





# 5<sup>th</sup> Annual LED Holiday Light Swap Final Report FY 2013

In an effort to help reduce energy consumption during the holiday season in the Flagstaff community, the Sustainability Program partnered with HomCo ACE and for the first time, with Arizona Public Service (APS), to provide energy efficient holiday lights to residents at a discounted price.

The 5th Annual LED Holiday Light swap took place at HomCo ACE November 19, 2012 through December 6, 2012. The swap allows a resident that brings in a strand of traditional incandescent holiday lights to purchase a box of LED holiday lights for \$2 plus tax rather than the full market price of \$10 per box. Residents were allowed to swap up to 5 boxes of LED holiday lights.



LED lights were purchased at \$6 a box plus tax. Funding provided by the APS Corporate Giving in the amount of \$3,500 ensured that lights were subsidized at the same price as last year's event, \$2. The APS grant enabled the Sustainability Program to purchase 36 more boxes of lights than last year. Due to high demand and popularity of the event this year, HomCo ACE sold out of LED lights in record time.

The project budget to purchase the LED holiday lights was \$8,997, of which APS paid roughly 40% of the costs and the City paid approximately 60%. The Sustainability Program marketing budget totaled \$962 for newspaper advertisements. APS covered all printing costs for outreach materials. A total of 1,370 boxes of LED lights were distributed to the community. All swapped lights were taken to the City's Hazardous Products Center (HPC) where they were weighed, tracked, and recycled. The HPC reported that 1,609 pounds of holiday lights were recycled this year.

#### **Outreach Efforts**

The Sustainability Program completed community-wide marketing for the 5th Annual LED Holiday Light Swap. The following list includes marketing and outreach initiatives and applicable costs.

- Press release Distributed to local media outlets.
- Everyone email Distributed to City employees.
- City of Flagstaff website Posted event information on City's community calendar, news/announcements, Sustainability Program, and SEMS web pages.
- Arizona Daily Sun -
  - 1/4 page advertisement on Black Friday (\$398)
  - o 1/8 page Sunday advertisement (\$564)
  - Posted event on website community calendar.
- KNAU Posted event information on website and community calendar.
- Flag LIVE! Posted event information on website and printed community calendar.
- Great Circle Radio (KAFF/KMGN/KQKY) websites
  - Posted event information on community events webpage.
- KAFF Country Promoted event during live radio interview.
- NAZ Today TV interview to promote event.
- Email distribution listservs Announced event information through NAU Environmental Caucus Weekly Announcements and Coconino County Sustainable Building Program Weekly Announcements.
- Displayed banners at HomCo ACE and City Hall main lobby.
- Posted high quality flyers at City Hall, public libraries, neighborhood community centers, the Aquaplex, various local downtown businesses, HomCo ACE, NAU, and the Visitors Center.
- Sustainability Program Facebook page.

## **Data Collection and Methodology**

Tracking logs were provided to HomCO ACE cashiers before the start of the sale. The logs recorded the number of boxes of LED lights sold, the number and size of participating households, the number of swapped incandescent strands, if the customer bought additional strands beyond the 5 strand limit, and if the customer bought additional HomCO ACE merchandise. Information collected provided accurate accounting of project outcomes and tracks the indirect benefits to HomCo ACE.

The following are calculations based on the U.S. Department of Energy's ENERGY STAR Program and Arizona Public Service (APS) residential rate of \$.12175 per kilowatt hour (kWh). Actual costs and savings vary based on energy usage and rate fluctuation. In order to determine



LED lights display and banner at HomCo ACE Hardware.

the number of lights swapped, a strand of 300 incandescent lights was weighed and found to be 1.94 pounds. Therefore each single incandescent light weighed .0065 pounds. The total weight of all the swapped incandescent lights was 1,609 pounds, an estimated 217,350 incandescent lights. A total of 68,500 LED holiday lights were sold through the 5th annual event and distributed to the Flagstaff community.

### **Community Impacts**

HomCo ACE records confirm that 1,370 boxes of LED lights were sold. A ratio was developed to estimate the community impacts, including the number of residents and households served based on the actual total of 1,370 boxes.



Car load of swapped out lights. Over 1,600 pounds of incandescent lights were recycled.

The 5<sup>th</sup> annual event served an estimated 349 households and 1,007 residents. Each resident swapped an average of 4 strands of lights. 9% of participants bought more LED lights after they reached the 5 strand limit, and 24% bought additional items while at HomCo ACE.

### **Estimated Savings**

The total estimated energy savings is 15,620 kilowatt hours (kWh) for 5 hours per day during a 30 day period of time. The amount of energy being used by the swapped out incandescent holiday lights was 16,031 kWh, whereas the LED holiday lights that were distributed into the community use 411 kWh, a difference of 15,620 kWh, a 97% savings in energy use.

In addition to the energy savings, the Flagstaff community was spending an estimated total of \$1,683 in utility costs associated with running incandescent lights for 30 days whereas the LED lights cost \$43 for the same 30 days – a savings of \$1,640.

5 <sup>th</sup> Annual LED Holiday	Annual Estimated Savings		
Light Swap	(30 days/5 hours per day)		
349 households served/	\$1,640	15,620 kWh	24,054 lbs CO2e
1007 residents			

Carbon Dioxide Equivalent (CO2e) savings were calculated using U.S. Environmental Protection Agency emission factors. The swapped out traditional lights used a total of 823 pounds of CO2e per day, whereas the LED holiday lights used a total of 21 pounds of CO2e per day.

### Recommendations for FY2014 LED Holiday Light Swap

The higher number of sales and short time span in which the lights sold out is likely due to the \$2 price, marketing, as well as the early start date. According to the tracking logs, there were significant sales on the first day of the swap event, with sales peaking on the weekend after the Thanksgiving holiday and the first weekend in December. This response was consistent with the advertisements that ran in the Arizona Daily Sun on Black Friday and the Sunday of Thanksgiving weekend, and is assumed to be the time when residents begin decorating for the holidays.

A significant amount of transactions were not recorded on the tracking logs by cashiers, thus a ratio was set up to estimate final totals based on the number of boxes that were actually sold. In order to ensure consistent and correct tracking of the event, it is highly recommended to provide a training session or short meeting with HomCo ACE managers and cashiers before the event begins next year.