanSIA web site, other materials.
- Distributed a Request for Information to 32 potential vendors.
- Questionnaire included questions on vendor installation capacity and interest in participating in project
- Generated a bidders list of 19 firms.



RFP document

- Committee prepared a Request for Proposal document with detailed background information, quoting instructions, description of services to be provided (photovoltaic and hot water), proposal format and content, and general terms and conditions.
- Document was subsequently used by WISE and has become something of a standard document for community solar RFPs.

DWSEP RFP Document

HARBORD VILLAGE RESIDENTS' ASSOCIATION <small>Box 06622 - 3909 Elcor St. W. Toronto, ON M6S 1X1</small>							
<p>REQUEST FOR PROPOSALS</p> <p>For The</p> <p>Downtown West Solar Energy Project</p> <p>An initiative of the Harbord Village Resident's Association (HIVRA)</p> <p>Selection of Vendors to Supply PV and/or Solar Domestic Hot Water Systems to Single Family Residential Property Owners</p>							
<p>•</p> <table><tr><td>DATE OF ISSUE:</td><td>March 20, 2007</td></tr><tr><td>CLOSING DATE:</td><td>April 10, 2007</td></tr><tr><td>CLOSING TIME:</td><td>3:00 p.m. EST</td></tr></table>		DATE OF ISSUE:	March 20, 2007	CLOSING DATE:	April 10, 2007	CLOSING TIME:	3:00 p.m. EST
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Bids:

- Received 10 excellent bids – four for PV only, three SDHW only, four both PV and SDHW.
- Vendor selection was a big challenge.
- Struck sub-committees for PV and SDHW.
- After much deliberation, selected Solera Sustainable Energies Company for PV and Goldwater Solar Services for SDHW.



Solera Sustainable Energies Company – PV vendor

- Selected for their experience with retrofitting systems onto older downtown homes,
- the quality of the equipment they were offering,
- their competitive pricing.



Goldwater Solar Services - SDHW vendor

- Selected for the equipment offered and the quality of their personnel and services
- Vacuum tube style collectors, German designed, Chinese manufactured, - efficient, easy to install, easy to maintain
- Storage tank/heat exchanger, controller, pump
- Both drainback and glycol pressurized systems



Financing & Economics

- We believed that financing would be a critical factor for a relatively expensive solar system purchase.
- We came up with three practical sources for financing: solar leasing, equity lines of credit, and mortgage re-advance.
- Danny Levesque and Jim Mulheron of Manulease did a lot of work on a leasing package for PV systems under the SOC.



Potential returns of PV systems under the SOP

- Working with a professional accountant, developed analysis where taxable income was reduced by subtracting an accelerated capital cost allowance from personal income.
- Analysis showed PV system returns comparable with a 4% GIC, however, CRA subsequently changed their verbal position on using CCA to reduce personal income
- Other analysis shows capital and running costs may be substantially higher than those used in DWSEP model.



Public Meetings:

- Organized four public meetings throughout the ward in May 2007 attended by 225 people
- 40 local volunteers distributed 17,000 flyers which included a brief solar energy primer.
- Posted project and meeting information on the OurPower website.
- OSEA agreed to subsidise meeting costs and made a presentation on solar energy technology and community solar.
- Deputy mayor Joe Pantalone and city councillor Adam Vaughan paid for some printing costs.

May Meetings Brochure

The Downtown West Solar Energy Project
 (April 2010 - 2011)
 Harbord Village Residents' Association
 Ontario Sustainable Energy Association
 Neighbourhood 24, Alton Park
 Palmetto Park Residents' Association
 Seaton Village Residents' Association
 Deputy Mayor Jim Pataki and
 Councillor Adam Vaughan
 (416) 392-4141 or (416) 392-4142
 www.downtownwest.ca

Solar Energy on your Home's Rooftop

The all-volume **Downtown West Solar Energy Project** supports the adoption of solar energy by building owners and residents. The project is a partnership between the City of Toronto, the Ontario Sustainable Energy Association, and the Harbord Village Residents' Association. The project is a partnership between the City of Toronto, the Ontario Sustainable Energy Association, and the Harbord Village Residents' Association. The project is a partnership between the City of Toronto, the Ontario Sustainable Energy Association, and the Harbord Village Residents' Association.

