Greening Training:

Funded by the Ontario Ministry of Energy and working closely with Peterborough Green-Up, the John Howard Society of Peterborough is striving to help non-profit agencies in our community make positive environmental changes in their workplace. As a United Way member, we want to do our part as a socially responsible agency and want to help other agencies in doing the same. This training is intended to expand or further your knowledge of the environment and the role you play in making positive change in your community and within your agency. The training package can be used by your greening team to train and educate other staff members or can be used to help train and educate clients. We have provided a lesson plan as well as additional documents and supporting information to help supplement and direct the training. Review the material and feel free to cater the training to meet the group's needs. Finally, thank you for using this training package and good luck in developing a culture of conservation.

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Lesson Plan:

TIME	LESSON CONTENT	DETAILS
15 minutes	**Introduction: Discussion** (lead by facilitator) Use prompt questions: ▪ What does climate change and global warming mean to you? ▪ What does it mean to be green? ▪ What have you heard recently in the news about the environment?	
20 minutes	**Activity #1: Energy:** ▪ Use the power point presentation to work through the different renewable and non-renewable energy sources. ▪ Discuss advantaged and disadvantages of each energy source. ▪ Try to answer the questions at the end of the presentation to spark further discussion.	
40 minutes	**Activity #2: Key terms and energy audits:** ▪ Define terms: kilowatt hours (kWh), kilowatt (kW) etc. ▪ Examine the worksheet: The Cost of Using Electricity. ▪ Discuss doing a general energy audit of your space ▪ Complete an audit of your space using the form provided on Page 2. Do together or in groups. ▪ Discuss findings and possible recommendations for your agency.	Equation: cost = kWh x $/ kWh
15 minutes	**Activity #3: Understanding a utility bill and using appliance monitors:** ▪ Bring examples for participants to look at ▪ Work through a utility bill (examine what each charge is for, consumption history, energy cost).	Try to obtain an energy bill from your business or home to use as an example.

	▪ Explain how to use and read an appliance monitor.	Try to obtain an appliance monitor form your local Utilities Company.
15 minutes	**Activity #4: Waste Management** (lead by facilitator) ▪ Discuss local recycling program: two stream program. ▪ Discuss composting and vermicomposting- advantages and disadvantages. ▪ Make a vermicompost if possible!	Vermicomposting kit can be found on-line or from a local dealer.
15 minutes	**Closure:** ▪ Discuss next steps ▪ If time, have a question and answer period. **Activity: Media Clip** ▪ If time allows, and if appropriate, there is a very interesting media clip on youtube that could spark some interesting dialogue. Youtube: The Most Terrifying Video You'll Ever See: ▪ On the controversy of global warming and the persuasive argument that action is better than no action. Created by a high school science teacher.	http://www.youtube.com /watch?v=zORv8wwiadQ

Comments:

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Key terms:

Watt (W): A watt is the measure of the rate of electrical use at any given moment.

Kilowatt (kW): A kilowatt is 1000 watts. This is used to describe the power output of an appliance or machine.

Kilowatt hour (kWh): A kWh is the equivalent of 1 kW of power expended for one hour. A kWh is calculated by multiplying the wattage of a product by the number of hours it's in use. In Canada, electricity is sold in kilowatt hours.

CFL: Compact Fluorescent Light bulbs**.** These light are becoming very popular because of their high efficiency and longer life. A typical incandescent light bulb uses electrical energy at a rate of 25 to 100 watts, while a CFL typically consumes 5 to 30 watts.

T-12: A long and thin florescent light bulb commonly used by businesses and lager buildings. They are larger and less efficient than other tube lights such as the T-8 or the T-5.

T-8: This light has a smaller diameter than the T-12 and is considerably more efficient.

To determine the cost of electricity, find the kWh of an appliance and multiply the kWh by the price of electricity. Use $0.05 as the price of electricity.

Example: 150W Light Bulb

- 150/ 1000= 0.15 kW
- 0.15 kW × 1 hour = 0.15 kWh of energy.
- 0.15 kWh × $0.05/kWh = **$0.0075 per hour**

Energy audits:

Energy audits are often done by trained and certified professionals and cost anywhere from $300 to $1500. However, staff can do their own walkabouts to determine if greening changes can be made and can often make changes themselves.

When doing a walkabout, there are two recommendations to look for: behavior and technical recommendations.

Behaviour recommendations:

- Are staff rethinking and reusing when using paper supplies before recycling?
- Is staff following the two stream method of recycling that is used in this area?
- Is there a compost or vermicompost in place?
- Are lights being turned off when people leave the room?
- Are there energy efficient light options in place?
- Is there a timer installed to shut off equipment at the end of the day?
- Is the heating or cooling system being used wisely?
- Does your agency currently have old appliances that could be updated with energy efficient options?

