

2010 Specialty CFL Retail Shelf Survey Analysis

Prepared for Energy Trust of Oregon by PECl

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Executive Summary

In 2009, Energy Trust of Oregon (Energy Trust) conducted a market research study to provide focused information on the state of the specialty compact fluorescent lamp (CFL) market in Oregon (KEMA, 2010; Taylor, 2010). As a follow up to this report, Energy Trust contracted PECL in late 2010 to conduct a follow-up lighting shelf survey focusing on the specialty lighting market within Oregon service territory.

The primary goal of this study is to inform Energy Trust about the current state of specialty CFL offerings on the market within Oregon. The information provided in this analysis is intended to guide Energy Trust during their 2012 strategic planning process. This report specifically details the 2010 lighting shelf survey, its methodology, results and conclusions about specialty CFL bulbs within the Oregon marketplace.

Methodology

The 2010 lighting shelf survey was an in-store survey of all bulb products available at a variety of Oregon retail locations. The survey was designed to both expand on the information collected in the 2009 Northwest Energy Efficiency Alliance (NEEA) lighting shelf survey (Appendix A) and focus specifically on retailers in Oregon. While the two surveys covered similar data points, the 2010 survey methodology had field staff photograph available lighting products on the shelf in order to increase the amount of data points available, as well as decrease the time spent in the field writing information. PECL collected data from 19 stores in Oregon including eight big box, seven grocery, and four hardware stores.

Key Findings

The key findings on Oregon retail lighting shelf space include:

- The majority of lighting products on store shelves are for specialty lighting applications.
- Specialty CFLs make up approximately 17 percent of the overall lighting market. While this is lower than the 2009 study, this result may be due to differences in data collection or the expansion of the non-CFL specialty bulb market.
- Big box stores had the highest percentage of lighting product shelf space dedicated to specialty CFLs (21 percent) and the most amount of retail space dedicated to lighting products overall.
- Due to a different weighting methodology, the trend in specialty CFL prices compared to 2009 cannot be identified. Reflector CFLs have the smallest price premium over incandescents.
- Specialty CFLs have increased in availability over the past year, particularly globe and reflector CFLs.
- As the program just approved its first LED model in November, reflector LEDs may be an important growth area in future years.
- Conditions in the general lighting market will change in future years as EISA regulations take effect. No incandescent or halogen general purpose bulbs—where lumen and wattage information was obtainable—met EISA efficiency standards in the 2010 sampled stores. If Energy Trust conducts future lighting studies, they should observe how long it takes non-EISA compliant bulbs to lose market share.

Lessons Learned

- The 2010 shelf survey was originally scoped in August 2010 – with completion scheduled for the end of 2010. This time line was tight and did not leave adequate time for implementing the survey and compiling full results after corporate approval was received from big box retailers. It is recommended that future surveys cushion the timeline to allow for flexibility when unexpected hurdles arise.
- Obtaining corporate approval was the most time consuming part of the shelf survey and resulted in the sample size being reduced to a smaller-than-ideal size. In addition to allowing for more time to gain corporate approvals in future surveys, it is also recommended that one person on the survey team be identified to manage the corporate approval process and follow up with corporate contacts.
- Overall, the method of holding up a ruler to the shelf and documenting products with digital photos resulted in a detailed, accurate data set; however, the time spent downloading photos was cumbersome.
 - PECEI survey staff suggest the data collection could be sped up in the future by identifying lighting products present on the shelf using a UPC scanner. The resulting list of products could then be compared to the store's shelf plan and price file.¹
 - If the above suggestion of using a UPC scanner is not feasible, it is recommended that all field staff responsible for implementing the photo survey be given hands-on training for how to properly set up and take pictures with a digital camera. For the 2010 survey a printed spec sheet was circulated and this resulted in varying photo quality from one staff member to another. A hands-on training would help ensure a consistent quality across all pictures taken.
- Most A-lamp CFLs were categorized as general lighting in this study, a decision which accurately reflects market conditions. To ensure comparability with 2010 data, future studies should continue this categorization.
- Study staff should identify or collect data on the population of lighting retailers in Oregon and in Energy Trust territory early in the design phase of the study. This will improve the accuracy of weighting and aid in the creation of a sampling plan.
- Methods of weighting and estimating average price paid should be developed for future studies. This would improve Energy Trust's ability to monitor the price paid over time.

¹ This method would require a greater level of coordination with, and cooperation from retailers than was necessary for the 2010 shelf survey.

Introduction

Energy Trust has been influencing the lighting market in Oregon by providing CFL mark down promotions over the last several years. The promotions have focused on ENERGY STAR® certified CFLs, particularly specialty lighting products. Energy Trust has coordinated these promotions with the regional “Change-a-Light”² program and the “Simple Steps, Smart Savings”^{TM3} program. Current market realities and lighting standards changes are forcing a re-examination of CFL mark down programs to ensure claimed savings continue to persist, and to develop innovative new program designs. As such, understanding current market trends helps Energy Trust better position itself and its lighting promotions for the future.

The Northwest Energy Efficiency Alliance (NEEA) has been involved with residential market lighting initiatives since 1997. Beginning in 2005, NEEA contracted with KEMA to conduct market research investigating the state of the lighting market in the Pacific Northwest region. In 2009, Energy Trust began an analysis on the results of NEEA’s market research to provide focused information on the state of the specialty CFL market in Oregon (Taylor, 2010). As a follow up to this report, Energy Trust contracted PECL to conduct a lighting shelf survey focusing on the Oregon specialty lighting market in 2010.

The primary goal of this study is to inform Energy Trust about the current state of the specialty CFL bulb offerings on the Oregon market in 2010. The information provided in this analysis is intended to guide Energy Trust during their 2012 strategic planning process. This report details the 2010 lighting shelf survey, as well as its methodology, results and conclusions about specialty CFL bulbs in the Oregon lighting market.

² “Change a Light, Change the World” was a regional lighting program run by the Bonneville Power Administration from December 2006-March 2010.

³ “Simple Steps, Smart Savings” is a regional lighting program run by the Bonneville Power Administration that launched in April 2010. www.smartstepsnw.com

Methodology

The 2010 lighting shelf survey was an in-store survey of all bulb products available at a variety of Oregon retail locations. The survey was designed to both expand on the information collected in the previous NEEA lighting shelf surveys (Appendix A), while focusing specifically on Energy Trust's service territory. While the two surveys covered similar data points, the 2010 survey employed a photographic data collection method in order to increase the depth and precision of the final data set. This section provides details regarding sample selection, weighting, data collection, and analysis of the 2010 lighting shelf survey project.

Sample

Retailer Selection

PECI surveyed 19 individual retail locations among big box, grocery, and hardware stores, Table 1. We originally targeted a list of 34 retail store locations approved by Energy Trust; however, gaining corporate approval and access to stores took longer than anticipated. Additionally, survey staff noted that chain retailers had identical product offerings and shelving plans. Duplicates of the same chain were removed from the sample for this reason. The final sample after duplicate removal and losses due to lack of corporate approval was composed of 19 individual retail locations. Table 1 shows the targeted and actual stores surveyed by store type.

Table 1. Targeted and Actual Sample Groups by Retail Type and Geographic Type

Store Type	Big Box		Grocery		Hardware	
	Targeted	Actual	Targeted	Actual	Targeted	Actual
Metro	13	5	6	5	5	3
Rural	6	3	2	2	2	1
Total	19	8	8	7	7	4

Product Selection

Products targeted in this survey included all bulbs found on lighting product shelves and end-caps in the selected retail locations. This included the following lighting technologies:

- Incandescent
- Halogen
- CFL
- LED
- Other (linear fluorescent, metal halide, high-pressure sodium, mercury vapor)

Regardless of bulb technology, products surveyed were divided into two categories:

- General
 - A-lamp, 25-200 watt equivalent, not labeled for fan/appliance use
 - Bare spiral CFL, 25-200 watt equivalent
- Specialty
 - Reflector
 - Globe
 - Candelabra
 - 3-Way
 - Other (low- and high-watt equivalents, appliance, outdoor, etc.)

Weighting

In the 2009 NEEA lighting shelf survey study, KEMA weighted the retailer sample to match the overall distribution of stores in the Pacific Northwest region, and weighted their sample by three strata: retail type, retail ownership, and regions (KEMA, 2010). With only 19 stores in the 2010 survey conducted for Energy Trust, the study's sample was not large enough to stratify in the same manner. Absent data on the geographic and store type mix of lighting retailers in Oregon or specifically Energy Trust territory, PECEI assumed that the mix in Oregon is close to that of the Northwest as a whole and applied a simplified version of KEMA's weights. Appendix C provides a detailed overview of the weighting approach. The final weighting scheme was simplified to include only two strata (retail type and geographic type) and was approved by Energy Trust.⁴

Retail Type

Retail stores in the study sample were first categorized into one of three retail types:

- Big box (DIY, warehouse, department and membership)
- Hardware (small hardware stores and lighting showrooms)
- Grocery (supermarkets and food marts)

Geographic Type

Stores in the study sample were also categorized based on the population density of their geographic area. Retail locations were classified as either located in a metropolitan statistical area (metro) or not (rural) as defined by the U.S. Office of Management and Budget (U.S. Office of Management and Budget, 2009).

