

# Eco-Solar Contacts and Services

Better choices. Better homes. Better lives.

ver 7.18



*People who say it cannot be done  
should not interrupt those who are doing it.  
George Bernard Shaw*

*We do not inherit this land from our ancestors  
we borrow it from our children.  
Haida aboriginal saying*

The question then is: Is the land we are giving our children worth living in?

**The end of cheap oil and gas**  
*-- not a question of IF, but when.  
Don't fear it. Instead choose to prepare for it.*

## Introduction

Like many other people, we are **not** sitting back and complaining about our utility bills – natural gas, electricity, and water – or complaining about government or corporate policies and actions regarding the degradation of our environment.

- Our utility bills are our own making.
- The environment issues are our own making.
- Why should we expect someone else (like the government) to pay for our actions of how we are using our energy and water resources, and the resulting air, water and land pollution and its effect on our health care costs and habitat?
- Why should we expect someone else (like our kids, our grand-kids and our neighbours) to clean up the environmental mess that we are leaving to them?

Instead, we are empowered.

- We are taking ownership of our future, our choices and our actions.
- We are acting on the values that are the basis for all the decisions we made in life.
- We are taking pro-active steps to increase the efficiency by which we use energy.
- We are reducing our energy bills and protecting ourselves from the risks of rising energy prices, the affordability of energy when we are retired, and the instability of energy pricing and energy delivery.
- We are reducing our contribution to our province's air, water and land pollution and greenhouse gas emissions.
- We want to get the brown layers of dirty air hanging over our cities eliminated so that we can lower our health costs and health discomforts.
- We are reducing our water consumption and reducing the amount of chemicals we put into the environment to clean our water and clean our sewage.
- We are reducing our water bills and protecting ourselves from the risks of rising water prices, water shortages, and water restrictions.

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■ Let him that would move the world first move himself.

Socrates, Greece



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## Energy Concerns – Reserves, Delivery, Prices or Environmental Damage?

1. People are now saying that the biggest issues with energy will not be:
  - whether there are sufficient energy reserves, nor
  - how the energy discovery, production, delivery, and consumption chain damages our pure air, water, land and habitat environment, nor
  - what the price might be, but rather
  - whether we will have the **delivery** infrastructure required to deliver it fast enough, and
  - whether we will be able to afford the cost of the new delivery infrastructure, especially in the light of its increasing age, and how it is fast coming to the end of its life and is needing to be replaced.

So it seems that the risk of getting energy when we want it is becoming more of a concern.

2. Many people do not consider solar energy and energy efficiency to be “cost effective” right now. No wonder that that is their perception. Our energy pricing policies favour the increased consumption of energy and not an increase in energy efficiency. There are many examples of this.
  - Perhaps the most well-known one is that we have natural gas price subsidies that range from 15% to 25% per year. These act as a “negative” solar heating subsidy.
  - We have not placed much in the way of any value on the benefits of a clean environment. Environmental damages and the ensuing increased health issues and costs to the health care system are not born by the energy prices but rather by the health care system. Our prices of electrical energy need to triple in order to pay for its damage to our health care system. See footnote at the bottom of this page. Likely similar comments can be said for energy from natural gas, oil and the tar sands.
  - The incentives to reduce energy purchases are very weak: e.g. Canada’s \$500 (Alberta’s proposed \$100) to install an \$8000 solar domestic water heating system; Canada’s \$500 (plus another \$500 from the City of Edmonton plus Alberta’s proposed \$100) to install a \$5000 high efficiency furnace.
  - Our energy and water utility bills are very confusing. They very effectively mask the real price of the energy and water that we are consuming.
  - Very low energy standards for energy efficient housing. No standards for solar energy use. Underdeveloped standards for solar heating equipment.

The result of low fossil fuel prices, high subsidies, weak policies and its resulting weak leadership is that the supply chain for solar heating and solar electricity is very tiny and not strong.

## Energy Efficiency and Solar Energy – cost-effective? or smart planning?

When solar energy and energy efficiency do become “cost effective”, then everyone will be wanting it. Society then will be scrambling to develop the capacity to deliver on the equipment, installation and training. The result of this is that you will be facing very long line-ups. We are just starting to see this already:

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- Ontario Ministry of Energy. Cost Benefit Analysis: Replacing Ontario’s Coal-Fired Electricity Generation. 93 pp. See pdf file pages 3, 49, and 59. Prepared by DSS Management Consultants, RWDI Air. 2005 April. This report can be downloaded from ([http://www.energy.gov.on.ca/english/pdf/electricity/coal\\_cost\\_benefit\\_analysis\\_april2005.pdf](http://www.energy.gov.on.ca/english/pdf/electricity/coal_cost_benefit_analysis_april2005.pdf))



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- As of 2008 April, NorthWest Airlines and Delta Airlines in America are now facing a 7000 aircraft backlog and a line-up until 2012 before they can get new energy efficient aircraft. It is now not an issue of whether they can afford the new planes, but rather can they survive the wait?
- Solar electricity is a \$16 billion per year industry. The demand is growing at 50% per year world-wide. There are cyclical price increases and decreases as manufacturers scramble to build new factories to keep up with the demand.
- Now we are being told that we should expect the price of oil to \$200 per barrel, and that in 2010, we should expect that the price of gasoline will be \$2.25 per litre. Already in Germany it is \$2.38 per litre. Do the car companies have sufficient capacity to deliver us energy efficient cars (and do we have the capacity to buy them) by 2010?
- Now we are being told that we need to become more proficient gardeners and start to prepare our summer food for winter consumption because we will not like the price of our winter food because over its very high transportation costs with high price oil and long distances. Local food will be in much higher demand, which is great. Will we have the labour to produce it?

So is the decision to become energy efficient and use solar energy a consideration of whether or not it is "cost effective" or is it just a consideration of being smart about planning to reduce your exposure to the future energy supply and environmental risks?

Now you can have it and you can afford it... in the future, will you be able to afford the wait?

## **Leadership**

Instead of us thinking only about the next 5 years, we need to be wondering about the risks mentioned above. Will we be able to afford our energy needs or will we need to stand in line to buy the energy we need, let alone buy the equipment to reduce our energy bills?

A leader is someone who causes others to take effective action. Every society always needs leadership. At this time, we need to choose to be one of the leaders to our peers and networks that our society so sorely needs.

## **Introductory Renewable Energy Courses**

The Solar Energy Society of Canada—Northern Alberta Chapter (SESCI-NAC) offer courses in solar energy. Contact SESCO-NAC at +1 780 439 5608 or [www.solaralberta.ca](http://www.solaralberta.ca) for more information.

## **Eco-Solar Home Tour**

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Edmonton's Eco-Solar Home Tour is held annually on a Saturday in June. It shows what ordinary people are doing in becoming energy and water efficient, using solar electricity, solar heating, and water efficient and food producing landscaping. Find information on the tour and its homes at <[www.ecosolar.ca](http://www.ecosolar.ca)>. Please send an e-message to <[hometourinfo@ecosolar.ca](mailto:hometourinfo@ecosolar.ca)> to be put on our mailing list. In May, we send out information about the Tour. You can also find out how to organize a tour for your own town so that you can be leaders to your own peers, and make a difference where you live.

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- Never doubt that a small group of thoughtful and committed citizens can change the world. Indeed, it is the only thing that ever has.

+Margaret Mead



# Eco-Solar Contacts and Services

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## Table of Contents

The following tables list contacts and services where you can find information, designs, and products dealing with solar water heating, solar air heating, solar electricity, solar illumination, green electricity, renewable fuels, energy efficient healthy homes, and energy efficient products. This is not a complete list, but it lets you know of many of the leading providers of information, products and services.

The information in these tables is focussed on meeting the needs of people in Alberta. As a result, most of the information sources and service and product suppliers are also, but not exclusively, in Alberta.

These web site addresses were valid when this list was produced, but may have changed in the meantime. You can always use a web search engine (such as <www.google.com>) to find additional web sites very easily.

By being included in this contact list, it does not mean that this information and these suppliers are endorsed. The intent of this list is merely to help you connect to the sustainable information, products and services that you are wanting to find. Please contact Gordon Howell at +1 780 484 0476 <ghowell@hme.ca> to correct any errors or omissions.

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- Change only favours minds that are diligently looking and preparing for discovery. Louis Pasteur
  - Anyone who thinks they are too small to make a difference has never spent the night with a mosquito. African Proverb



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**Why we highly recommend that you choose suppliers who are members of their industry's association!**

- Membership in an association that consists of a company's colleagues, competitors and industry peers indicates the value that a company places in openness, credibility, trust, ethics, respect, integrity, and scrutiny before their own peers – these are the hallmarks that show that an industry and its members are striving to serve society well.
- If your suppliers do not belong to their industry's association, why not ask them about it – it might tell you something about which you should be aware! Lack of membership may indicate that a company does not have a respected position in the industry or a mature understanding of their technology!
- The symbol CANSIA next to the supplier below indicates that the supplier is a member in good standing of the Canadian Solar Industries Association <www.cansia.ca>. The symbol CANWEA indicates member in good standing with the Canadian Wind Energy Association <www.canwea.ca>. These are important symbols to look for when you choose your suppliers.