Seaton Village
 Thursday May 17, 10:00-11:00 AM, Seaton Village Community Centre, 445 Seaton Avenue, Seaton Village

Downtown West
 Thursday May 17, 10:00-11:00 AM, 240 Dundas Avenue, Downtown West

Harbord Village/Kensington
 Saturday May 19, 10:00-11:00 AM, 100 Harbord Avenue, Kensington

See the back of this flyer for more details. For more information, visit www.downtownwest.ca, call David Booz at (416) 896-2669 or e-mail David.Booz@toronto.ca.

Why Participate in a Bulk Solar Purchase?

The potential for solar energy in the Greater Toronto Area is enormous. In fact, we estimate that every household in the Greater Toronto Area has the potential to generate enough electricity to power its own home. This is a huge opportunity for us to reduce our carbon footprint and save money on our energy bills. By participating in a bulk solar purchase, we can take advantage of the economies of scale that come with buying in bulk. This means we can get a better price on solar panels and other equipment, which translates into lower costs for everyone. Additionally, by participating in a bulk solar purchase, we can help to reduce the overall cost of solar energy, making it more accessible to everyone. This is a win-win situation for everyone involved.

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May Public Meetings



May Public Meetings





Results to date

- Solar information flyers reached 75,000 area residents, half of whom live in condos, co-ops and apartment buildings
- 87 Households signed up for vendor visits for a potential 70 SDHW and 66 PV systems
- Vendors did site visits and order closing
- Installations to date: 8 PV, 8 SDHW
- Additional signed contracts – 2 SDHW, 2 PV
- Five participants also purchased on-demand water heaters for improved system efficiency



Testimonial

- Jessy Kahn writes, “I'm happy to report that I love my solar panels. The installation was painless and my array is making electricity every day. I am using the power myself and am comfortable with this solution, preferring to not add any more complications to my tax return..... I highly recommend this purchase to other neighbours and hope that more people will want to jump on such a worthy bandwagon. Thanks again for organizing everything.”



Lessons Learned

■ Project Organization

- Consider a more formal organizational structure.
- Ask participants to purchase a membership - increases buy-in, provides operating funds.
- Consider incorporating –project eligible for grant money, management of liability risk.
- Get lots of people involved – projects very time consuming, increase community involvement.



■ Residents' Associations

- Working with them very useful
- Solicit support from local politicians

■ Marketing

- Good web presence essential
- Better information on SOC and connection processes
- Have vendors at public meeting for better engagement of vendor and participants
- Creative marketing required for systems with community benefits but challenging economics



■ Vendor Selection

- Don't rush selection process budget sufficient time
- Select vendors eligible for government grants
- Invest time in project/vendor relationship

■ Project Management Challenges

- Maintain close contact with vendors throughout site inspection/contract signing/installation process
- Maintain dialogue with participants to assist in closing contracts and installation/connection
- Address potential for conflict when two vendors share roof space



■ Standard Offer Contract Challenges

- SOP PV tariff at \$ 0.42/kWh is too low for realistic payback
- Consumers need clear direction on role Province wants residential solar to play
- Signup process is complex – need strong support with paperwork from vendor or project coordinator
- Participants need to sign up early – OPA approval can take a long time.
- Wait until OPA contract is signed before installing system – conversion from net metering to SOC connection adds cost and complexity