Data Collection

The primary method of data collection for the shelf survey was digital photographs. PECEI staff conducted site visits to retail locations between October 2010 and February 2011. Survey staff contacted individual store managers to introduce the survey and its goals (see Appendix B for example communication to a

⁴ See Appendix C for the weighting memo provided to Energy Trust detailing the weighting scheme applied to the 2010 store sample.

potential retail participant). Verbal approval to enter stores and document available lighting products was given to field survey staff. During the site visit, survey staff captured lighting shelf data by photographing the lighting products and shelving layout observed at each store. Survey staff took one photo per product slot to gather all the necessary data points for analysis.

Survey staff placed a ruler in each photograph to provide accurate measurements of linear shelf space. Staff used handwritten forms to record other store data not captured in photos, such as the location of the product in the store.⁵

The data collection methods used for this survey resulted in a dataset that included the granularity necessary to aggregate details from products in one store into a profile of the store's contents and to easily compare stores side-by-side.

Data Entry

Process

Once field survey staff captured the necessary information at each of the retail locations, the pictures were organized into a digital photo record of the complete contents of each store's shelves and delivered back to office-based survey staff for data entry into a spreadsheet.⁶ Data-entry staff responsible for the data transcription from digital photo to spreadsheet were familiar with the lighting products surveyed and entered data exactly as it appeared in the photographs with the exception of these instances:

- If there was an empty product space on the shelf due to an out-of-stock product, data was recorded based on the information from the price tag on the shelf.
- If an identical product in two locations within the same retail location had different values for the same field (e.g. price), the data entry staff entered the value on the product packaging.
- In cases where the price tag did not match the product on the shelf, the data entry staff used the most readily available and logical information (a matching price tag on a nearby shelf, for example) and made a note of this when recording the information source.
- If necessary values were missing or unidentifiable from the photograph, the data entry staff used external sources to complete missing fields and could look up product information from local data sources on an as needed basis.
- If manufacturers reported certain values in different units (such as product lifetime reported in years instead of hours), data entry staff compared products from the same category and manufacturer to convert from years to hours for the purposes of unit consistency.
- In the cases of recording if products were certified as ENERGY STAR, the specification was recorded only when an ENERGY STAR label was visible on the front of the packaging.
- Survey staff could not identify cold cathode bulbs from the photographs; these bulbs were categorized as CFLs.

⁵ See Appendix D for a copy of the supplemental data collection form.

⁶ See Appendix E for a complete list of data points transcribed from digital photographs into the master data set

The survey database contained additional fields that calculated based on inputs to the spreadsheet. These fields included: effective wattage, lumen output, and price per bulb. These calculated fields took into account the number of bulbs per pack or other related issues such as 3-Way bulbs.

Benefits

Previous approaches to collecting shelf survey data have relied on hand-recorded information and survey staff's estimates of lighting products and shelf space during the site visit. Capturing survey data via in-store photos and then performing data entry in the office created natural efficiencies and quality controls. Both paper record keeping and on-site direct entry into laptop computers have inefficiencies and lead to errors. The innovative approach of using digital photographs for this survey had several advantages including: less time spent in the field, administrative efficiencies in data entry, quality control, and photo records to backup every data point. The photographic method was efficient, accurate, and provided the additional benefit of a backup of product records for future reference.

Results

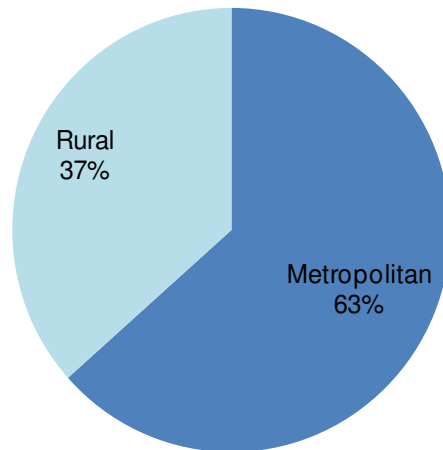
The following sections describe the analytical results of the 2010 lighting shelf survey. All values reported are weighted using the weighting scheme detailed in Appendix C, unless otherwise stated.

Overall Shelf Space in Oregon

In Oregon retail establishments, the average amount of shelf space dedicated to lighting products was 116 linear feet. Big box stores had significantly more lighting retail space, averaging 205 linear feet per store, followed by hardware stores (89 linear feet) and grocery (83 linear feet). This result was expected as big box stores generally provide a larger variety of bulb products and have more space available in general to the bulb category than do hardware or grocery stores.

Analysis of shelf space data by geographical type indicated that 63 percent of lighting shelf space in Oregon is found in metropolitan areas, as shown in Figure 1.

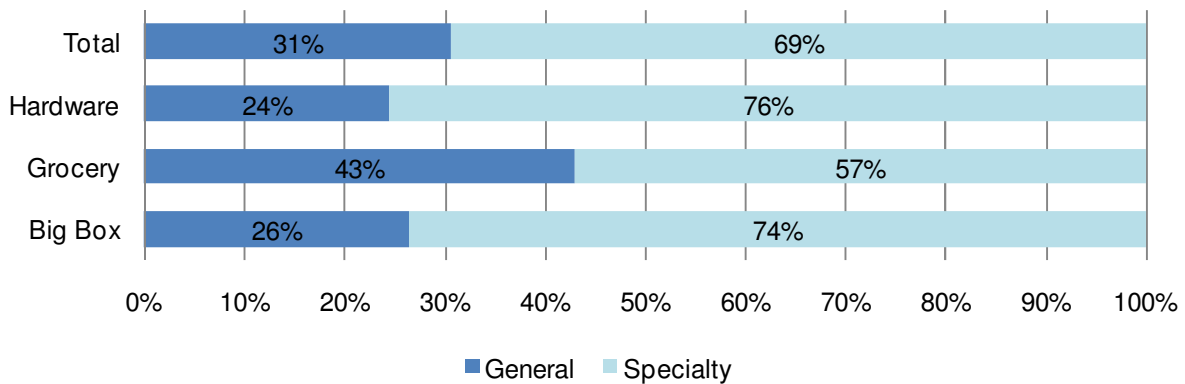
Figure 1. Percentage of Shelf Space by Geographic Type



Overall Specialty Lighting

Overall, specialty product occupied more than twice the shelf space of general lighting products, Figure 2. In big box and hardware stores, specialty lighting made up approximately 75 percent of shelf space. Grocery stores carried a higher percentage of general bulbs, with only 57 percent specialty bulbs.

Figure 2. Percentage of General vs. Specialty Shelf Space by Retail Type

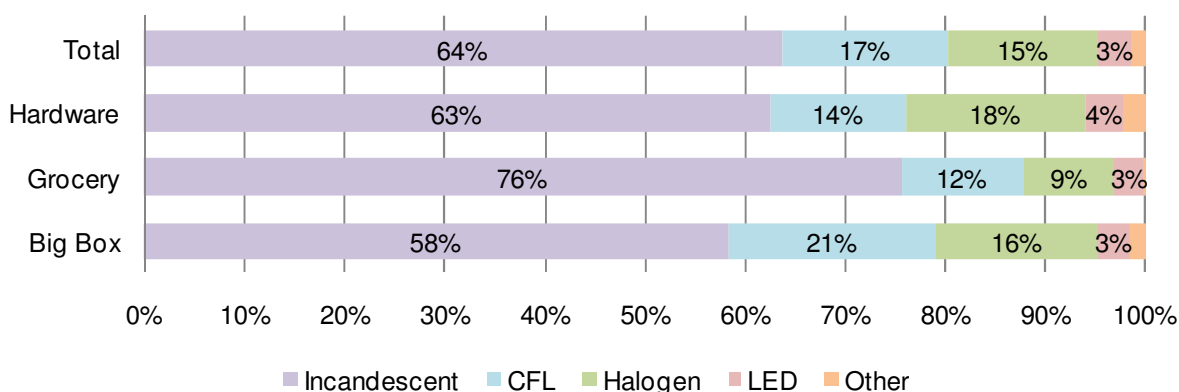


The overall percentage of specialty lighting in this survey was higher than the percentage reported in the 2009 study, which estimated 49 percent of shelf space was dedicated to specialty bulbs (Taylor, 2010). The 2010 result (69 percent) is an increase of 20 percentage points. A portion of this significant increase could be due to the fact that the 2010 study may have included a higher number of specialty technologies in the survey.

Specialty CFL Shelf Space

Incandescent and CFL products comprised the majority of specialty bulb linear shelf space, with a combined average of 81 percent of specialty products. CFLs accounted for 17 percent, on average, of total specialty shelf space while LED technology accounted for three percent. Halogens were the third most common technology and averaged 15 percent of specialty shelf space. High-pressure sodium, mercury vapor, long-tube fluorescent, and mercury vapor together added up to less than three percent of shelf space; they make up the “Other” technology category in this report. Big box stores carried more CFL specialty products (21 percent), and grocery and hardware carried 12 and 14 percent, respectively (see Figure 3).