**Table 1. Information and Training**

# Information and Training	Supplier
1. Interactive web sites with all forms of renewable energy.	Natural Resources Canada (NRCan) Renewable Energy & Electricity Division Phone: 1 800 387 2000 p1 <a href="http://www.reed.nrcan.gc.ca">http://www.reed.nrcan.gc.ca</a> E-mail: reed.dere@nrcan.gc.ca
2. "The Canadian Renewable Energy Guide". 228 pages with solar energy and all renewable energy sources, case studies, and suppliers. \$35 incl GST & shipping.	Solar Energy Society of Canada Published by the General Store Publishing House, Ontario. Phone: 1 800 465 6072 <a href="http://www.gsph.com">http://www.gsph.com</a>
3. The web site address is dedicated to news about solar buildings in Canada.	Solar Buildings Research Network <a href="http://www.solarbuildings.ca/en/news">http://www.solarbuildings.ca/en/news</a>
4. What is solar, do you need it, how to get it and where?	Ecofys, Netherlands <a href="http://www.mysolar.com">http://www.mysolar.com</a>
5. A great web site with links to many forms of energy.	Energy: Prospects and Alternatives <a href="http://www.autobahn.mb.ca/~het/energy.html">http://www.autobahn.mb.ca/~het/energy.html</a>
6. Great web site on many forms of energy and energy issues.	Union of Concerned Scientists <a href="http://www.ucsusa.org">http://www.ucsusa.org</a>
7. Information on sustainability, architecture, and environmental design. One of the best sources of information on solar options.	National Solar Architecture Research Unit, Sydney, Australia. <a href="http://www.fbe.unsw.edu.au/units/solarch/sustaininfo.htm#energy">http://www.fbe.unsw.edu.au/units/solarch/sustaininfo.htm#energy</a>
8. Canadian Renewable Energy Network – a great web site that gives lots of information about renewable energy in Canada	Natural Resources Canada <span style="border: 1px solid black; padding: 2px;">CANSIA</span> <span style="border: 1px solid black; padding: 2px;">CANWEA</span> Phone: 1 800 387 2000 p1 <a href="http://www.canren.gc.ca">http://www.canren.gc.ca</a>

- I hope we don't have to wait until oil and coal run out before we tackle solar power.  
Thomas Edison (1847-1931)
- The future does not belong to those who are content with today, fearful in the face of new ideas and bold projects. It will belong to those with a personal commitment.  
Robert Kennedy 1966



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#	Information and Training	Supplier
9.	American Energy Efficiency and Renewable Energy Network	American Department of Energy <a href="http://www.eere.energy.gov">http://www.eere.energy.gov</a>
10.	Renewable energy project kits for schools. <a href="http://www.re-energy.ca">http://www.re-energy.ca</a>	Re-Energy.ca, a renewable energy education project of The Pembina Institute, Drayton Valley <span style="border: 1px solid black; padding: 2px;">CANWEA</span> Phone: +1 780 542 6272 <a href="http://www.pembina.org">http://www.pembina.org</a>
11.	The voice of Canada's solar industry. Their web site has contacts for all solar companies, products, and services.	Canadian Solar Industries Association, Ottawa <span style="border: 1px solid black; padding: 2px;">CANSIA</span> Phone: 1 866 522 6742 E-mail: <a href="mailto:info@cansia.ca">info@cansia.ca</a> <a href="http://www.cansia.ca">http://www.cansia.ca</a>
12.	Very active grassroots organisation focussed on solar public education. Introductory courses on solar energy.	Solar Energy Society of Canada, Northern Alberta Chapter, Edmonton Phone: +1 780 439 5608 <a href="http://www.solarenergysociety.ca">http://www.solarenergysociety.ca</a> <a href="http://www.solaralberta.ca">http://www.solaralberta.ca</a>
13.	Edmonton's Eco-Solar Home Tour is held annually on a Saturday in June. Send an e-message to be put on the mailing list.	Eco-Solar Home Tour Society of Alberta E-mail: <a href="mailto:hometourinfo@ecosolar.ca">hometourinfo@ecosolar.ca</a> <a href="http://www.ecosolar.ca">http://www.ecosolar.ca</a>
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14.	Calgary's Eco-Solar Expo is held annually on a Saturday in September.	Eco Living Fair <a href="http://www.ecolivingfair.ca">http://www.ecolivingfair.ca</a>
<b>"Your Sustainable Lifestyle Begins Here"</b>		
15.	Calgary's eco-efficiency information centres.	Clean Calgary Association, Calgary Phone: +1 403 230 1443 <a href="http://www.cleancalgary.com">http://www.cleancalgary.com</a>  Sustainable Calgary <a href="http://www.sustainablecalgary.ca">http://www.sustainablecalgary.ca</a>
16.	Helps you make choices that have positive consequences. Free online magazine to give you resources and tips about sustainable living.	REAP Calgary (Respect for the Earth and All People) <a href="http://www.reapcalgary.com">http://www.reapcalgary.com</a>
17.	"Why did I join the Peace Energy Cooperative? Once my children were born, I began to think about their future. The more I read, the more I understand how totally reliant our society is on cheap, non-renewable fossil fuel energy. In the not too distant future, this ecological destructive energy source will be so depleted that our children will eventually have no choice but to rely on alternative sources of energy. I wanted to do something positive today.  By joining Peace Energy, I feel that I am not only supporting local ownership of the energy supply, but also helping ease the transition to a sustainable energy future."	Peace Energy Co-operative 8 Phone: +1 250 784 3880 E-mail: <a href="mailto:peaceenergy@pris.ca">peaceenergy@pris.ca</a>  <b>"Generate the Future"</b>

■ It's not that we CAN make a difference; it's that we DO make a difference.



Julia Butterfly Hill



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**Table 2. Sustainable Materials**

1. Information on "green" products and services.	Environment Canada   <a href="http://www.buygreen.com">http://www.buygreen.com</a>
2. Online list of green building products and materials that offer an ethical, health-conscious, environmentally low-impact and cost-effective alternative to current standards in interior and exterior building design.	EcoAmmo <a href="http://www.ecoammo.com">http://www.ecoammo.com</a> Phone: +1 780 466 7616  Green Alberta <a href="http://www.greenalberta.ca">http://www.greenalberta.ca</a>
3. General information about green products. On-line database of environmentally preferable products, services and companies.	Procara – Centre for Indigenous Environmental Resources GreenPurchasing.ca <a href="http://www.greenpurchasing.ca">http://www.greenpurchasing.ca</a> <a href="http://www.procara.ca">http://www.procara.ca</a>
4. A database of over 1,000 eco-labelled products	Green Building Materials Virtual Sample Room, Canada <a href="http://www.designinggreen.com">http://www.designinggreen.com</a>
5. Lists of eco-products	Home Power Magazine, America <a href="http://www.homepower.com">http://www.homepower.com</a>



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**Table 3. Climate Change, Sustainable Agriculture**

#	Climate Change, Sustainable Agriculture	Supplier
1.	Take the Climate Challenge – stories about Alberta individuals, businesses and groups taking steps to save energy, reduce greenhouse gas emissions and benefit the environment.	Energy Solutions Alberta <a href="http://www.energysolutionsalta.com">http://www.energysolutionsalta.com</a>
2.	Leading Alberta's proactive response to climate change.	Climate Change Central, Edmonton and Calgary Phone: 1 866 609 2700 <a href="http://www.climatechangecentral.com">http://www.climatechangecentral.com</a>
3.	The best place on the web to have fun and learn about climate change! Special resources for teachers and students.	Climate Change Challenge, Edmonton Phone: +1 780 433 8711 ext 226 <a href="http://www.co2challenge.com">http://www.co2challenge.com</a>
4.	Climate Change has been called the most significant environmental problem the world has ever faced!	Environment Canada <small>CANSIA</small> Climate Change <a href="http://www.ec.gc.ca/climate/home-e.html">http://www.ec.gc.ca/climate/home-e.html</a>
5.	Leading Canada's response to climate change: understanding, addressing, impacts and taking action	Natural Resources Canada <small>CANWEA</small> <a href="http://climatechange.nrcan.gc.ca">http://climatechange.nrcan.gc.ca</a> Climate Change <a href="http://climatechange.gc.ca">http://climatechange.gc.ca</a>
6.	You can learn about and buy CO <sub>2</sub> offsets here so that you can live with zero net CO <sub>2</sub> emissions!	Climate Partners, Victoria, BC Phone: +1 250 381 5550 <a href="http://www.climatepartners.com">http://www.climatepartners.com</a>
7.	Personal Climate Change Calculator	University of British Columbia, Vancouver, BC <a href="http://www.climcalc.net">http://www.climcalc.net</a>
8.	Very interesting personal ecological footprint calculator!	Redefining Progress, California, America <a href="http://www.lead.org/leadnet/footprint/intro.htm">http://www.lead.org/leadnet/footprint/intro.htm</a>
9.	To help farmers and ranchers adopt practices that are economically viable, environmentally sound and socially responsible.	Sustainable Agriculture Network, America Phone: +1 202 720 5384 <a href="http://www.sare.org">http://www.sare.org</a>
10.	To promote agricultural and food systems that are economically viable, sustain natural resources and biodiversity, and enhance the quality of life.	University of California Sustainable Agriculture Research and Education Program, Davis, CA, America Phone: +1 530 752 7556 <a href="http://www.sarep.ucdavis.edu">http://www.sarep.ucdavis.edu</a>
11.	To promote sustainable farming, food distribution, consumption, and biocycling. To enhance local and regional food security in ways that are economically viable, socially just, and environmentally sound.	World Sustainable Agriculture Association, America Phone: +1 202 293 2155 E-mail: <a href="mailto:waaa@igc.apc.org">waaa@igc.apc.org</a> . <a href="http://www.bcca.org/services/lists/noble-creation/waaa.html">http://www.bcca.org/services/lists/noble-creation/waaa.html</a>

■ Be the change you want to see in the world.