Technical recommendations:

This is more difficult to determine and might be better done by a certified Energy Assessor. However, there are still technical recommendations you can make as a staff that can have some positive results. For example, you can determine the amount of money spent powering different appliances. By finding out how much it costs to power an old computer monitor, it might motivate the agency to purchase a new monitor or motivate staff to turn off the appliance when not in use.

The Cost of Using Electricity worksheet (SEEDS Foundation) can help you get started. It can be found at: http://www.jhsptbo.com/pdf/The-Cost-of-Using-Electricity.pdf

Page 1 should be done together as a group. Page 2 has an Electricity Consumption Chart that you can use to document the electricity consumption of different appliances in your space. Do a few examples together. Once everyone is comfortable with the form, do an audit of your space! Come back and discuss both behavior and technical recommendations.

- Page 3 has some good questions you might do as a group if time permits.

Utility bills:

Utility bills are important to understand because they provide an indication of energy consumption and energy savings.

Your agency should try to document the last 12 months of consumption. Once you start to make some positive environmental changes in your agency, you'll want to see the results!

When documenting, you might want to include the following:

- Charges for electricity
- Charges for water
- Charges for sewer
- Total amount owing
- Electricity used

Appliance monitors:

There are a variety of appliance monitors available. They generally work in the same fashion and give the same information. You can rent an appliance monitor from the local Utilities Company at no charge.

Example: *Kill A Watt Power Meter*

- Simply plug the monitor in to an electrical socket and plug an appliance into the monitor.
- kWh/hour is a toggle function key. Press the kWh/hour key once to show the cumulative energy consumption since the unit was plugged in. (The red button on this style of monitor).
- Once you know the consumption of an hour for example, you can do the calculations to determine the cost of running the appliance for a day, a month or a year.

Waste management:

Think about how much waste your agency produces. Now think about ways to decrease this amount.

Rethinking and reusing: Firstly, it's important to rethink and reuse before you recycle or throw something out. Is there another way to use the product before it is sent to a recycling plant or the landfill? When you purchase materials for your agency, rethink purchasing from companies that over package their products.

Green waste: Think about starting a compost or a vermicompost (worm compost). Depending on your space, a vermicompost might better fit your needs. Vermicomposting is an excellent option for agencies that do not have access to an outdoor composter. Call Peterborough Green-Up to get connected with a local vermicompost kit dealer.

Hazardous waste: Do you have a program in place for safely disposing of batteries, ink cartridges, and Compact Fluorescent Lights (CFL)? If you are not sure of how to dispose of these products, check out the "Reuse and Recycling Guide" at http://www.peterboroughreuses.com/recycling/

Recycling: Is your agency using the two stream method of recycling? Do staff know what can and cannot be recycled? The City of Peterborough Waste Management Services website outlines the two stream system of recycling. Check it out at:
http://www.peterborough.ca/Living/City_Services/Waste_Management/Recycling/Facility.htm

Garbage: Hopefully, by rethinking, reusing, recycling and composting- your output of garbage will decrease substantially!

Skills and employment: *Client extension*

Jobs in the Field:
Solar Audit Advisor, Power Saving Blitz Advisor, Certified Energy Assessor

Becoming and Energy Advisor:
Contact a local service organization such as Peterborough Green-Up. You can find out whether candidates are being screened for training, and whether you are a suitable candidate. If they are not screening at the time, you can ask to be contacted when new opportunities arise.

Pre-requisite Skills:
Advisors generally need home inspection training or a minimum of two years experience in the building/renovation industry. An understanding of construction terminology and household heating appliances is critical. Advisors need to be physically fit, computer literate, and have excellent communication and customers service skills.

Equipment Required:
In addition to your own vehicle, advisors need a blower door, notebook computer with high speed connection, ladder, and small hand tools. Approximate cost of purchasing new advisor equipment is $5,000. However, organizations such as Peterborough Green-Up sometimes provide this equipment once you are hired. It depends on the agency.

Websites:
www.flemingc.on.ca/index.cfm/go/school/sub/senrs.cfm

- School of Environmental and Natural Resource Sciences- provides a list of programs in the field.

http://www.homeperformance.com/become-energy-advisor-ecoenergy-auditor-ontario-bc-canada

- Website/business that recruits and trains individuals to become a certified home energy auditor.

Greening Certificate

This is to certify that

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has successfully completed

Greening Training developed by
The John Howard Society in partnership with
Peterborough Green-Up

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Date Signature