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## 6<sup>th</sup> Annual LED Holiday Light Swap Final Report FY 2014

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

The 6th Annual LED Holiday Light swap took place at HomCo Lumber and Hardware November 20, 2013 through December 15, 2013. The swap allowed a resident that brings in a strand of traditional incandescent holiday lights for recycling to purchase a box of LED holiday lights for a reduced cost.

A total of 1,050 boxes of LED holiday lights were available for participating residents to purchase for \$3 each with a 5 box limit. The project budget was \$7,970 for LED holiday lights and \$881 for event marketing. APS generously contributed \$1,500 in grant funding to support the event.

All swapped lights were taken to the City's Hazardous Products Center (HPC) where they were weighed, tracked, and recycled. The HPC reported that 1,100 pounds of holiday lights were recycled this year.



LED Swap display at HomCo Lumber and Hardware

### Outreach Efforts

The Sustainability Program completed community-wide marketing for the 6th 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, and Sustainability Program web page
- Banner and flyers at HomCo Lumber and Hardware
- Sustainability Program Facebook page posts
- KNAU - Posted event information on website and community calendar.
- Flag LIVE! - Posted event information on website and printed community calendar

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- Arizona Daily Sun -
  - 1/8 page advertisement on Black Friday (**\$217**)
  - 1/8 page Sunday advertisement (**\$573**)
  - Posted event on website community calendar
- Posted high quality flyers at City Hall, public libraries, neighborhood community centers, the Aquaplex, various local downtown businesses, and the Visitors Center kiosks

### Data Collection and Methodology

Tracking logs were provided to HomCo Lumber and Hardware cashiers before the start of the sale. Cashiers 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 merchandise. Information collected provided accurate accounting of project outcomes and tracks the indirect benefits to HomCo Lumber and Hardware.

### Community Impacts

HomCo Lumber and Hardware records confirm that 1,050 boxes of LED lights were sold. A ratio was developed to estimate the community impacts, including the number of residents and households served. The 6<sup>th</sup> annual event served an estimated 297 households and 957 residents. 6% of participants bought more LED lights after they reached the 5 strand limit, and 18% bought additional items while at HomCo.

### Estimated Savings

Savings are based on the U.S. Department of Energy's ENERGY STAR Program and APS residential rate of \$.12175 per kilowatt hour (kWh). Actual costs and savings vary based on energy usage and rate fluctuation.



Through the event **1,100 pounds** of old, inefficient holiday lights were collected for recycling.

The total estimated energy savings is 10,644 kilowatt hours (kWh) for 5 hours per day during a 30 day period of time. The estimated amount of energy used by the swapped out incandescent holiday lights was 10,959 kWh, whereas the LED holiday lights that were distributed into the community use 315 kWh, a difference of 10,644 kWh and a 97% savings in energy use.

In addition to the energy savings, the Flagstaff community was spending an estimated total of \$1,151 in utility costs

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associated with running incandescent lights for 30 days whereas the LED lights cost \$33 for the same 30 days – a savings of \$1,118.

Carbon Dioxide Equivalent (CO<sub>2e</sub>) savings were calculated using U.S. Environmental Protection Agency emission factors. The swapped out traditional lights used a total of 631 pounds of CO<sub>2e</sub> per day, whereas the LED holiday lights used a total of 16 pounds of CO<sub>2e</sub> per day.

<b>6<sup>th</sup> Annual LED Holiday Light Swap</b>	<b>Annual Estimated Savings (5 hours per day for 30 days)</b>		
297 households served/ 957 residents	\$1,118	10,644 kWh	16,087 lbs CO <sub>2e</sub>

### Recommendations for Future Events

This event has been a large success over the past 6 years; providing 6,550 boxes of LED holiday lights to 1,737 households and saving 58,384 kWh in the community. Though the LED swap is a positive way to promote energy efficiency and savings during the holiday season, LED holiday lights are consistently becoming more affordable and available for residents. Home Depot now offers a similar LED swap program where residents can receive a store coupon to purchase LED holiday lights for turning in old inefficient lights. The Sustainability Program's event may have run its course and it is recommended to explore other energy efficiency programming opportunities while maintaining a partnership with HomCo Lumber and Hardware and APS.

Shifting to an event that focuses on every-day energy saving behaviors and education may effect change on a greater scale. A general, year-round LED light swap at HomCo and/or other participating local businesses could not only provide low-cost indoor LED lights for residents that swap out incandescents or CFLs, but could create a larger impact on energy savings in the community. APS already provides low-cost CFLs at a variety of locations in Flagstaff and as new incandescent light bulbs will no longer be produced or sold in the USA as of January 2014, a LED subsidy and/or year-long LED swap program could help residents take the next step in energy efficiency.