Mahatma Gandhi

■ In the past 30 years, 1/3 of Earth resources have been consumed. In the next 50 years, the population will double, & natural resources will fall by 50 - 75%/person.

Worldwide Fund for Nature, 1998





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**Table 4. Solar Water Heating**

The symbol CANSIA next to the supplier below indicates that the supplier is a member in good standing of the Canadian Solar Industries Association <[www.cansia.ca](http://www.cansia.ca)>.

#	Solar Water Heating	Supplier
1.	"Solar Water Heating Systems – A Buyer's Guide". Introduction to solar domestic water heating. 22 pages. ISBN 0-662-28486-0	Natural Resources Canada Now out of print, but available for download from: <a href="http://www.ecosolar.ca/information/Solar_Water_Heating_Systems_-_A_Buyer's_Guide.pdf">http://www.ecosolar.ca/information/Solar_Water_Heating_Systems_-_A_Buyer's_Guide.pdf</a>
2.	Canada's Eco Energy Programme	Natural Resources Canada Phone: 1 800 622 6232 <a href="http://www.ecoaction.gc.ca/index-eng.cfm">http://www.ecoaction.gc.ca/index-eng.cfm</a>
3.	Consulting engineering, development of commercial solar water heating systems.	Howell·Mayhew Engineering, Edmonton <span style="border: 1px solid black; padding: 0 2px;">CANSIA</span> Phone: +1 780 484 0476 E-mail: <a href="mailto:ghowell@greenheat.ca">ghowell@greenheat.ca</a>
4.	Manufacturer of active flat-plate solar water heating systems.	TrimLine Design Centre, Edmonton <span style="border: 1px solid black; padding: 0 2px;">CANSIA</span> Phone: +1 780 466 9034 <a href="http://www.trimlinedesigncentre.com">http://www.trimlinedesigncentre.com</a>
5.	Manufacturer of active flat-plate solar water heating systems.	Thermo Dynamics Limited, Dartmouth, NS <span style="border: 1px solid black; padding: 0 2px;">CANSIA</span> Phone: +1 902 468 1001 <a href="http://www.thermo-dynamics.com">http://www.thermo-dynamics.com</a>
6.	Manufacturer of passive solar water heaters. Supplier of active and passive solar water heating systems.	Taylor Munro Energy Systems, Delta, BC <span style="border: 1px solid black; padding: 0 2px;">CANSIA</span> Phone: +1 604 946 4433 <a href="http://www.taylormunro.com">http://www.taylormunro.com</a>
7.	Manufacturer of active flat-plate and passive solar water heating systems.	Solcan Ltd, London, ON <span style="border: 1px solid black; padding: 0 2px;">CANSIA</span> Phone: +1 519 473 0501 <a href="http://www.solcan.com">http://www.solcan.com</a>
8.	Supplier of <i>Thermomax</i> evacuated tube solar water heating systems.	Thermomax Industries, Victoria, BC <span style="border: 1px solid black; padding: 0 2px;">CANSIA</span> Phone: +1 250 721 4360 <a href="http://www.solarthermal.com">http://www.solarthermal.com</a>
9.	Supplier and installer of solar water heating systems.	Boyd Solar, Didsbury Phone: +1 403 335 3330 <a href="http://www.boysolar.com">http://www.boysolar.com</a>
10.	Supplier of solar heating systems and components, professional site design services.	Energy Alternatives <span style="border: 1px solid black; padding: 0 2px;">CANSIA</span> Phone: +1 800 265 8898 <a href="http://www.eneralternatives.ca">http://www.eneralternatives.ca</a>
11.	Supplier and installer of solar water heating systems.	Home Pure Water & Solar, Edmonton <span style="border: 1px solid black; padding: 0 2px;">CANSIA</span> Phone: +1 780 470 3197 E-mail: <a href="mailto:homepure@telusplanet.net">homepure@telusplanet.net</a>
12.	Consulting engineering, supplier and installer of solar domestic water heating systems.	Sedmek Inc., Calgary <span style="border: 1px solid black; padding: 0 2px;">CANSIA</span> Phone: +1 403 804 3223 E-mail: <a href="mailto:sedmek@telus.net">sedmek@telus.net</a> <a href="http://www.sedmek.com">www.sedmek.com</a>
13.	Supplier and installer of solar domestic water heating systems.	Tim Belec, Battle Lake Phone: +1 780 586 3633 E-mail: <a href="mailto:tbelec@telusplanet.net">tbelec@telusplanet.net</a>

■ If not here... then where?

If not you... then who?

If not now... then when?

■ The Earth provides enough to satisfy every man's need, but not every man's greed.

(Mahatma) Mohandas Karamchand Gandhi, India



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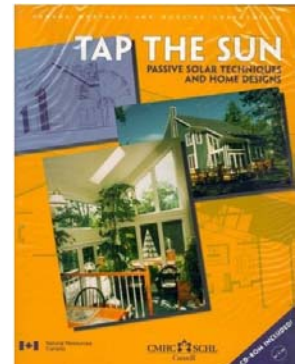
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#	Solar Water Heating	Supplier
14.	Supplier and installer of solar domestic water heating systems.	TrimLine Design Centre, Edmonton <span style="border: 1px solid black; padding: 0 2px;">CANSIA</span> Phone: +1 780 466 9034 <a href="http://www.trimlinedesigncentre.com">http://www.trimlinedesigncentre.com</a>
15.	Supplier and installer of <i>Helicol</i> solar pool heating systems.	Total Pool & Spa Care, Edmonton Phone: +1 780 453 5708

## Table 5. Solar Space Heating.

The symbol CANSIA next to the supplier below indicates that the supplier is a member in good standing of the Canadian Solar Industries Association <[www.cansia.ca](http://www.cansia.ca)>.

#	Solar Space Heating	Supplier
1.	" <i>Tap the Sun: Passive Solar Techniques and Home Designs</i> ". 136 pages+CD, \$39.95. A must-have reference for builders, designers and architects. Includes solar radiation; solar energy collection and window performance; heat storage and distribution; shading and summer comfort; window selection considerations; design integration and site planning; and overheating. Includes 20 solar home designs. Includes a CD-ROM with window selection software, database listings and healthy housing tips.	Canada Mortgage and Housing Corporation Phone: 1 800 668 2642 <a href="http://www.cmhc.ca/od/?pid=60940">http://www.cmhc.ca/od/?pid=60940</a>
2.	" <i>Heating your Building with Solar Energy – Efficient, Simple and Cost Effective</i> "	NRCan, Renewable Energy & Electricity Division <a href="http://www.canren.gc.ca/prod_serv/index.asp?Cald=137&amp;PgId=742">http://www.canren.gc.ca/prod_serv/index.asp?Cald=137&amp;PgId=742</a> Phone: 1 800 387 2000 p1
3.	Information on Cereal Grain Drying and Storage, including solar crop drying.	Alberta Agriculture, Food, and Rural Development <a href="http://www.agric.gov.ab.ca/crops/cer-drystore.html">http://www.agric.gov.ab.ca/crops/cer-drystore.html</a>
4.	<ul style="list-style-type: none"> <li>• Passive solar shop heating, plan #9731.</li> <li>• Solar ventilation wall with heat storage, plan #9732.</li> </ul>	Canada Plan Service Phone: +1 403 381 5112 c/o Alberta Agriculture <a href="http://www.cps.gov.on.ca">http://www.cps.gov.on.ca</a>
5.	Commercial and residential design focussing on energy efficiency, indoor air quality, active and passive solar space heating.	Tang Lee, Professor of Architecture, Faculty of Environmental Design, University of Calgary. Phone: +1 403 220 6608 E-mail: <a href="mailto:lee@ucalgary.ca">lee@ucalgary.ca</a>
6.	Climate adapted, energy sensitive, sustainable, and healthy passive solar and energy-efficient home design. Publisher of SolPlan Review.	Richard Kadulski Architect, Vancouver, BC Phone: +1 604 689 1841 E-mail: <a href="mailto:kadulski@direct.ca">kadulski@direct.ca</a>



■ If you're not in favour of zero waste, how much waste are you in favour of?

