2006 Christmas Light Exchange

Yukon Government's Energy Solutions Centre and
Natural Resources Canada

Final Report

December 21, 2006

PROGRAM OVERVIEW

As with all northern communities the Yukon electrical grids experience their peaks in energy demand during the winter heating season. These peaks are further exacerbated by the significant load created by Christmas lights during what can be the coldest and darkest part of the year. A single string of traditional Christmas lights can use from 30 – 300 watts; that's approximately 16 kWh over the course of a Christmas season. If we consider an average of 5 strings per house this results in an additional load of as much as 1,500 watts or approximately 80 kWh per household.

LED Christmas lights can use up to 95% less energy then traditional lights. Along with their energy saving characteristics LED lights: produce little heat making them less of a fire risk; are not made with glass or filaments and are therefore less prone to break and; can last up to seven times longer than traditional lights.

Despite the benefits associated with LED christmas lights the use of traditional incandenscent lights are ubiquitous in North America making it difficult for homeowners to justify replacing their traditional Christmas lights for new ones.

The Yukon Government's Energy Solutions Centre has developed a campaign in order to educate consumers about the benefits of Christmas LED technology as well as increase the rate of exchange of old technology for new.

November 22nd -December 6th the Yukon Government's Energy Solutions Centre and Natural Resources Canada (NRCan) offered the 2006 Christmas Light Exchange program.

This project was designed to speed up the introduction of energy-efficient Christmas lights in the Yukon and meet the four following objectives:

- To introduce and demonstrate the benefits of energy efficient technology to residential customers – particularly those who had not yet tried them;
- To increase sales of LED lights in the Yukon and to encourage retailers to carry these products;
- To gauge consumer and retailer acceptance of the product; and
- To achieve significant electrical energy savings during the peak demand heating season.

The 2006 Christmas Light Exchange was a trade-in project which encouraged 322 Yukoners to bring in 652 strings of older energy intensive incandescent light strings. The Energy Solutions Centre and NRCan together covered the promotion and product costs of this project. As well, the Energy Solutions Centre arranged for Raven Recycling to recycle the returned incandescent strings of lights.

PROJECT BUDGET

This program incurred the following costs:

Advertising (3 newspapers ads)	$ 1,404.00
LED Christmas Lights	$ 3,556.77
Disposal of Old Bulbs	$ 2.00
Total:	**$ 4,962.77**

PROJECT RESULTS

During the 2 weeks of running the project 322 Yukoners (approximately 3% of Yukon households) participated in the 2006 Christmas Light Exchange and inquiries regarding the project continued long after program supplies had run out and advertising had ended. Based on this large number of public participation it is fair to say that the program was well received and that the level of consumer acceptance for LED lights is high.

All 322 strings of LED lights purchased for the program were purchased from local retailers. Judging form the large selection and stock of this product found in local retail outlets the level of retailer acceptance for these products is also high.

The 322 participants in the project brought in 652 strings of traditional incandescent lights to be recycled. Assuming an average string of traditional Christmas lights to be approximately 150 watts means an approximate savings of 15 kWh is achieved by replacing traditional Christmas lights with LED lights. This results in a load savings on the Yukon grid of approximately 98 kW and an annual energy savings to Yukoners of 9,800 kWh/year (approximately $980) as a direct result of the 2006 Christmas Light Exchange.

These savings to Yukoners will be cumulative over the course of the future Christmas seasons. In five years the 2006 Christmas Light Exchange will have been responsible for saving Yukoners approximately 49,000 kWh of energy (nearly $5,000 in energy savings).

These figures are based on the assumptions that the lights are in use 21 days a year for 5 hours a day.

Assuming diesel power was used to produce the electricity, the Greenhouse gas equivalent displacement as a result of this project is 44,500 kg CO_2e/year.

As a final comment, the project has been intended not only to provide new technology bulbs to the public and to provide 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 this technology and will cause them to replace more of their old-fashioned Christmas light strings with LED technology. Although it is impossible to calculate with any degree of accuracy the benefit of this “after effect”, there will undoubtedly be additional benefits that will result from this in terms of lowering consumer electrical bills, reducing overall demand on the system, and reducing greenhouse gas emissions in communities where they are associated with electrical generation

CONCLUSION

LED Lights are a practical way to reduce energy consumption particularly at a time of year when the Yukon experiences its greatest power demand. These lights have the potential to make a significant dent in the electricity consumed during the heating season, thereby helping to reduce greenhouse gas emissions and utility infrastructure costs.

This project illustrated that there is a high level of public interest in LED lights. It’s intended that a project of this nature will help Yukoners keep energy conservation in mind during the Christmas season.