Figure 3. Percent of Specialty Bulb Shelf Space occupied by each Technology, by Retail Type



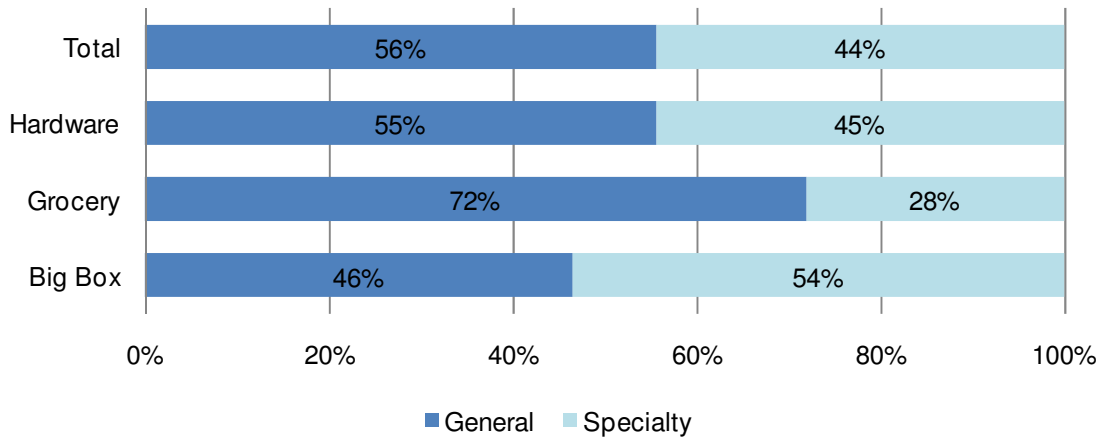
The survey originally planned to capture cold cathode bulbs as a separate technology; however, it was difficult for survey staff to distinguish between CFLs and cold cathode bulbs when recording product information unless cold cathodes were specifically labeled as such on the exterior of the packaging. This was not generally the case, and the majority of the cold cathode and CFL bulbs were packaged with no direct view of the bulb. In these instances cold cathodes were categorized as CFLs unless the packaging specifically labeled the bulb as a cold cathode.

The 2010 observations were lower than 2009’s findings, which reported 25 percent of specialty lighting shelf space was allocated to CFL technology. The CFL percentage in big box stores was particularly low (21 percent) compared to 2009 results which ranged from 29 to 42 percent shelf space dedicated to CFLs. It is important to note that the 2009 study included A-lamps in the CFL specialty category while the 2010 study categorized A-lamps as general lighting.⁷ This distinction may have had some influence on the apparent reduction of CFL shelf space between 2009 and 2010. Also, some stores carry only CFL lighting products (e.g. membership warehouse stores) and over or underrepresentation of these store types could cause a discrepancy in the numbers observed between the two studies.

⁷ In the 2009 study Taylor reported A-lamp CFLs as specialty bulbs (Taylor, 2010). In the 2010 study, PECL classified A-lamp CFLs as general purpose bulbs since they are a direct replacement for A-lamp incandescent bulbs. In addition, it appears that the 2010 study did a more exhaustive characterization of lighting stock including fluorescent and appliance lighting applications.

As shown in Figure 4, general CFLs occupied more shelf space than specialty CFLs. Overall, 44 percent of all current CFL shelf space was dedicated to specialty bulbs compared with 47 percent in the 2009 analysis. Big box stores had the highest percentage of specialty CFLs (54 percent) and grocery the lowest (28 percent). In comparison, specialty bulbs occupied 78 percent of non-CFL space.

Figure 4. CFL Bulbs by Retail Type and Category



Participant Stores

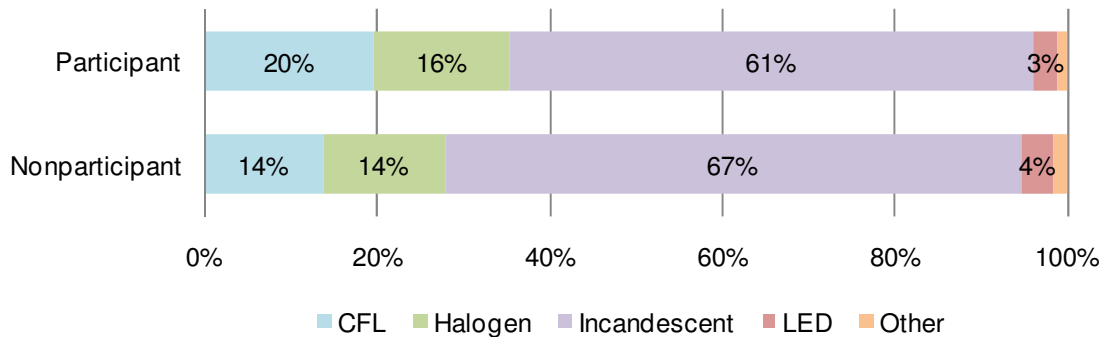
Of the 19 stores surveyed in 2010, eight stores participated in the BPA Simple Steps program in 2010. Table 2 provides a summary of participant and nonparticipant stores by retail type. There were no participating hardware stores in the 2010 sample and most of the surveyed big box stores were participating in the program. The majority of the participant retailers in the 2010 sample were big box stores and therefore differences observed in this report between participant and non-participant retailers are not necessarily representative of overall program impacts.

Table 2. Simple Steps Participant and Nonparticipant Stores, by Retail Type

	Big Box	Grocery	Hardware	Total
Nonparticipant	1	5	5	11
Participant	6	2	0	8
Total	7	7	5	19

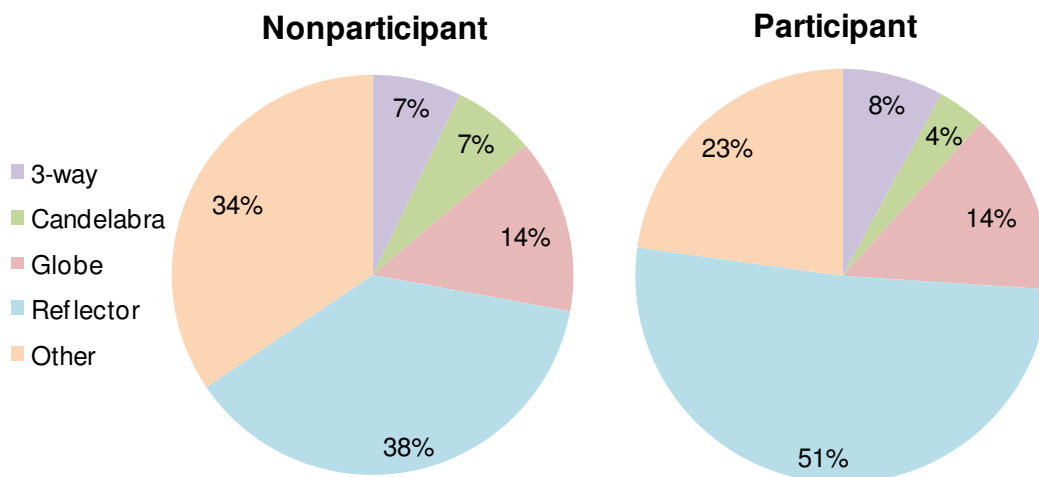
Figure 5 shows the technology distribution for specialty lighting shelf space for participant and nonparticipant stores. Participant stores have a greater percentage of shelf space for specialty CFLs, 20 percent, compared to nonparticipant stores, 14 percent. The portion of specialty shelving dedicated to CFLs is lower than the 2009 study results. As noted, the difference could be related to the small sample size in this study or a potential over-representation of warehouse retail types in the 2009 sample.

Figure 5. Participant Store Specialty Lighting Technology Distribution



The Simple Steps program targets incentives for specialty CFLs including reflector, globe, 3-Way, outdoor, and candelabra bulbs. As shown in Figure 6, participant stores carried more reflector bulbs. The remaining bulb types were approximately equal between participants and nonparticipants, though, nonparticipants had a greater portion of other CFL types that are not targeted by the program (“Other” category).

Figure 6. Distribution of Specialty CFL Lighting Products



Trends in Availability and Diversity for Specialty CFLs

The 2010 lighting survey examined common CFL specialty bulb types including: reflectors, globes, candelabra, 3-Ways, specialty A-lamps (e.g. fan bulbs), and outdoor bulbs such as post bulbs. More than seventy-five percent of Oregon retailers carried each of the most common specialty bulb types – 3-Way, candelabra, globe, and reflectors – in 2010. Table 3 provides an overview of availability of each specialty

CFL bulb type, measured as a percent of stores carrying the products. It also shows product diversity for each bulb type, measured as the average distinct models per store and median model count. We counted each unique stock-keeping unit (SKU) in a store as one model.

Table 3. Distribution of Specialty CFL Bulb Types

	Average Distinct Model Count per Store	Median Model Count	% of Stores
3-Way	1.9	2.0	79%
Candelabra	1.6	1.0	79%
Globe	2.5	2.0	89%
Reflector	7.1	5.5	95%
Other	7.1	8.0	84%

- **3-Way Bulbs.** 3-Way CFLs were present in 79 percent of Oregon lighting retailers in 2010. Of those stores, more than half carried two or fewer models. In 2009, availability of 3-Way bulbs was not reported (Taylor, 2010).
- **Candelabra Bulbs.** Survey data indicated 79 percent of the stores stocked CFL candelabra bulbs. Of those stores, more than half stocked only one model. In 2009, availability of candelabra bulbs was not reported (Taylor, 2010).
- **Globe Bulbs.** 2010 data shows that globes with CFL lighting technology are being stocked in more stores. Survey staff found globe CFL bulbs in 89 percent of the stores with a median of two models to choose from in each store. In late 2009, only 70 percent of stores stocked globe CFLs, with a median of three models per store (Taylor, 2010).
- **Reflector Bulbs.** Reflector CFLs were in 95 percent of the stores surveyed with a median count of 8 models per store. This is an increase over 2009, when the median model count was seven (Taylor, 2010).