■ It is DIFFICULT to get a man to understand something when his SALARY depends on his NOT UNDERSTANDING IT.

Upton Sinclair



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#	Solar Space Heating	Supplier
7.	Specializing in barrier free design. Renovating his home to be passive solar heated, including solar water heating and a green "living" roof.	Ron Wickman Architect, Edmonton Phone: +1 780 430 9935 E-mail: rwickman@telusplanet.net
8.	Builder of net zero energy homes with energy efficiency, passive solar heating, solar PV, healthy indoor air quality, and sustainable products.	Habitat Studio and Design Workshop, Edmonton Phone: +1 780 433 1107 or Contact Peter Amerongen, +1 780 271 2633 <a href="http://www.habitat-studio.com">http://www.habitat-studio.com</a>
9.	Designers and project managers of passive and active solar and energy-efficient homes.	Solnorth Engineering, Edmonton Andy Smith, Dan Langford, Brian Johnston Phone: +1 780 461 8538, 922 5850, 433 7508 E-mail: asmith@compusmart.ab.ca
10.	Designer of passive solar and energy-efficient homes. Manufacturer of composting toilets.	Sunergy Systems, Cremona, AB Michael Kerfoot Phone: +1 403 637 3973 E-mail: sunergy@compostingtoilet.com
11.	Consulting engineering, supplier and installer of solar space heating systems	Sedmek Inc., Calgary <span style="border: 1px solid black; padding: 0 2px;">CANSIA</span> Phone: +1 403 804 3223 E-mail: sedmek@telus.net <a href="http://www.sedmek.com">www.sedmek.com</a>
12.	Distributors of the award-winning "Solarwall" commercial and residential solar air heating panels.	Astravan Distributors Ltd., North Vancouver, BC <span style="border: 1px solid black; padding: 0 2px;">CANSIA</span> Phone: 1 800 663 8405 <a href="http://www.astravan.com">http://www.astravan.com</a> <a href="http://www.solarwall.com">http://www.solarwall.com</a>
13.	Builder and supplier of handcrafted hobby greenhouse kits, greenhouse plans.	The Sun Country Greenhouse Company, Winnipeg, MB Phone: +1 204 896 3741 <a href="http://www.hobby-greenhouse.com">http://www.hobby-greenhouse.com</a>

**Table 6. Solar Electricity.**

The symbol CANSIA next to the supplier below indicates that the supplier is a member in good standing of the Canadian Solar Industries Association <[www.cansia.ca](http://www.cansia.ca)>.

#	Solar Electricity	Supplier
1.	"Photovoltaic Systems: A Buyer's Guide" Introduction to solar electricity for homes. 42 pages. ISBN 0-662-16385-0.	Natural Resources Canada Now out of print, but available for download from: <a href="http://www.ecosolar.ca/information/Photovoltaic_System_-_Buyer's_Guide.pdf">http://www.ecosolar.ca/information/Photovoltaic_System_-_Buyer's_Guide.pdf</a>
2.	"Introduction To Photovoltaic Systems", 4 pages.	Natural Resources Canada Now out of print, but available for download from: <a href="http://www.ecosolar.ca/information/Introduction_to_PV_Systems.pdf">http://www.ecosolar.ca/information/Introduction_to_PV_Systems.pdf</a>
3.	Answers and links to everything you wanted to know about PV!	Photovoltaics Frequently Asked Questions <a href="http://www.autobahn.mb.ca/~het/energy/pv_faq.html">http://www.autobahn.mb.ca/~het/energy/pv_faq.html</a>

- We possess our possessions and afterwards, our possessions possess us  
– paraphrase from Winston Churchill's quote
- The sustainability of our business depends on the sustainability of our planet, and its people.  
Mountain Equipment Co-Op



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#	Solar Electricity	Supplier
4.	A web site with many links to prominent PV companies, tutorials, information	Thin-Film Silicon and Photovoltaics Laboratory Institute of Microtechnology University of Neuchâtel, Switzerland <a href="http://www-micromorph.unine.ch/links/links.htm">http://www-micromorph.unine.ch/links/links.htm</a>
5.	Solar Photovoltaics Distance Education Program. Certified course in partnership with the Canadian Solar Industries Association (CanSIA) on solar electric power systems for electricians and installers.	Seneca College, Toronto, ON Phone: +1 416 491 5050 <a href="http://www.senecacollege.ca">http://www.senecacollege.ca</a> <a href="http://www.senecac.on.ca/eto/pages/photovol.html">http://www.senecac.on.ca/eto/pages/photovol.html</a>
6.	Solar photovoltaic training courses.	BCIT Technology Centre, Burnaby, BC <a href="http://www.tc.bcit.ca/pv">http://www.tc.bcit.ca/pv</a>
7.	Information on Fencing with Electricity, including solar electric fencing. Agdex 724-6.	Alberta Agriculture, Food, and Rural Development <a href="http://www.agric.gov.ab.ca/agdex/000/pp7246tc.html">http://www.agric.gov.ab.ca/agdex/000/pp7246tc.html</a>
8.	Consulting engineering and development of utility-connected solar electricity generating systems on houses, farms and businesses. Is Alberta's first supplier of clean solar electricity to the power grid.	Howell · Mayhew Engineering, Edmonton <span>CANSIA</span> Phone: +1 780 484 0476 E-mail: <a href="mailto:ghowell@hme.ca">ghowell@hme.ca</a>
9.	Supplier of solar electric systems and components, professional site design services.	Energy Alternatives <span>CANSIA</span> Phone: 1 800 265 8898 <a href="http://www.energyalternatives.ca">http://www.energyalternatives.ca</a>
10.	Supplier and installer of solar electric and wind electric systems.	Boyd Solar, Didsbury Phone: +1 403 335 3330 <a href="http://www.boysolar.com">http://www.boysolar.com</a>
11.	Wholesaler of solar electric systems and components for all applications.	Conergy, Edmonton <span>CANSIA</span> Phone: +1 780 489 3700 <a href="http://www.conergy.ca">http://www.conergy.ca</a>
12.	Supplier of solar water heating systems, solar electric systems, and wind electric systems.	Generation Solar Renewable Energy Systems, 18. Peterborough, ON <span>CANSIA</span> Phone: 1 877 747 6527 <a href="http://www.generationsolar.com">http://www.generationsolar.com</a>
13.	Supplier solar electric systems, including fencing.	Home Pure Water & Solar, Edmonton <span>CANSIA</span> Phone: +1 780 470 3197 E-mail: <a href="mailto:homepure@telusplanet.net">homepure@telusplanet.net</a>
14.	Supplier of solar electric systems.	Millennium Power, Edmonton Phone: +1 780 986 6095, 1 866 450 6186 <a href="http://www.milleniumpower.com">http://www.milleniumpower.com</a>
15.	Supplier of renewable energy products.	Northern Alternate Power Systems, Fairview, Alberta Phone: +1 780 835 3682 or 1 866 835 6277 E-mail: <a href="mailto:info@solar-store.com">info@solar-store.com</a> <a href="http://www.solar-store.com">http://www.solar-store.com</a>
16.	Supplier of solar electric systems and components for all applications.	Off The Grid, Edmonton Cell: +1 780 868 6952 E-mail: <a href="mailto:sales@getoffthegrid.ca">sales@getoffthegrid.ca</a> <a href="http://www.getoffthegrid.ca">http://www.getoffthegrid.ca</a>

- If we are going to throw anything out, let it be the concept of garbage.
- Every great movement must experience three stages: ridicule, discussion, adoption. John Stuart Mill



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#	Solar Electricity	Supplier
17.	Consulting engineering and supplier of solar electric systems.	Sedmek Inc., Calgary <span>CANSIA</span> Phone: +1 403 804 3223 E-mail: sedmek@telus.net <a href="http://www.sedmek.com">http://www.sedmek.com</a>
18.	Wholesaler of solar electric systems and components.	Carmanah, Calgary <span>CANSIA</span> Phone: 1 888 416 4488. 1 888 291 9039 <a href="http://www.carmanah.com">http://www.carmanah.com</a>
19.	Designer and supplier of solar electric systems and components for all applications.	Solar Solutions, Winnipeg, MB Phone: 1 800 285 7652 <a href="http://www.solarsolutions.ca">http://www.solarsolutions.ca</a>
20.	Supplier and installer of solar electric systems.	TrimLine Design Centre, Edmonton <span>CANSIA</span> Phone: +1 780 466 9034 <a href="http://www.trimlinedesigncentre.com">http://www.trimlinedesigncentre.com</a>

**Table 7. Wind Electricity**

The symbol CANWEA indicates member in good standing with the Canadian Wind Energy Association <[www.canwea.ca](http://www.canwea.ca)>. These are important symbols to look for when you choose your suppliers.