■ Connections and Building Permits

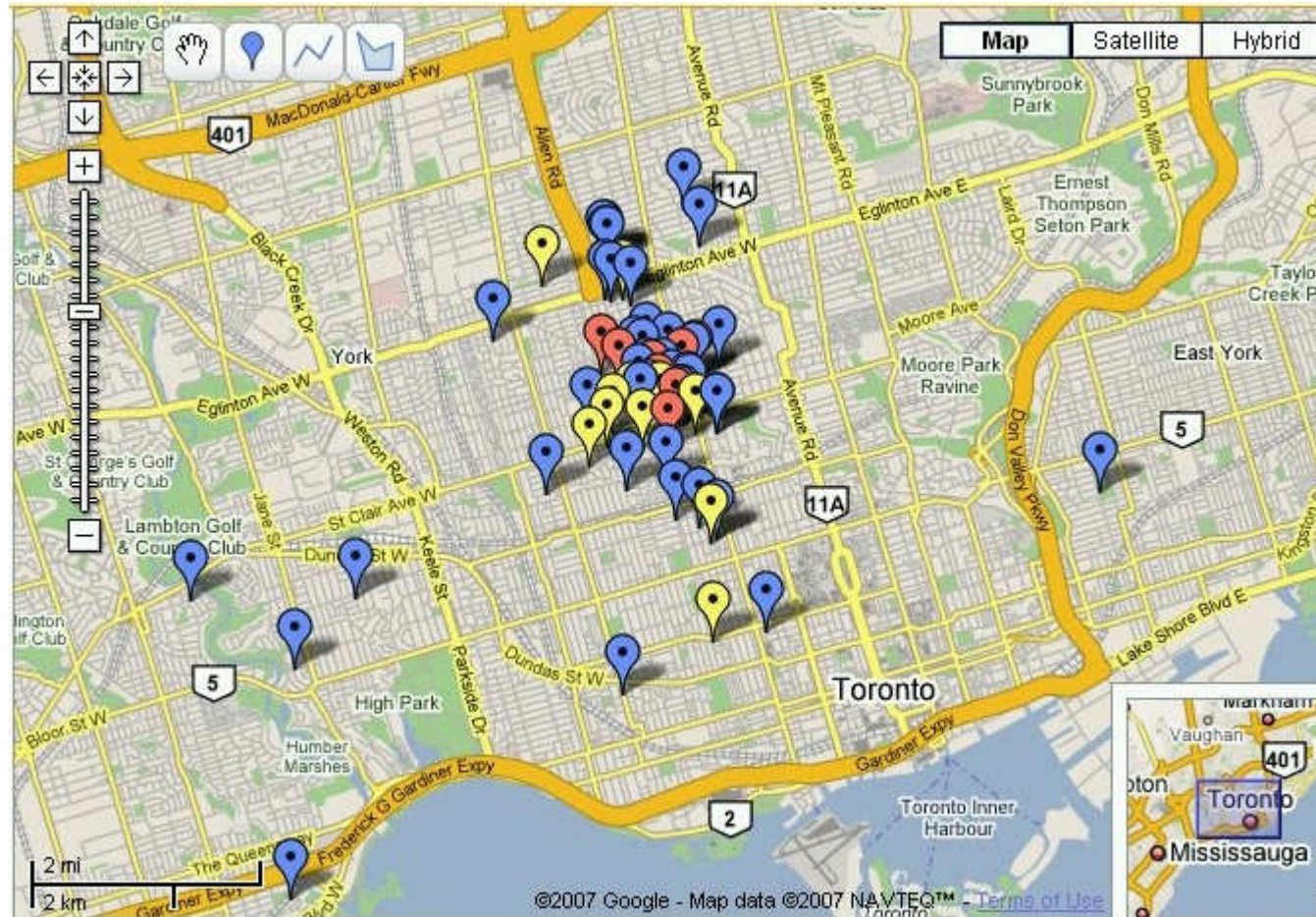
- Major challenges in getting first systems connected due to teething troubles at Toronto Hydro – proactively meet with LDC to set up connection process.
- Permitting challenges exist for both PV and hot water – proactively meet with permit department to address challenges early
- Generation under SOP still requires commercial zoning in Ontario
- Property Insurance - no precedent on this. Each installation unique, project participants need to deal with their own insurance company



What We Did in West Toronto

- 300+ people joined the project from the St. Clair West, Bathurst St., Eglinton West area
- 162 people have requested evaluation of solar potential of their home – only 14 homes were unsuitable - 44% purchased
- We currently have commitments for the installation of 55 SHW and 26 Solar PV (total 57.4 KW – 5 < 2 KW, 10 2 KW, 8 > 2 KW) installed value more than \$720,000
- Installations are ongoing

WISE Solar Installations



Claxton Blvd. – the first installation



Aldburn Road



Pinewood Avenue



Ilford Ave.





The first meeting – June 2006

- Organized by Jed and Sheila Goldberg with enthusiastic support from our Ward 21 Councilor Joe Mihevc
- 50 interested folks the first night grew into an email list of 300+ participants after two more meetings in July and August



Working through the Winter

- Nov/06 Ontario Government announces the Renewable Energy Standard Offer Program will pay 42 cents per kwh for electricity produced from solar PV panels
- Committee of six develops a request for proposals from vendors for Solar Thermal and Solar PV systems



Gaining Momentum

- May 1 RFP based on DWSEP model sent out through CANSIA and OSEA
- May 24 deadline yielded 7 PV proposals and 3 Solar Thermal proposals
- June 9 we announced selection of ARISE Technologies as our PV vendor and Globe Solar Energy as the SHW vendor



ARISE Technologies Inc.