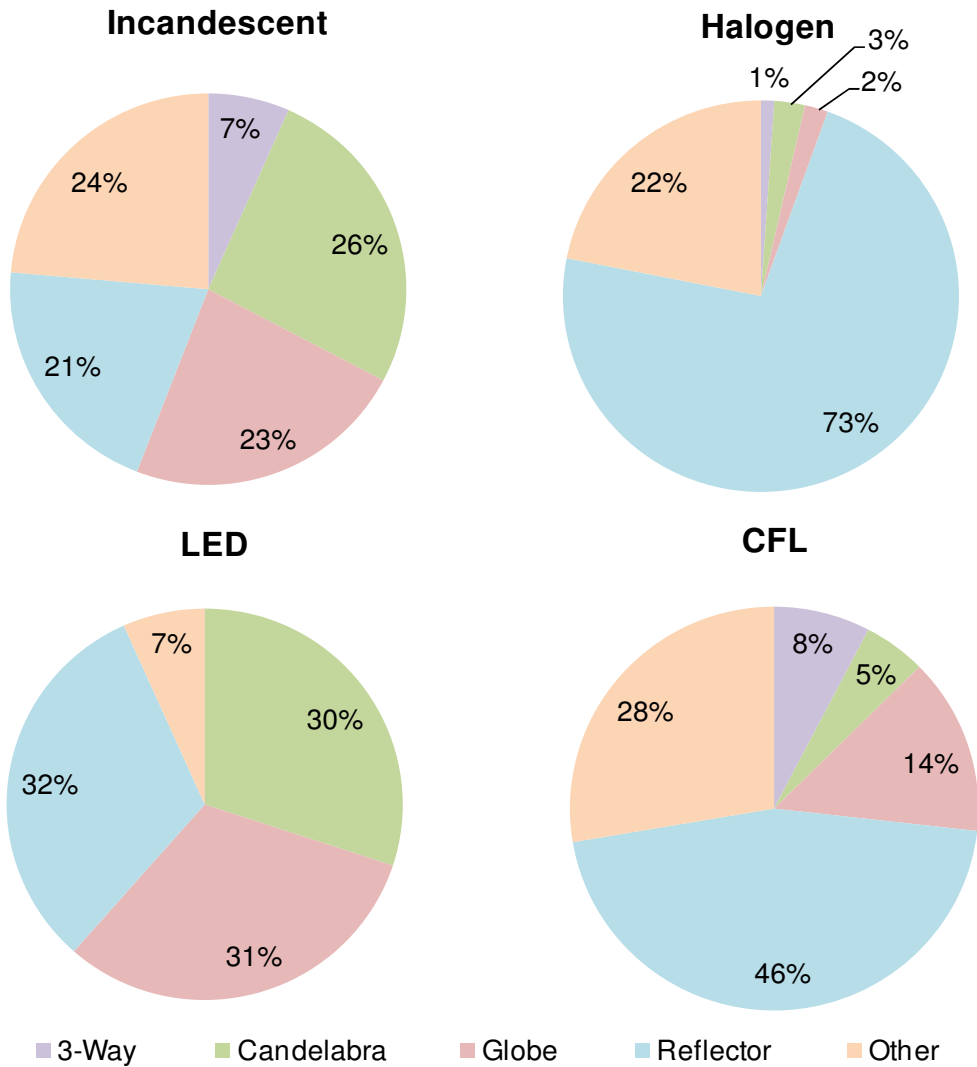
Comparison to Other Lighting Technologies

Four major types of specialty bulbs comprised 77 percent of Oregon specialty shelving space in 2010: 3-Ways (six percent), candelabras (19 percent), globes (19 percent), and reflectors (33 percent). Other types of specialty bulbs included appliance, dual voltage, nightlight, post lamp, and high-wattage-equivalent A-lamps and spirals. Because each made up only a small percentage of total shelf space, these types are all included in the “Other” category in this report. Incandescent bulbs were still the dominant technology in specialty lighting, meaning their share of shelf space among the four main specialty bulb types was similar to the overall market average. Halogens, LEDs, and CFLs were each more prevalent in some applications than others, as can be seen in Figure 7.

Although LEDs were still only a small portion of Oregon specialty shelf space, they made up approximately as much of total candelabra shelf space as CFLs did. This result is likely because candelabra applications require bulbs that are small in size and dimmable. This combination of features is more easily achieved with LED technology than CFLs.

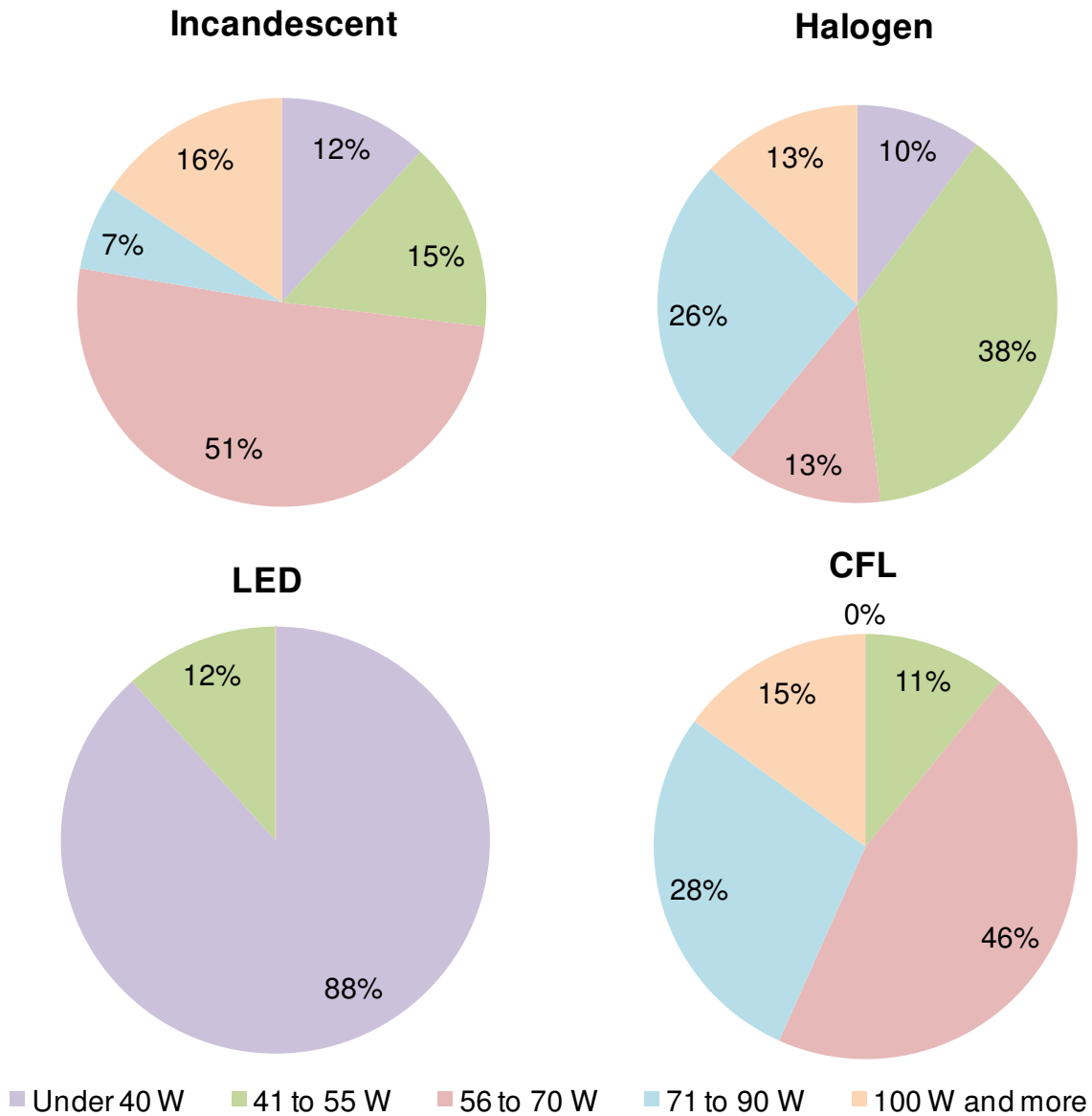
Seventy-three percent of specialty halogen shelf space and 46 percent of specialty CFL shelf space were devoted to reflectors.

Figure 7. Shelf Space for Specialty Bulbs, by Technology and Bulb Type



As reflector CFLs are a relatively large part of program operations, we show the breakdown of shelf space by wattage for reflector bulbs of each technology in Figure 8. Only 23 percent of incandescent reflectors are 71 or more watts, but 43 percent of CFL reflectors and 39 percent of halogen reflectors are that wattage equivalent or higher.