#	Wind Electricity	Supplier
1.	Lots of great information on small wind turbines on their web site.	Canadian Wind Energy Association Phone: 1 800 922 6932 <span>CANWEA</span> <a href="http://www.smallwindenergy.ca/en/SmallWind.html">http://www.smallwindenergy.ca/en/SmallWind.html</a>
2.	"An <i>Introduction To Stand-Alone Wind Energy Systems</i> ". 8 pages.	Natural Resources Canada Now out of print, but available for download from: <a href="http://www.ecosolar.ca/information/Introduction_to_PV_Systems.pdf">http://www.ecosolar.ca/information/Introduction_to_PV_Systems.pdf</a>
3.	" <i>Stand-Alone Wind Energy Systems: A Buyer's Guide</i> ". Introduction to microwind turbines. 51 pages. ISBN 0-662-37706-0	Natural Resources Canada Now out of print, but available for download from: <a href="http://www.ecosolar.ca/information/Stand-Alone_Wind_Energy_Systems_-_A_Buyer's_Guide.pdf">http://www.ecosolar.ca/information/Stand-Alone_Wind_Energy_Systems_-_A_Buyer's_Guide.pdf</a>
4.	Guided tour on wind energy.	Danish Wind Industry Association <span>CANWEA</span> <a href="http://www.windpower.org/tour/index.htm">http://www.windpower.org/tour/index.htm</a>
5.	Members are directly involved in the development and application of wind energy technology, products and services.	Canadian Wind Energy Association Phone: 1 800 922 6932 <span>CANWEA</span> <a href="http://www.canwea.ca">http://www.canwea.ca</a>
6.	Consulting engineering and development of wind electric systems.	Jones Group Engineering <span>CANWEA</span> Mary-Ellen Jones Phone: +1 403 395 3869 E-mail: <a href="mailto:JonesGroup@shaw.ca">JonesGroup@shaw.ca</a>
7.	Specialists in getting microwind turbines approved through Alberta's grid-connection regulations.	Howell · Mayhew Engineering, Edmonton Phone: +1 780 484 0476 E-mail: <a href="mailto:ghowell@hme.ca">ghowell@hme.ca</a>

- Some men have thousands of reasons why they cannot do what they want to, when all they need is one reason why they can.
- We have entered the post-oil era. I want to ... give a real impulse to energy savings and to the use of renewable energies. (Reuters, Paris, 2005 Sept 1)      Dominique de Villepin Prime Minister, France



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#	Wind Electricity	Supplier
8.	Supplier of wind electric systems and components, professional site design services.	Energy Alternatives Phone: +1 800 265 8898 <a href="http://www.energyalternatives.ca">http://www.energyalternatives.ca</a>
9.	Supplier and installer of wind electric systems.	Boyd Solar, Didsbury Phone: +1 403 335 3330 <a href="http://www.boysolar.com">http://www.boysolar.com</a>
10.	Supplier of solar water heating systems, solar electric systems, and wind electric systems.	Generation Solar Renewable Energy Systems, Peterborough, ON Phone: 1 877 747 6527 <a href="http://www.generationsolar.com">http://www.generationsolar.com</a>
11.	Consulting engineering and supplier of wind electric systems.	Sedmek Inc., Calgary Phone: +1 403 804 3223 E-mail: sedmek@telus.net <a href="http://www.sedmek.com">www.sedmek.com</a>
12.	Supplier and installer of wind electric systems.	TrimLine Design Centre, Edmonton <span style="border: 1px solid black; padding: 0 2px;">CANSIA</span> Phone: +1 780 466 9034 <a href="http://www.trimlinedesigncentre.com">http://www.trimlinedesigncentre.com</a>
13.	Supplier of EcoLogo-certified wind electricity.	BullFrog Power Phone: 1 877 360 3464 <a href="http://www.bullfrogpower.com">http://www.bullfrogpower.com</a>
14.	Developer, generator and supplier of EcoLogo-certified emissions-free, low-impact electricity from wind, small hydro, biomass, and natural gas. You can buy Renewable Energy Certificates from this company.	Canadian Hydro Developers, Calgary. Phone: +1 403 269 9379 <span style="border: 1px solid black; padding: 0 2px;">CANWEA</span> <a href="http://www.canhydro.com">http://www.canhydro.com</a>
15.	Supplier of EcoLogo-certified "Greenmax" wind and biomass electricity.	ENMAX Energy, Calgary Phone: 1 877 571 7111 <span style="border: 1px solid black; padding: 0 2px;">CANWEA</span> <a href="https://www.enmax.com/Energy/Res/Go+Green/Greenmax.htm">https://www.enmax.com/Energy/Res/Go+Green/Greenmax.htm</a>
16.	Developer, generator and supplier of EcoLogo-certified "Green Energy" wind electricity.	Vision Quest Windelectric, Calgary Phone: +1 403 289 4553 <span style="border: 1px solid black; padding: 0 2px;">CANWEA</span> <a href="http://www.greenenergy.com">http://www.greenenergy.com</a>

- All energy are not created equally. Some energy is black, some is green. Your choice...but everyone's consequences.
- I believe that life is meant to be lived. But if we live without making a difference, it makes no difference that we have lived...



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**Table 8. Solar or Wind-driven Water Pumping**

#	Solar or Wind-driven Water Pumping	Supplier
1.	Information on Pasture Water Systems for Livestock, including solar water pumping. Agdex 400/716-3.	Alberta Agriculture, Food, and Rural Development <a href="http://www.agric.gov.ab.ca/agdex/400/400_716-3.html">http://www.agric.gov.ab.ca/agdex/400/400_716-3.html</a>
2.	Supplier of solar water pumping equipment for the agriculture industry.	CAP Solar Pumps Ltd, Olds Phone: +1 403 556 8779 <a href="http://www.capsolar.com">http://www.capsolar.com</a>
3.	Supply, design, installation, and consulting engineering for solar water pumping.	Solar Solutions, Winnipeg, MB Phone: 1 800 285 7652 <a href="http://www.solarsolutions.ca">http://www.solarsolutions.ca</a>
4.	Supplier and installer solar water pumping systems.	Home Pure Water & Solar, Edmonton <span>CANSIA</span> Phone: +1 780 470 3197 E-mail: <a href="mailto:homepure@telusplanet.net">homepure@telusplanet.net</a>
5.	Supplier of solar water pumping systems, solar water heating systems, solar electric systems, small wind systems.	Generation Solar Renewable Energy Systems Peterborough, ON <span>CANSIA</span> Phone: 1 877 747 6527 <a href="http://www.generationsolar.com">http://www.generationsolar.com</a>
6.	Manufacturer and supplier of solar water pumping equipment for watering livestock, village water, micro irrigation, drainage and dewatering, landscaping, aeration.	Sunmotor International, Olds <span>CANSIA</span> Phone: +1 403 556 8755 <a href="http://www.sunpump.com">http://www.sunpump.com</a>
7.	Manufacturer and supplier of solar water pumping systems. Dealer for solar electric products.	Kelln Solar Water Pumping, Lumsden, SK Phone: 1 888 731 8882 <a href="http://www.kellnsolar.com">http://www.kellnsolar.com</a>
8.	Manufacturer of wind-driven water pumps	Dutch Industries, Pilot Butte, SK <span>CANWEA</span> Phone: 1 800 663 8824 <a href="http://www.dutchind.com">http://www.dutchind.com</a>

- The dependence on fossil fuels is a major barrier to improving human well-being around the globe.  
The New Economics Foundation
- As nearly every study shows, companies with better environmental performance consistently achieve superior financial and stock market performance.  
*Maximizing Environmental Benefits and Market Returns*, World Wildlife Fund



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**Table 9. Solar Illumination.**

#	Solar Illumination	Supplier
1.	Consulting engineering and development of solar-powered lighting systems.	Howell - Mayhew Engineering, Edmonton <span style="border: 1px solid black; padding: 0 2px;">CANSIA</span> Phone: +1 780 484 0476 E-mail: ghowell@hme.ca
2.	Supplier of solar- powered outdoor lighting products.	Solar Outdoor Lighting, Palm City, FL, America Phone: 1 800 959 1329 <a href="http://www.solarlighting.com">http://www.solarlighting.com</a>
3.	Supplier of solar- powered outdoor lighting products.	The LED Light.com. North Las Vegas, NV, America Phone: +1 702 657 6913 <a href="http://www.theledlight.com">http://www.theledlight.com</a>
4.	Supplier and installer of "Solatube" solar light pipes for solar daylighting.	Ceiling Centre, Edmonton Phone: +1 780 465 5358 <a href="http://www.solatube.com">http://www.solatube.com</a>
5.	Supplier of "Sunscope" solar light pipes for solar daylighting.	Sunscope, Edmonton Phone: +1 780 438 6770 <a href="http://www.sunscope.com">http://www.sunscope.com</a>
6.	Supplier of energy saving, compact fluorescent light bulbs, environment products and information.	Earth's General Store, Edmonton 2 <sup>nd</sup> floor, 10832 82 Ave. Phone: +1 780 439 8725
7.	Supplier of energy saving, compact fluorescent light bulbs	IKEA, Calgary, Edmonton Phone: +1 403 273 4338, +1 780 433 6000 <a href="http://www.ikea.ca">http://www.ikea.ca</a>
8.	Supplier of energy saving, compact fluorescent light bulbs	Revy Home and Garden Warehouse, Canada Phone: 1 800 808 2871 <a href="http://www.revy.ca">http://www.revy.ca</a>
9.	Supplier of energy saving, compact fluorescent light bulbs	Home Depot, Calgary, Edmonton Phone: +1 403 258 3800. +1 780 484 5100 <a href="http://www.homedepot.com">http://www.homedepot.com</a>