- Competitive pricing on cost per watt basis
- Very responsive to our follow-up questions
- WISE project would be their priority
- Good ideas on site evaluation and installation strategies



Globe Solar Energy

- Were able to visit a number of installations and users in Toronto
- Excellent pricing
- Integrated IP-195 unit provides a simple low maintenance solution
- NRCan approval for IP-195 unit
- Test data from National Solar Lab done by Bodycote
- Solar Keymark certification of Jiangsu SunRain plant in China



Making Our Pitch

- June 14th emailed our solar information kit complete with system pricing to our 300 participants and put the material up on our website wise.ourpower.ca
- June 19th – 150 people attend our first solar information night and 72 people sign-up for solar evaluation home visits



Making Our Pitch

- July 11th – our second solar information night built our sign-up numbers to 111
- July 20th – by the cutoff date for qualifying for the bulk discount 145 people had signed up for evaluations
- Added 17 more over the summer
- First solar HW installation July 5th
- First Solar PV installed July 15th



Site Data – 162 Sites

Site Type	#	System Purchase	PV	SHW	Both
A	59	54%	17	20	5
B	51	43%	9	18	5
C	14	28%	0	4	0
HW only	38	34%	0	13	0



RFP process

- Was a lot of work but educated committee, DWSEP model invaluable
- Reassured us when we received 10 quality proposals
- Very similar pricing on Top 3 proposals
- Learned a lot from information on process and costs re OPA, Toronto Hydro and ESA



Customer Management

- Both vendors and our committee were unprepared to deal with large numbers in beginning
- Both vendors lacked experience in contact management but added extra capacity living in Ward 21 area which helped
- Summer timing hampered customer engagement
- Collaborating with U of Waterloo on Phase 1 evaluation



Installation Issues

- Working out rough spots with OPA on SOC, with Toronto Hydro and ESA on connection issues and City of Toronto on Building Permits have all taken significant amounts of time and represent at least 7% of PV installed costs
- Hopefully will pay dividends next install season
- Will be some installations held over until next year



WISE Round 2

- Significantly improve and expand our marketing outreach in community
- Improve and expand use of and information available through our on-line presence
- Improve efficiency of our contact management and data gathering especially at first in home contact, need full time coordinator
- Start in Feb/March to build lists for Spring installation and get OPA, Toronto Hydro and City of Toronto involved earlier in process



What Serious Targets Look Like

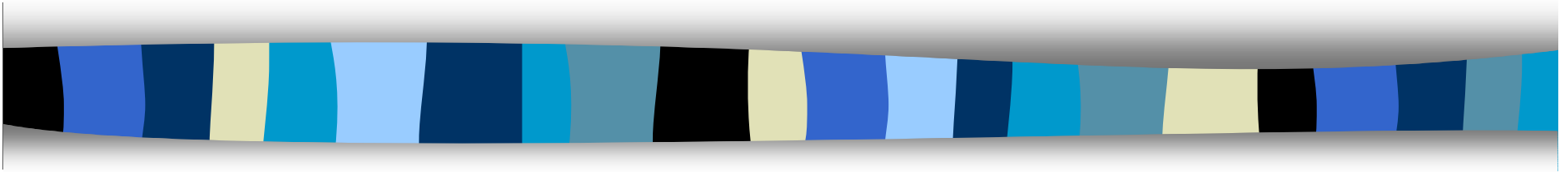
- Ward 21 population 48,000
- 8,000 detached or semi-detached houses
- 60% of households in apartments
- To match Austrian installed SHW capacity of 1 in 7 households would mean 1143 installations on Ward 21 houses
- German 2006 installed PV levels - 18.9 w/per capita versus Ward 21 level of 1.2 w/per capita to date



What can Ontario solar industry do?

- Set up a committee of vendors who are interested in the community market
- Jointly work on outstanding issues to make process easier and less expensive both for vendors and end users.
 - Connection issues -- OPA sign-up procedure
 - Building permits -- RFP Process
 - Effective marketing -- Financing options
 - Potential concentration of business in small number of vendors
 - Attractive pricing for customer, maintaining suitable margins.

Bring On The Sun



And the questions, comments
and ideas

Thank you

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