Figure 8. Shelf Space for Reflector Bulbs, by Technology and Wattage Equivalent



Specialty CFL prices

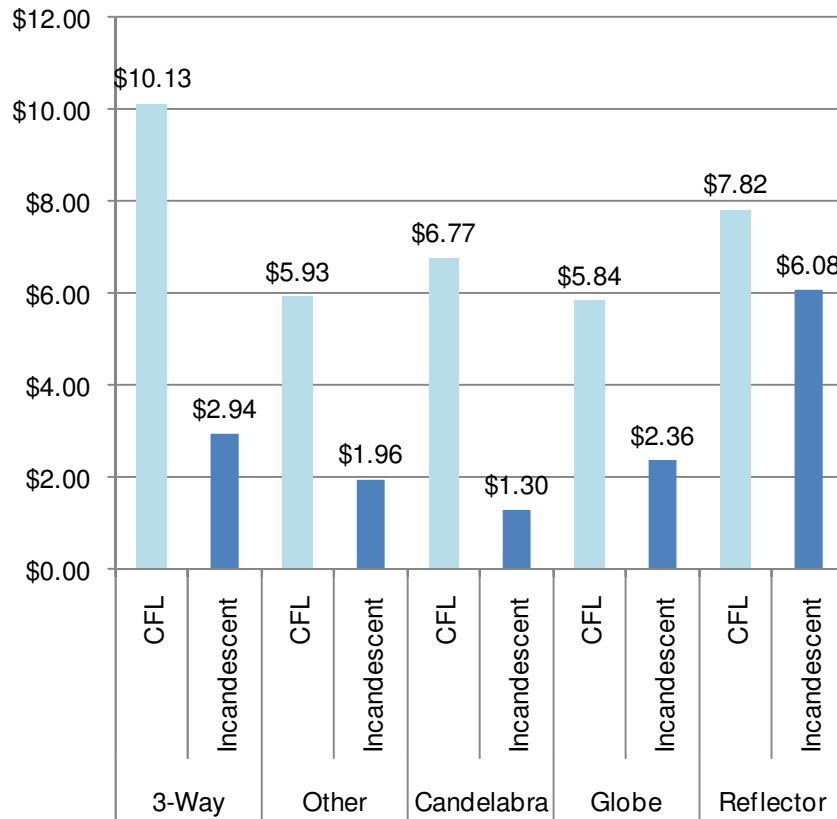
Price is an important driver of light bulb sales. For this reason, PECEI surveyors recorded both pre- and post-discount prices for products where both were available. However, pre-discount price data was not available for some models and in cases where pre-discount prices were shown, it was often not clear whether the discounts came from energy efficiency rebates, manufacturer discounts, or retailers themselves. Therefore, PECEI reported only post-discount prices in this report.

Appendix F shows the range of specialty CFL prices observed in the sample by bulb type.

The report on the 2009 shelf survey calculated weighted average price paid per bulb “based upon the Energy Trust sales data” (Taylor, 2010). It was not clear if the average price was weighted by store, bulb type, SKU, or by some other method. Without sales data for nonparticipant stores and non-rebated SKUs, we were unable to weight the 2010 data by sales. Instead, we report the average price per bulb across SKUs, weighted by rural/metro and retail type. Because stores with lower per-bulb prices likely sold more of each SKU, the average price paid per bulb was probably lower than the average price per bulb of products on Oregon shelves. Therefore, we expect the 2010 observed price data to result in higher reported average prices than for 2009 data average price paid data. This does not necessarily mean that average price paid has increased.

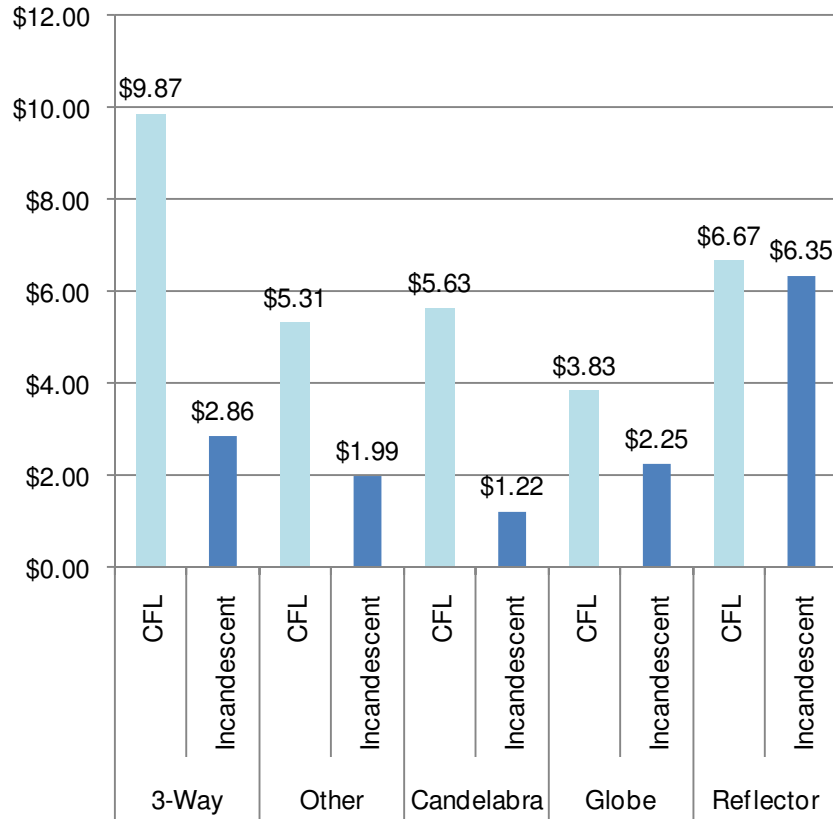
CFLs cost more than incandescents in each of the four major specialty bulb types in 2010. However, the average price difference, shown in Figure 9, was much smaller for reflector bulbs than other bulb types. Reflector CFLs only cost about 30 percent more on average than reflector incandescents. These more-competitive prices may be why 46 percent of specialty CFL shelf space was devoted to reflector CFLs.

Figure 9. Average Price Per Specialty Bulb by Bulb Type



At the seven surveyed big box stores, the price differences in every category were smaller than for the population of all stores. Big box stores had especially competitive prices for CFL reflector bulbs. As shown in Figure 10, CFL reflectors cost on average \$6.67 per bulb at big-box stores, compared to \$6.35 per bulb for traditional incandescent reflectors.

Figure 10. Average Price Per Specialty Bulb in Big Box Stores (n=7) by Bulb Type



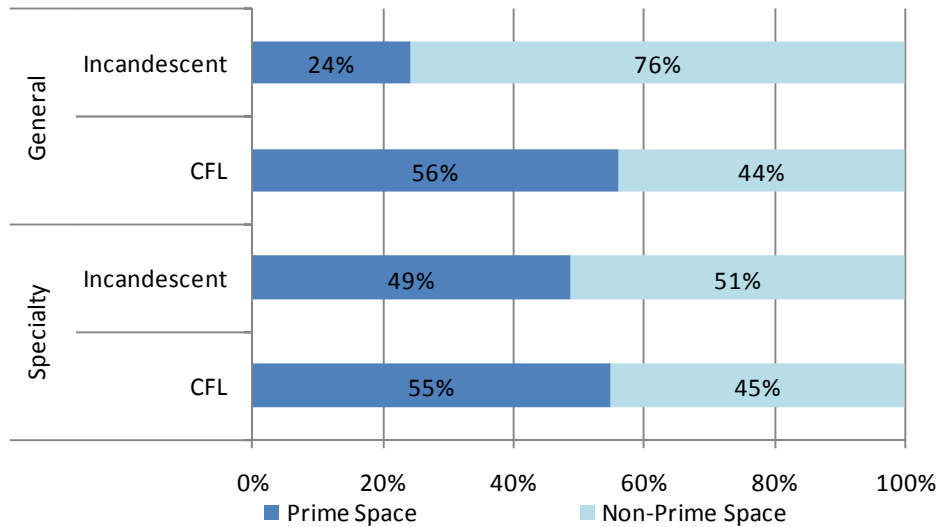
Prime Shelf Space

Because product placement within retail bays has a large impact on sales, this survey categorized and recorded where bulbs were located within the retailer’s shelf plan. Delineations were made between prime retail space (at eye-level) and non-prime retail space (above or below eye-level) and were recorded as such. Stores must allocate some prime space to certain products due to contractual obligations to suppliers, but choose products for the remaining prime space based on their own profit.

Within general lighting shelf space, CFL bulbs were placed in prime space considerably more often than incandescent bulbs in 2010. As shown in Figure 11, 56 percent of general CFL shelf space was prime while only 24 percent of general incandescent shelf space fell into prime space. Retailers likely prioritize general CFL bulbs because, compared against incandescents, they have a higher profit per bulb sold.

In specialty lighting, 49 percent of incandescent space was prime compared to 55 percent of CFL space. It is possible non-CFL specialty bulbs generated enough profit per bulb that retailers prioritized them nearly as much as CFL bulbs.