- Those who make peaceful change impossible, make violent change inevitable. John F. Kennedy
- It may seem impossible to imagine that a technologically advanced society could choose, in essence, to destroy itself, but that is what we are now in the process of doing. Elizabeth Kolbert, New Yorker





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**Table 10. Geothermal (Ground-Source Heat Pumps).**

"Geothermal" means "ground heat". Some groups call it "geo-exchange". For home and small business applications, geothermal systems use ground-source heat pumps (GSHP) to extract solar-supplied heat from shallow levels of the earth (down to 100 metres at most), and then "concentrate" this heat using electricity in order to upgrade the low temperature earth heat for use in a home or small building. GSHPs can provide air conditioning too if it is required by the building.

As with other technologies, GSHPs are changing and being improved too. Typically 30% to 35% of the supplied heat is derived from the electricity used to run the heat pump – this is called the co-efficient of performance (COP). Compared to an average home's utility bills, if you use a GSHP to provide all your space heating and domestic water heating, then you can go off the natural gas grid, you won't have a natural gas bill and your electricity consumption will double.

The savings on space and domestic water heating if you install a GSHP on an average home in Edmonton using 120 GJ of natural gas per year are typically \$440 per year (based on 2008 natural gas and electricity prices) if the GSHP provides all the home heating, all the domestic water heating and no air conditioning, if it is replacing a standard-efficiency furnace and if you keep the natural gas line. It will save an additional \$400 per year if you remove the natural gas line. For an older house for example, if you have a typical family of four and your annual heating bill is 200 GJ per year with a standard efficiency furnace, then your savings are \$700 per year or \$1100 if you remove the natural gas line if the GSHP provides all of the space and domestic water heating. Typical GSHP system installed costs are \$25 000 to \$50 000. Please ask your GSHP supplier to clearly provide you in writing with their estimated annual electricity consumption for space and water heating using their GSHP; this is not difficult to estimate.

Many new GSHP companies are being launched. Apparently there are over 10 in Edmonton alone! We would recommend that you deal with companies that are members of their GSHP association.

#	Geothermal	Supplier
1.	"Residential Earth Energy Systems - Buyer's Guide" Introduction to geothermal heating systems. 46 pages. ISBN 0-662-30980-4	Natural Resources Canada Now out of print, but available for download from: <a href="http://www.ecosolar.ca/information/Residential_Earth_Energy_Systems_-_Buyer's_Guide.pdf">http://www.ecosolar.ca/information/Residential_Earth_Energy_Systems_-_Buyer's_Guide.pdf</a>
2.	Designer and supplier of ground-source heat pumps	EarthNet Geothermal, Edmonton Phone: +1 780 466 4785 <a href="http://www.earthnetgeothermal.com">http://www.earthnetgeothermal.com</a>
3.	Designer and supplier of ground-source heat pumps	Geothermal Utilities, Edmonton Phone: +1 780 413 1723 <a href="http://www.geoutilities.ca">http://www.geoutilities.ca</a>
4.	Designer and supplier of ground-source heat pumps	P.C.I. Geothermal, Wetaskiwin Phone: +1 780 361 6313 <a href="http://www.pcigeothermal.com">http://www.pcigeothermal.com</a>
5.	Designer and supplier of ground-source heat pumps	REACT Energy, Calgary Phone: +1 403 873 0109 <a href="http://www.reactenergy.ca">http://www.reactenergy.ca</a>
6.	Designer and supplier of ground-source heat pumps	Threshold Energies, Edmonton Phone: +1 780 459 9433 <a href="http://www.thresholdenergies.com">http://www.thresholdenergies.com</a>

■ Where there is a will, there is a way... It's not about economics. It is about a will.

■ Landslides happen when small stones start to move.



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**Table 11. Energy Efficiency**

#	Energy Efficiency	Supplier
1.	Great web site with lots of information on energy efficiency in all areas.	Natural Resources Canada, Office of Energy Efficiency Phone: 1 800 387 2000 p1 <a href="http://oee.nrcan.gc.ca">http://oee.nrcan.gc.ca</a> <span style="border: 1px solid black; padding: 0 2px;">CANWEA</span> <a href="http://oee.nrcan.gc.ca/publications/infosource/home/">http://oee.nrcan.gc.ca/publications/infosource/home/</a>
2.	<ul style="list-style-type: none"> <li>• EnerGuide Appliance Directory</li> <li>• HVAC Energy Efficiency Ratings</li> <li>• EnerGuide for Houses</li> <li>• EnerGuide for Vehicles</li> </ul>	Natural Resources Canada, Office of Energy Efficiency EnerGuide Energy Efficiency Programme <span style="border: 1px solid black; padding: 0 2px;">CANWEA</span> Phone: 1 800 387 2000 p1 <a href="http://oee.nrcan.gc.ca/energuide">http://oee.nrcan.gc.ca/energuide</a>
3.	A good place to turn for information regarding energy efficiency.	Canadian Energy Efficiency Centre <a href="http://www.energyefficiency.org">www.energyefficiency.org</a>
4.	Eco-building links.	Sustainable Building Sources, America <a href="http://www.greenbuilder.com/general/BuildingSources.html">http://www.greenbuilder.com/general/BuildingSources.html</a>
5.	Information on energy efficient products and services in America	Consortium for Energy Efficiency, MA, America <a href="http://www.cceeformt.org">http://www.cceeformt.org</a>
6.	"Consumer's Guide to Buying Energy-Efficient Windows and Doors"	NRCAN, Office of Energy Efficiency <span style="border: 1px solid black; padding: 0 2px;">CANWEA</span> <a href="http://oee.nrcan.gc.ca/publications/infosource/pub/renovate/Consumers_Guide_EE_Windows_Intro.cfm">http://oee.nrcan.gc.ca/publications/infosource/pub/renovate/Consumers_Guide_EE_Windows_Intro.cfm</a>
7.	Benefits of energy efficient windows. How to select energy efficient windows. How windows work.	American Department of Energy, Windows and Glazing Program <a href="http://www.efficientwindows.org">http://www.efficientwindows.org</a>
8.	<ul style="list-style-type: none"> <li>• "Essential Tips for Conserving Energy" booklet</li> <li>• Appliance operating cost brochure</li> </ul>	EPCOR Utilities, Edmonton <span style="border: 1px solid black; padding: 0 2px;">CANWEA</span> Phone: +1 780 310 4300 <a href="http://www.epcor.ca/Residential/Efficiency+Tools+and+Tips/Efficiency+Tips/Residential+Efficiency+Guides+and+Brochures.htm">http://www.epcor.ca/Residential/Efficiency+Tools+and+Tips/Efficiency+Tips/Residential+Efficiency+Guides+and+Brochures.htm</a>
9.	Manufacturer of energy-efficient windows	All-Weather Windows, Edmonton. Phone: +1 780 451 0670 <a href="http://www.allweatherwindows.com">http://www.allweatherwindows.com</a>
10.	Manufacturer of energy-efficient windows and doors	Gienow Windows and Doors, Alberta Phone: 1 800 297 6102 <a href="http://www.gienow.com">http://www.gienow.com</a>
11.	Installer of energy-efficient furnaces	Accent Heating, Edmonton. Phone: +1 780 465 9111
12.	Installer of energy-efficient water heaters	Academy Mechanical, Edmonton Phone: +1 780 438 1750 <a href="http://www.academymechanical.com">http://www.academymechanical.com</a>
13.	Eco-design and eco-building products.	EcoDesign, Vancouver, BC <a href="http://www.ecodesign.bc.ca">http://www.ecodesign.bc.ca</a>

■ Energy efficiency is today's biggest global economic challenge.

Office of Energy Efficiency, Natural Resources Canada

■ Nature does provide us with a free lunch, but only if we control our appetites.

