

# **2007 Project Porchlight Yukon**

**Yukon Government's Energy Solutions Centre and  
Project Porchlight**

**Final Report**

**April 27, 2007**

## PROGRAM OVERVIEW

One of the fundamental objectives of the Yukon's Energy Solutions Centre (ESC) is to serve Yukon's energy efficiency needs by working to sensitize and condition the Yukon marketplace to become more energy efficient.

In order to help meet these objectives, in the winter 2006, ESC initiated a partnership with the Project Porchlight organization based out of Ottawa. The purpose of this partnership was to encourage and promote the use of Energy Star® rated Compact Fluorescent Lights (CFL's) in the Yukon.

Project Porchlight's mission is to bring together volunteers, community businesses, non-profit organizations, students and governments in a campaign to deliver one free CFL bulb to every household in Canada. Based on the principles of social marketing, Project Porchlight's campaign aims to educate Canadians about the importance of energy efficiency while giving them the immediate means and tools to take action. Placing a free energy efficient light bulb directly into someone's hand emphasizes the message that everyone can decrease energy consumption, reduce greenhouse gases, and save money through the simple act of changing a light bulb; bridging the gap between energy use awareness and action.

The ESC partnered with Project Porchlight to coordinate a 10,000 bulb Yukon campaign. The City of Whitehorse (with 7,500 households) was the main target of the campaign. Outside of Whitehorse the campaign partnered with First Nations Band Councils and Yukon Housing Corporation to distribute the bulbs. In Whitehorse the Yukon Conservation society (YCS) provided bulb delivery staff through a separate agreement with the ESC.

Over the course of the campaign 10,000 CFLs were distributed through door-to-door delivery and community events by paid delivery staff; volunteers; and Yukon Housing and First Nation Offices. The ESC benefited from the Project Porchlight campaign kit and collaboration with Project Porchlight to coordinate all local distribution. The Yukon campaigns were linked to the Project Porchlight Web site; media messaging, community engagement and staff and volunteer training, and formal evaluation was conducted in a consistent manner by the Project Porchlight staff in collaboration with ESC staff.

## PROJECT BUDGET

This program incurred the following costs:

Shipping (Bulbs, pamphlets, etc.)	\$ 5,401.24
Delivery Staff (YCS Cont. Ag.)	\$ 6,068.00
CFL Bulbs/materials	\$ 29,000.00
Acc., (Proj. Porch. Staff)	\$ 5,600.00
<b>Total:</b>	<b>\$ 46,069.24</b>

## **PROJECT RESULTS**

According to Energy Star® and NRCan's Office of Energy Efficiency, only 4 to 6 percent of the electrical power in a traditional incandescent bulb is converted into visible light. By comparison new Compact Fluorescent Light bulbs (CFLs) will use approximately one fifth of the energy required by an incandescent to produce the same amount of light. This adds up to a savings of approximately 70 kWh per bulb per year.

Over the course of the campaign 10,000 CFLs were distributed through door-to-door delivery and community events by paid delivery staff; volunteers; and Yukon Housing Corporation and First Nation Offices. That's an approximate savings of 700,000 kWh per year or approximately \$70,000 in electrical savings per year. Over the lifetime of these bulbs (approximately 8,000 hours) that adds up to an energy savings of approximately 3,300,000 kWh or \$300,000. (For details see Appendix).

Although diesel generation occurs in only a few small communities, the growth of the Yukon economy may soon require our utilities to use diesel generation for a greater portion of our needs. If we were to assume diesel generation is used to produce the electricity for these 10,000 CFLs, they would contribute to a reduction of approximately 3,000 tonnes of CO<sub>2</sub>.

The project has been intended not only to provide new technology to the public and to provide energy savings immediately, but also to act as a catalyst for additional behavioral changes on the part of Yukon consumers. That is, we anticipate that the project will result in consumers becoming more aware of the benefits of CFL's and will help lead to further sales of these energy efficient products. Although it is impossible to calculate with any degree of accuracy the benefit of this "after effect", increasing public awareness will undoubtedly in turn lower consumer electrical bills, reduce overall demand on the system, and reduce greenhouse gas emissions in communities utilizing diesel generated electricity.

## **CONCLUSION**

Compact Fluorescent Light bulbs are a practical way to reduce energy in the Yukon, thereby helping to reduce both greenhouse gas emissions and electrical and municipal utility infrastructure costs.

This project illustrates that there is a high level of public interest in high efficiency technology. It is intended that a project of this nature will help Yukoners keep energy conservation in mind when lighting their homes.

# Appendix A: Life Cycle Cost Estimate

## 10000 ENERGY STAR Qualified Compact Fluorescent Lamp(s)

This energy savings calculator was developed by the U.S. EPA and U.S. DOE and is provided for estimating purposes only. Actual energy savings may vary based on use and other factors.