Figure 11. Percent of CFL and Incandescent Bulb Shelf Space at Prime Height, by Category

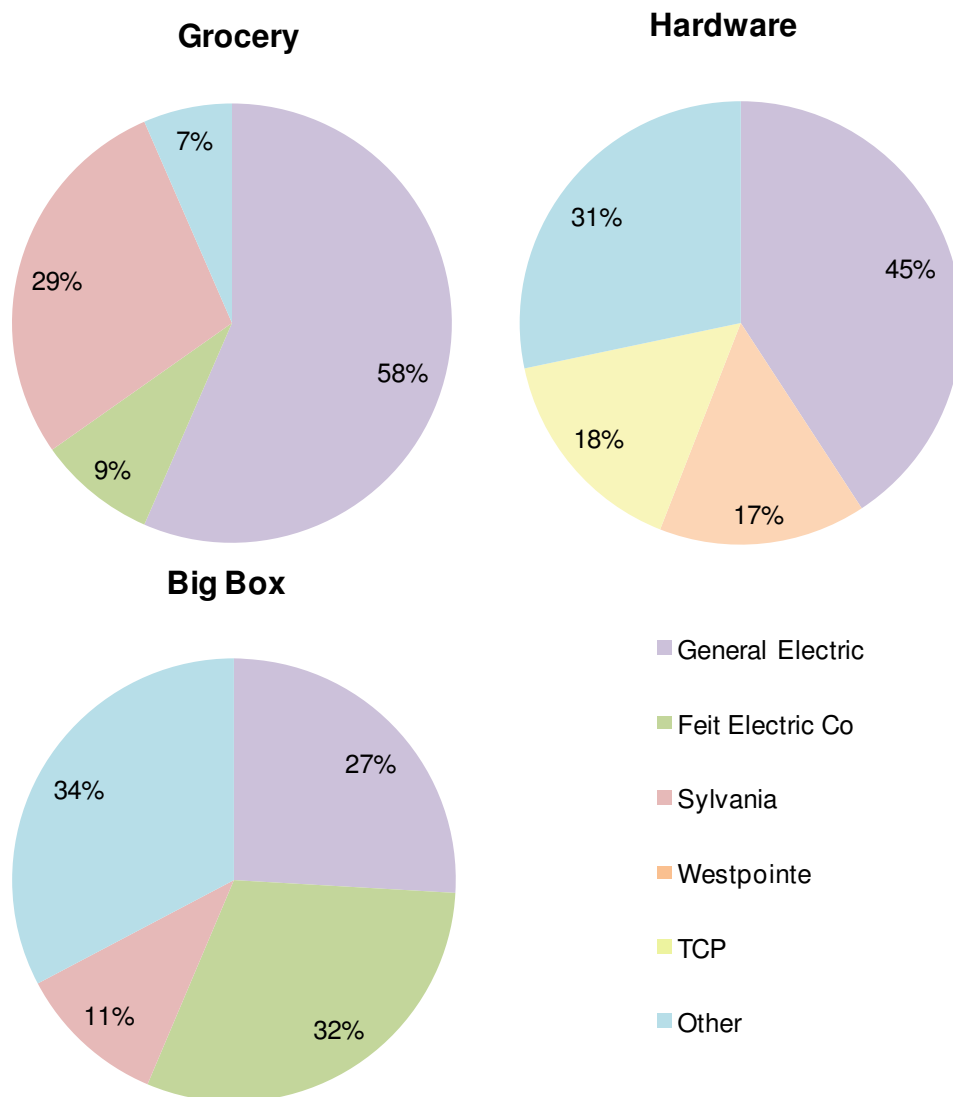


The 2009 shelf survey did not track the shelf location of lighting products surveyed. As such direct comparison to previous product placement was not possible. Future studies should consider how to incorporate this data set in their survey design as this data would be particularly useful in comparative analyses that look at shelf plan design over time, as well as its correlation to price and sales.

CFL Brands

Monitoring changes in the prevalence of different brands of specialty CFL lighting gives program designers an indication of who the key program partners might be. As shown in Figure 12, General Electric (GE) was the leading brand of CFL specialty products in 2010; 35 percent of specialty CFL shelf space was devoted to GE products. GE was the predominant manufacturer found in grocery stores with 58 percent of the shelf space, and hardware stores with 45 percent. In big box stores, Feit-branded products had more specialty CFL shelf space than GE products did. However, Feit's manufacturing market share may have been bigger than its brand market share as it manufactured some CFLs that were labeled and distributed as other brands.

Figure 12. CFL Specialty Products by Retail Type and Brand

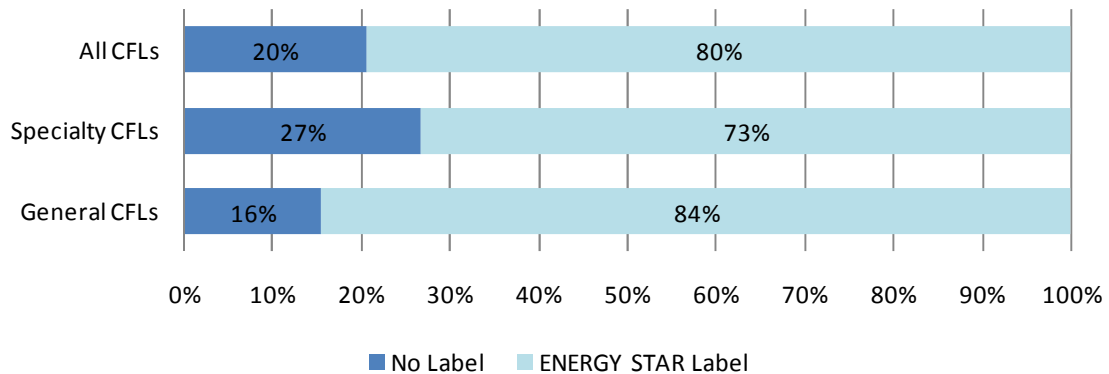


ENERGY STAR®

Photographs of bulbs in packaging were used to identify ENERGY STAR products. Due to this method of capturing the data, analysts did not record ENERGY STAR certification unless the ENERGY STAR emblem was clear on the front of the package. Cross references can be made in the future to determine whether certain model numbers are ENERGY STAR certified. The information collected in the survey accurately represents what is available to a consumer when making purchasing decisions at the store.

No ENERGY STAR LED specialty lighting options were recorded in this survey. However, of the linear feet of shelf space stocked with specialty CFL lighting options by retail stores, 73 percent of this is clearly marked as certified ENERGY STAR (see Figure 13). An even larger portion of general CFL lighting shelf space is occupied by ENERGY STAR marked products: 84 percent. As the specialty CFL lighting market develops, the portion clearly marked as ENERGY STAR may approach the general CFL percentage.

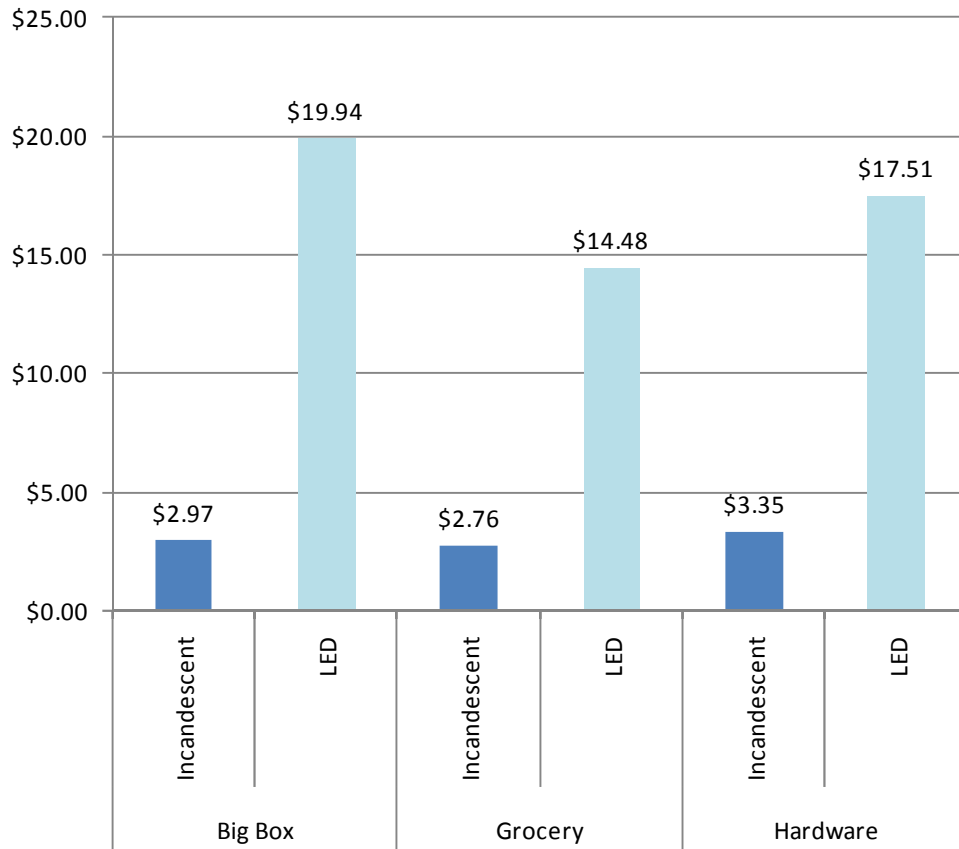
Figure 13. Percentage of CFL Shelf Space Devoted to ENERGY STAR Products