William Ruckelshaus



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#	Energy Efficiency	Supplier
14.	Ekocomfort™ home heating system – combines space heating, water heating and ventilation in one pkg.	Ekocomfort, being developed by a government/industry consortium <a href="http://www.ekocomfort.com">http://www.ekocomfort.com</a>
15.	Lists of eco-products.	Denison University, OH, America <a href="http://www.denison.edu/enviro/barney/links.html#appliances">http://www.denison.edu/enviro/barney/links.html#appliances</a>
16.	Web-based supplier of eco-products	Jade Mountain, CO, America. Phone: 1 800 442 1972 <a href="http://www.jademountain.com">http://www.jademountain.com</a>
17.	Web-based supplier of eco-products	Abundant Earth, WA, America <a href="http://www.abundantearth.com">http://www.abundantearth.com</a>
18.	Web-based supplier of eco-products	Creative Energy Technologies, NY, America <a href="http://www.cetsolar.com/Productcat.htm">http://www.cetsolar.com/Productcat.htm</a>
19.	Supplier of the Kill-A-Watt meter that measures how much electricity your 120 volt appliances use	National Electrical Supply Phone: +1 780 461 6122 See also: <a href="http://cableorganizer.com/kill-a-watt/index.htm">http://cableorganizer.com/kill-a-watt/index.htm</a>
20.	"Electronic Energy Meter", designed in Canada, \$25, 120 volts only	Canadian Tire32. Rona
21.	Watts Up? meter that measures how much electricity your 120 volt appliances use	<a href="http://cableorganizer.com/electricity-power-meter">http://cableorganizer.com/electricity-power-meter</a>
22.	Brand Power Meter that measures how much electricity your 120 volt appliances use	<a href="http://www.energytools.com/pwrmeter.htm">www.energytools.com/pwrmeter.htm</a>
23.	Web-based supplier of eco-products	Northern Arizona Wind & Sun, AZ, America <a href="http://www.windsun.com">http://www.windsun.com</a>

- I do not believe in a fate that falls on men however they act; but I do believe in a fate that falls on men unless they act. +G.K. Chesterson
- The reasonable man adapts himself to the world; the unreasonable man persists in trying to adapt the world to himself. Therefore, all progress depends on the unreasonable man. George Bernard Shaw




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**Table 12. Energy Efficient, Healthy, Sustainable Homes.**

R-2000 homes are the most energy-efficient and environmentally responsible new homes on the market. They are built to demanding standards for energy efficiency and indoor air quality that far surpass others in the marketplace. They are designed and constructed by builders, who are committed to providing the very best for their customers. They are backed by a quality assurance process that's unique in the industry. And every R-2000 home is certified by the Government of Canada.

If your home is not certified to Canada's world-class R-2000 standards, how can you know and be sure that your home is energy efficient? Who is going to give you that guarantee? Who is checking the claims of your homebuilder? These are some of the important benefits of having your new home certified to R-2000 standards.

#	Energy Efficient, Healthy Homes	Supplier
1.	Information on R-2000 and EnviroHome energy efficient and healthy homes	Canadian Home Builders Association <a href="http://r2000.chba.ca">http://r2000.chba.ca</a> <a href="http://envirohome.chba.ca">http://envirohome.chba.ca</a>
2.	CMHC's Healthy Housing promotes the health of its occupants while considering the environment and preserving our natural resources. This web site has many articles on renovating your home to be healthy.	Canada Mortgage and Housing Corporation Phone: 1 800 668 2642, press 1 <a href="http://192.197.69.104/en/co/maho/yohoyohe/heho/">http://192.197.69.104/en/co/maho/yohoyohe/heho/</a>
3.	"About Your House" series of articles many aspects of your home and its issues.	Canada Mortgage and Housing Corporation <a href="http://192.197.69.104/en/co/co_001.cfm">http://192.197.69.104/en/co/co_001.cfm</a>
4.	Information R-2000 and EnerGuide energy efficient and healthy housing. Find information on R-2000 homes and homebuilders.	Enervision Alberta Home Builder's Association Phone: +1 403 284 7146 <a href="http://www.enervisionalberta.com">http://www.enervisionalberta.com</a>
5.	"EnerGuide for Houses" information about home energy audits.	Natural Resources Canada  <a href="http://oee.nrcan.gc.ca/residential/personal">http://oee.nrcan.gc.ca/residential/personal</a>
6.	Promotes sustainable or "green" building practices to reduce the impact that building has on the environment.	Built Green Alberta Phone: +1 403 284 7146 <a href="http://www.builtgreenalberta.com">http://www.builtgreenalberta.com</a>
7.	"The Adaptable House: Designing Homes for Change"	Dr. Avi Friedman, Assoc. Prof of Arch., McGill University Published by McGraw-Hill <a href="http://iquebec.ifrance.com/fmv/html/McGrawHill.htm">http://iquebec.ifrance.com/fmv/html/McGrawHill.htm</a>
8.	Resources for Environmentally Responsible Design.	Architectural Institute of BC <a href="http://www.aibc.bc.ca/public/arch_and_environ/resources.html">http://www.aibc.bc.ca/public/arch_and_environ/resources.html</a>
9.	Practical information for designers, architects, contractors, and homeowners interested in making homes healthy places in which to live.	The Healthy House Institute, Bloomington, IN, America Phone: +1 812 332 5073 <a href="http://www.hhinst.com/reviews.html">http://www.hhinst.com/reviews.html</a>

- The only thing lacking is some form of leadership to focus the public will to make it happen.
  - Municipalities hold the key to a sustainable world in their hands. They are the perfect scale for the creation of socially and ecologically sustainable role models.
- Dr. Karl-Henrik Robert



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## # Energy Efficient, Healthy Homes Supplier

10.	Home performance information for homebuilders and homeowners.	Home Energy Magazine, America Phone: +1 510 524 5405 <a href="http://www.homeenergy.org">http://www.homeenergy.org</a>
11.	Where to find a list of companies who could do a home energy audits in your area	Natural Resources Canada <span style="border: 1px solid black; padding: 0 2px;">CANWEA</span> <a href="http://www.oeo.nrcan.gc.ca/residential/personal/new-home-improvement/contact-advisors.cfm">http://www.oeo.nrcan.gc.ca/residential/personal/new-home-improvement/contact-advisors.cfm</a>
12.	Delivery agent in Alberta for NRCan's "EnerGuide For Houses" home energy audit.	ATCO Energy Sense, Alberta Phone: 310 7283 (toll free) <a href="http://www.atcoenergysense.com">http://www.atcoenergysense.com</a>
13.	Auditors for NRCan's "EnerGuide For Houses" home energy audit.	VerdaTech Inc, Calgary Phone: 1 866 241 6804 <a href="http://www.verdatech-inc.com">http://www.verdatech-inc.com</a>
14.	Auditors for NRCan's "EnerGuide For Houses" home energy audit.	HomePerformance.com, Vancouver, BC Phone: 1 877 732 9888 for an appointment. <a href="http://homeperformance.com">http://homeperformance.com</a>
15.	Comprehensive environmental assessment for your home.	Green Communities Edmonton Association Phone: +1 780 437 5538 or +1 780 433 7508 <a href="http://www.gca.ca/edmonton.htm">http://www.gca.ca/edmonton.htm</a>
16.	Education, research, consulting in energy efficiency and technical issues.	Due North Conservation, Edmonton Phone: +1 780 922 4572 E-mail: <a href="mailto:duenorth@telusplanet.net">duenorth@telusplanet.net</a>
17.	Applying principles of sustainable design to architecture, interior design, planning, management consulting.	Manasc Isaac Architects, Edmonton Phone: +1 780 429 3977 <a href="http://www.miarch.com">http://www.miarch.com</a>
18.	Climate adapted, energy sensitive, sustainable, and healthy solar and energy-efficient home design. Publisher of SolPlan Review.	Richard Kadulski Architect, Vancouver, BC Phone: +1 604 689 1841 E-mail: <a href="mailto:kadulski@direct.ca">kadulski@direct.ca</a>
19.	Specializing in barrier free design. Renovating his home to be passive solar heated, including solar water heating and a green "living" roof.	Ron Wickman Architect, Edmonton Phone: +1 780 430 9935 E-mail: <a href="mailto:rwickman@telusplanet.net">rwickman@telusplanet.net</a>
20.	Energy efficient commercial and residential buildings, clean indoor environments for people who are environmentally sensitive.	Tang Lee, Professor of Architecture, 36 Faculty of Environmental Design, University of Calgary. Phone: +1 403 220 6608 E-mail: <a href="mailto:lee@ucalgary.ca">lee@ucalgary.ca</a>
21.	Energy efficient, passive solar home design and construction detail	George Cassady Timberline Graphics Phone: +1 780 430 0461 E-mail: <a href="mailto:cassady@telus.net">cassady@telus.net</a>
22.	Energy efficient home design and plans	John Hoskin John's Design and Drafting Phone: +1 780 434 8376

- Socialism collapsed because it did not allow the market to tell the economic truth. Capitalism is heading in the direction of collapsing...because it does not allow the market to tell the ecological truth. Øystein Dahle, VP, Exxon Norway
- Humans don't change unless they're placed between a rock and a hard place. If they haven't changed yet that just means that it doesn't yet hurt as much as it will need to hurt in order for them to decide to change...