**Enter your own values in the gray boxes or use our default values.**

Number of units	10,000		
Electricity Rate (\$/kWh)	\$ 0.100		
Hours used per day	4		
	<b>ENERGY STAR</b>		
	<b>Qualified Unit</b>	<b>Conventional Unit</b>	
Initial cost per unit (estimated retail price)	\$3.50	\$0.50	
Wattage (watts)	13	60	
Lifetime (hours)	8,000	750	

### Annual and Life Cycle Costs and Savings for 10000 CFLs

	10000 ENERGY STAR Qualified Units	10000 Conventional Units	Savings with ENERGY STAR
<b>Annual Operating Costs*</b>			
Energy cost	\$18,980	\$87,600	\$68,620
<i>Energy consumption (kWh)</i>	<i>189,800</i>	<i>876,000</i>	<i>686,200</i>
Maintenance cost	\$0	\$68,093	\$68,093
<b>Total</b>	<b>\$18,980</b>	<b>\$155,693</b>	<b>\$136,713</b>
<b>Life Cycle Costs*</b>			
Operating cost (energy and maintenance)	\$84,496	\$693,119	\$608,624
Energy costs (lifetime)	\$84,496	\$389,980	\$305,484
<i>Energy consumption (kWh)</i>	<i>1,040,000</i>	<i>4,380,000</i>	<i>3,340,000</i>
Maintenance costs (lifetime)	\$0	\$303,140	\$303,140
Purchase price for 10000 unit(s)	\$35,000.00	\$5,000.00	-\$30,000.00
<b>Total</b>	<b>\$119,496</b>	<b>\$698,119</b>	<b>\$578,624</b>
		Simple payback of initial additional cost (years) <sup>†</sup>	<b>0.2</b>

\* Annual costs exclude the initial purchase price. All costs, except initial cost, are discounted over the products' lifetime using a real discount rate of 4%. See "Assumptions" to change factors including the discount rate.

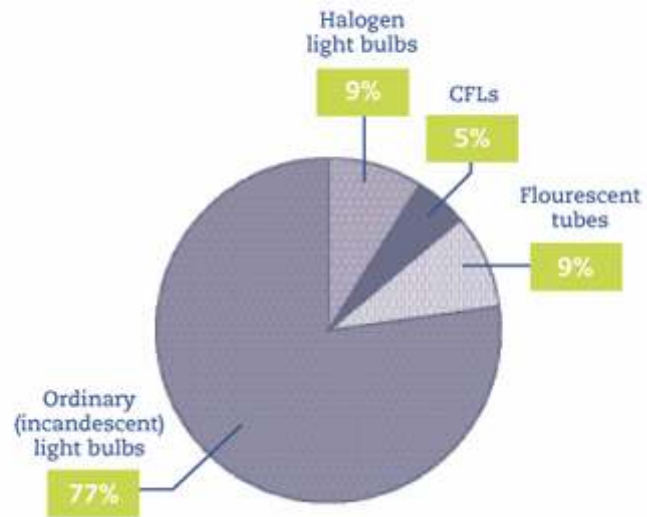
† A simple payback period of zero years means that the payback is immediate.

### Summary of Benefits for 10000 CFLs

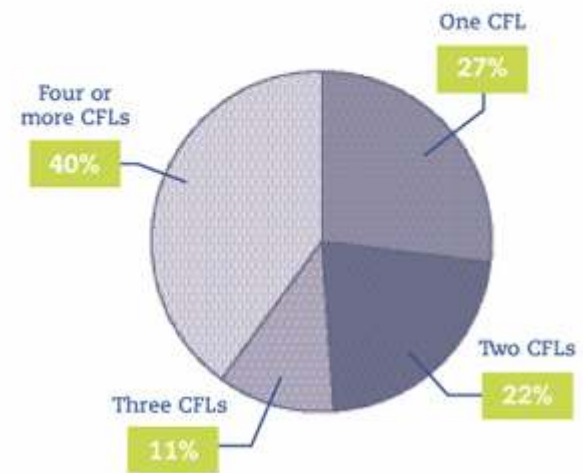
Initial cost difference	\$30,000
Life cycle savings	\$608,624
Net life cycle savings (life cycle savings - additional cost)	\$578,624
Simple payback of additional cost (years)	0.2
Life cycle energy saved (kWh)	3,340,000
Life cycle air pollution reduction (lbs of CO <sub>2</sub> )	4,776,200
Air pollution reduction equivalence (number of cars removed from the road for a year)	413.17
Air pollution reduction equivalence (acres of forest)	651.33
Savings as a percent of retail price	1653%

## Appendix B: Canadian CFL Statistics

Type of Light Bulbs Used by the Average Household



Number of CFLs Used Among Households That Used at Least One CFL



Natural Resources Canada, *Household Lighting*, Ottawa, 1998, pp. 6-12.

## Appendix C: CFL/Incandescent Cost Comparison

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**Running Costs Comparison of CFLs vs. Incandescent**