LED Specialty Bulbs

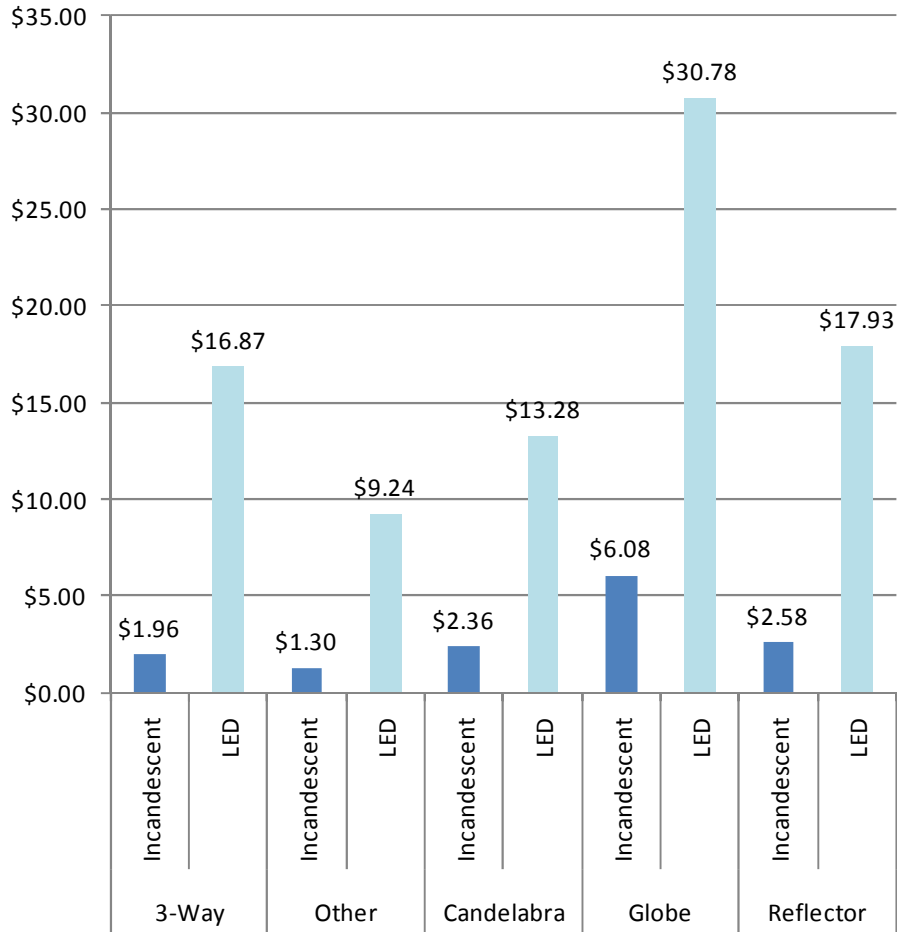
LED specialty bulbs made up a small portion of Oregon specialty shelf space in 2010 and the Simple Steps program did not offer incentives on LED bulbs until November 2010. LED bulbs have similar energy efficiency benefits to CFLs and the potential to last much longer than CFLs, but their high first cost and performance issues have limited their market uptake so far. As shown in Figure 14, LED specialty bulbs cost much more per bulb than incandescent bulbs. The premium for LED specialty bulbs over incandescents is greatest in big box stores, where the average premium for CFLs was the smallest.

Figure 14. Average Prices of LED and Incandescent Specialty Products by Retail Type



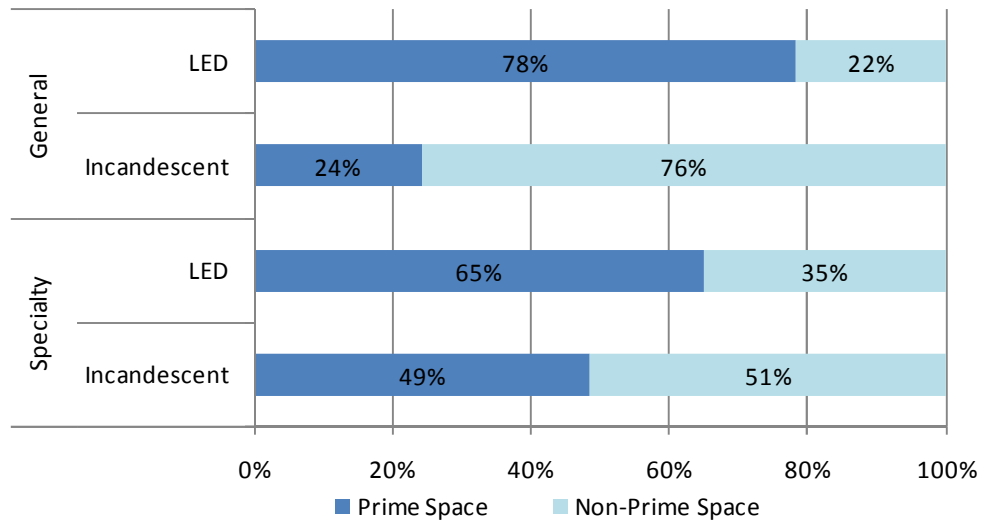
In 2010, 61 percent of LED specialty bulb shelf space was occupied by candelabra or globe bulbs which generally replace low-wattage incandescents and therefore result in relatively small energy savings. Thirty-two percent of specialty bulb shelf space was devoted to reflector bulbs which generally replace higher wattages. However, as shown in Figure 15, reflector LEDs cost on average \$17.93 per bulb compared to \$2.58 per bulb for incandescents.

Figure 15. Average Prices of LED and Incandescent Specialty Products by Bulb Type



The high cost per bulb for LED specialty lighting did have one upside: it likely induced retailers to stock LEDs in prime shelf space more often. As shown in Figure 16, 65 percent of specialty LED shelf space was at prime height while only 49 percent of incandescent shelf space was prime. This strategy could be a deliberate attempt to push customers toward CFLs. When CFL prices are compared to LEDs, the prices look more reasonable.

Figure 16. Prime Space as a Percent of LED and Incandescent Specialty Shelf Space

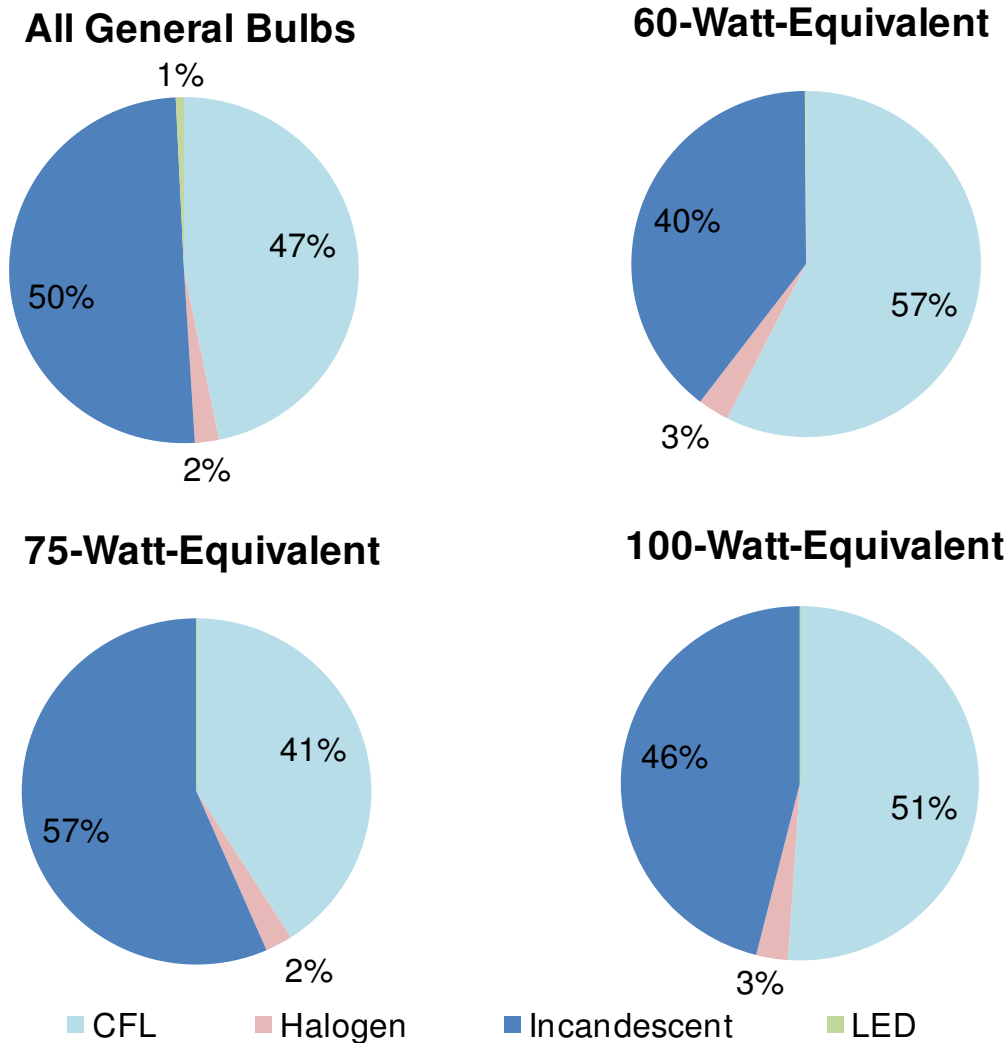


Energy Independence and Security Act (EISA)

Section 321 of EISA establishes higher minimum efficiency levels for medium screw base light bulbs (110th Congress of the United States of America, 2007). From 2012 to 2014, different rated lumen output ranges with corresponding maximum wattages will go into effect, at which time manufacturers can ship only products that meet the new minimum efficiency levels. EISA does not endorse a particular technology to increase lighting efficacy, though it effectively eliminates many traditional incandescent medium screw base bulbs that do not meet EISA requirements. This is of interest to many demand side management (DSM) program implementers as it may make CFLs the most cost-effective option meeting EISA requirements. This will be especially true if traditional incandescent and halogen bulbs do not improve their efficiency in a cost-effective way.