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## # Energy Efficient, Healthy Homes Supplier

23.	Certified R-2000 homebuilder.	Cardon Homes, Grande Prairie Phone: +1 780 539 3246 <a href="http://www.cardonhomes.com">http://www.cardonhomes.com</a>
24.	Certified R-2000 homebuilder.	Urban Escapes, Grande Prairie Phone: +1 780 518 5538 <a href="http://www.urbanescapes.ca">http://www.urbanescapes.ca</a>
25.	Certified R-2000 homebuilder.	Burke Perry Master Builder, Edmonton Phone: +1 780 438 4224 <a href="http://www.burkeperryhomes.com">http://www.burkeperryhomes.com</a>
26.	Certified R-2000 homebuilder.	Gannet Homes, Edmonton Phone: +1 780 484 8754 <a href="http://www.gannet-homes.com">http://www.gannet-homes.com</a>
27.	Certified R-2000 homebuilder.	Kensington Master Builders, Edmonton Phone: +1 780 449 3137 <a href="http://www.kensingtonmasterbuilders.com">http://www.kensingtonmasterbuilders.com</a>
28.	Certified R-2000 homebuilder.	Dabro Homes, Leduc Phone: +1 (780) 485 0303 <a href="http://www.dabro.com">http://www.dabro.com</a>
29.	Certified R-2000 homebuilder.	Summerbrae Homes, DeWinton (Red Deer) Phone: +1 403 606 3488 <a href="http://www.summerbraehomes.com">http://www.summerbraehomes.com</a>
30.	Certified R-2000 homebuilder.	Jayman MasterBUILT, Calgary Phone: +1 403 258 3772 <a href="http://www.jayman.com">http://www.jayman.com</a>
31.	Certified R-2000 homebuilder.	Homes By Avi, Calgary38 Phone: +1 403 259 2122 <a href="http://www.homesbyavi.com">http://www.homesbyavi.com</a>
32.	Certified R-2000 homebuilder.	Kanas Corporation, Calgary Phone +1 403 283 2566
33.	Certified R-2000 homebuilder.	Greer Homes, Lethbridge Phone: +1 403 381 0028 <a href="http://www.greerhomes.net">http://www.greerhomes.net</a>
34.	Energy efficient homebuilder.	Habitat Studio and Design Workshop, Edmonton Phone: +1 780 423 2907, +1 780 433 1107 <a href="http://www.habitat-studio.com">http://www.habitat-studio.com</a>
35.	Builder of solar powered, very low energy consumption, passive solar homes.	Suncatcher Homes, Saskatoon  Phone: +1 306 341 1151 <a href="http://www.suncatchersolar.com">http://www.suncatchersolar.com</a>

■ We can't solve problems by using the same kind of thinking we used when we created them.

Albert Einstein

■ Leaders impress others when leaders succeed; leaders impact others when followers succeed.

John Maxwell



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**Table 13. Environmentally Sensitive, Efficient Transportation.**

#	Efficient Transportation	Supplier
1.	Canada's pre-eminent outdoor equipment supplier	Mountain Equipment Co-op <a href="http://www.mec.ca">http://www.mec.ca</a>
2.	Great information about fuel consumption and costs: <ul style="list-style-type: none"> <li>• Auto\$mart Information Kit</li> <li>• Fuel Consumption Directory</li> </ul>	Natural Resources Canada, Office of Energy Efficiency Phone: 1 800 387 2000 p1 <a href="http://oee.nrcan.gc.ca/autosmart">http://oee.nrcan.gc.ca/autosmart</a>
3.	Find out how much it <b>really</b> costs you to commute!	Cities for Climate Protection, Commuter Calculator <a href="http://www.iclei.org/games/comcalc.htm">http://www.iclei.org/games/comcalc.htm</a>
4.	Calgary's commuting choice -- modern, energy-efficient, low-emission, cost-effective	Calgary Transit System <a href="http://www.calgarytransit.com">http://www.calgarytransit.com</a>
5.	Edmonton's commuting choice -- modern, energy-efficient, low-emission, cost-effective	Edmonton Transit System <a href="http://www.takeets.com">http://www.takeets.com</a>
6.	Magazine about electric, hybrid and fuel cell vehicles.	EV World <a href="http://www.evworld.com">http://www.evworld.com</a>
7.	Manufacturer of electric bicycles, scooters and other ZAP vehicles	Zero Air Pollution (ZAP) World of Transportation <a href="http://zapworld.com">http://zapworld.com</a>
8.	Ford's new <i>THINK</i> electric-assist vehicles	Ford Motor Company <a href="http://www.thinkmobility.com">http://www.thinkmobility.com</a>
9.	Gas-electric car that uses 3 L/100km (90 mpg)!	Honda Insight <a href="http://www.insightcentral.net">http://www.insightcentral.net</a> <a href="http://www.arstechnica.com/reviews/3q00/honda/insight-1.html">http://www.arstechnica.com/reviews/3q00/honda/insight-1.html</a>
10.	Gas-electric car that uses 4.6 L/100km (61 mpg)!	Honda Civic Hybrid <a href="http://www.honda.ca/HondaEng/Models/CivicHybrid/Overview.htm">http://www.honda.ca/HondaEng/Models/CivicHybrid/Overview.htm</a>
11.	Gas-electric car that uses 4.7 L/100km (63 mpg)!	Toyota Prius <a href="http://prius.toyota.com">http://prius.toyota.com</a>
12.	Hi-tech Diesel car that uses 4.4 L/100 km (64 mpg)	Volkswagen Golf <a href="http://www.vw.com/golf">http://www.vw.com/golf</a>


- The right to access every building in the city by private car, in an age when everyone possesses such vehicle, is actually the right to destroy the city. Lewis Mumford, 1981
- If you're in a hole ...stop digging.



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**Table 14. Renewable Fuels**

<b>Renewable Fuels</b>	<b>Supplier</b>
1. "How Biomass Energy Works"	Union of Concerned Scientists, America <a href="http://www.ucsusa.org/clean_energy/renewable_energy/page.cfm?pageID=78">http://www.ucsusa.org/clean_energy/renewable_energy/page.cfm?pageID=78</a>
2. Book: <i>Biodiesel Basics &amp; Beyond</i> by William Kemp, ISBN 0973323337	
3. Information on biomass energy and its potential	Millennium Environment Debate, Great Britain <a href="http://www.millennium-debate.org/biomass.htm">http://www.millennium-debate.org/biomass.htm</a>
4. Promotes renewable bio-fuels (ethanol, biodiesel) for transportation.	Canadian Renewable Fuels Association Phone: +1 306 975 6620 <a href="http://www.greenfuels.org">http://www.greenfuels.org</a>
5. Alternative Transportation Fuels Database.	Centre for Alternative Transportation Fuels, BC Phone: +1 604 224 4331 <a href="http://catf.bcresearch.com">http://catf.bcresearch.com</a>
6. Improves cooperation and information exchange in bioenergy research, development and deployment.	International Energy Agency Bioenergy <a href="http://www.ieabioenergy.com">http://www.ieabioenergy.com</a>
7. Promotes increased production and use of ethanol.	American coalition for Ethanol <a href="http://www.ethanol.org">http://www.ethanol.org</a>
8. A van fuelled with used vegetable oil from fast food restaurants.	The Veggie Van, America <a href="http://www.veggievan.org">http://www.veggievan.org</a>
9. Information on bioenergy topics, including biomass resources, biopower, biofuels, biobased chemicals and materials, integrated bioenergy systems.	American Energy Efficiency and Renewable Energy Network <a href="http://www.eere.energy.gov/RE/bioenergy.html">http://www.eere.energy.gov/RE/bioenergy.html</a>
10. Information about fast growing trees, grasses, and residues for fuels and power.	American Bioenergy Information Network <a href="http://bioenergy.ornl.gov">http://bioenergy.ornl.gov</a>
11. Carbohydrates are the new materials base to make chemicals, energy, textiles, building materials, paper, and many other products. A "carbohydrate economy" reduces pollution, builds stronger rural communities, and supports a rooted farmer-owned processing and manufacturing sector.	American Carbohydrate Economy Clearing House, a project of the Institute for Local Self Reliance <a href="http://www.carbohydrateeconomy.org">http://www.carbohydrateeconomy.org</a>
12. Many links to bio-fuel groups.	American Governors' Ethanol Coalition <a href="http://www.ethanol-gec.org">http://www.ethanol-gec.org</a>
13. Developer of bio-ethanol, a clean transportation fuel.	Iogen Corporation, Ottawa, ON Phone: +1 613 733 9830 <a href="http://www.iogen.ca">http://www.iogen.ca</a>
14. Supplier of bio-Diesel production equipment. Gives workshops on making bio-Diesel for your car.	TrimLine Design Centre, Edmonton  Phone: +1 780 466 9034 <a href="http://www.trimlinedesigncentre.com">http://www.trimlinedesigncentre.com</a>

- Treat the Earth well. It was not given to you by your parents. It was loaned to you by your children.  
Kenyan Proverb
- I don't do great things. I do little things with great passion. +Agnes Gonxha Bojaxhiu (Mother Theresa)