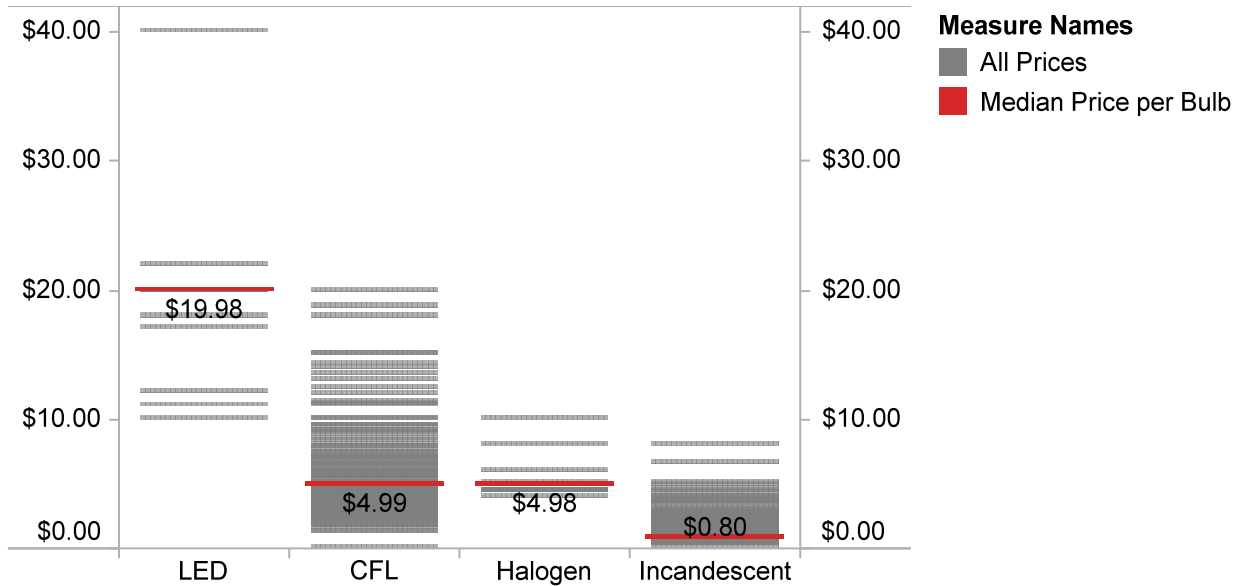
The 2010 shelf survey results, Figure 17, indicate halogens make up a small portion of general medium-screw base lighting (2 percent). Incandescent bulbs make up half the general lighting options and many of these bulbs will begin to phase out of stock at retailers as manufactures discontinue these bulbs. Due to EISA, we expect a growth in number of options with halogen general lighting technologies in the next few years as more products comply with EISA efficiency standards. As a technology halogens have a long way to go before reaching market saturation: in 2010 only three percent of 100-watt equivalent general bulbs were halogen, even though EISA phases in for that lumen range in 2012.

Figure 17. General Bulb Technology Types, by Wattage Equivalent



The 2010 shelf survey showed incandescent bulbs remain the least cost option for general lighting at a median price of \$0.80 per bulb. The median price for general halogens is on par with the median price of CFLs. Figure 18 shows the range of prices observed for general bulbs in grey and the median price observed in red. While there are halogen products that meet EISA requirements, the general halogen bulb products recorded in this survey do *not* meet minimum EISA requirements.

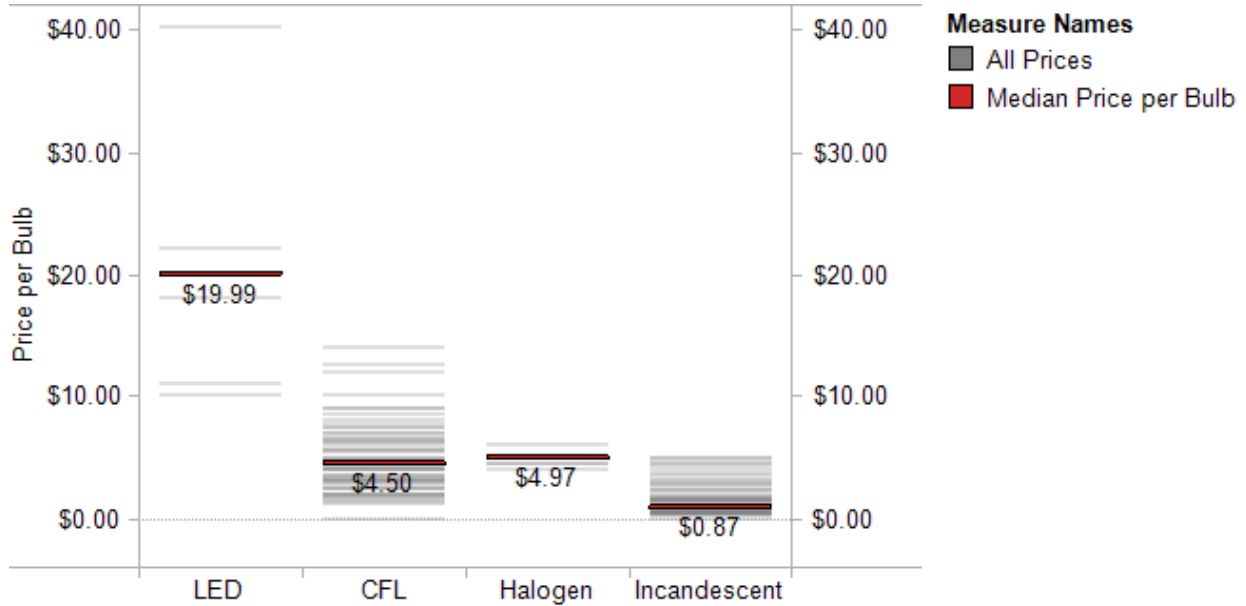
Figure 18. General Bulbs by Technology with Prices and Median Price for all Retail Types*



*Halogens not EISA compliant.

Prices in big box stores alone, shown in Figure 19 are similar to the overall price distribution. However, the median price per general CFL in big box stores is \$4.50 – lower than the all retail type median of \$4.97 in Figure 18.

Figure 19. General Bulbs by Technology with Prices and Median Price for Big Box Stores*



*Halogens not EISA compliant.

Table 4 provides the average un-weighted price for halogen products at different rated wattages and lumen output. Blank cells indicate no product was observed in that particular lumen wattage combination. The combinations of lumens and watts that are EISA compliant are highlighted in color and no products were recorded for these categories. It is important to note that survey staff was not able to capture the lumen output of all products. As such, EISA compliant products may have been observed but there was not enough information available on the product packaging to confirm compliance.

Table 4. Lumen Range and Wattage for General Halogen Bulbs*

Lumen Range	29 watts	40 watts	53 watts	60 watts	70 watts	75 watts	100 watts
1490-2600	EISA 2012						\$4.49
1050-1489	EISA 2013			\$4.49		\$4.49	
750-1049	EISA 2014			\$4.86			
310-749	EISA 2014			\$6.99			

*Cells without prices indicate no bulbs recorded meeting the watt/lumen combination.

Key Findings and Lessons Learned

This section provides a summary of high-level findings and lessons learned from the 2010 lighting shelf survey performed by PECEI. The key findings provide an overview of the shelf survey data. Where possible, we made comparisons between the 2010 data and previous studies throughout the report. These comparisons were limited due to slight differences in data processing and collection.

Key Findings

The key findings on Oregon retail lighting shelf space include:

- The majority of lighting products on store shelves are for specialty lighting applications.
- Specialty CFLs make up approximately 17 percent of the specialty market. While this result is lower than 2009, this result may be due to differences in data collection or expansion of the non-CFL specialty bulb market.
- Big box stores had the highest percentage of shelf space dedicated to specialty CFLs (21 percent) and the most amount of retail space dedicated to lighting products overall.
- Due to a different weighting methodology, the trend in specialty CFL prices compared to 2009 cannot be identified. Reflector CFLs have the smallest price premium over incandescents.
- Specialty CFLs have increased in availability over the past year, particularly globe and reflector CFLs.
- As the program just approved its first LED model in November, reflector LEDs may be an important growth area in future years.
- Conditions in the general lighting market will change in future years as EISA regulations take effect. No incandescent or halogen general purpose bulbs—where lumen and wattage information was obtainable—met EISA efficiency standards in the 2010 sampled stores. If Energy Trust conducts future lighting studies, they should observe how long it takes non-EISA compliant bulbs to lose shelf space.

Lessons Learned

Lessons learned document future study improvements for both data collection and analysis, based on the results of the study and implementation of the shelf survey. These include:

- The 2010 shelf survey was originally scoped in August 2010 – with completion scheduled for the end of 2010. This time line was tight and did not leave adequate time for implementing the survey and compiling full results after corporate approval was received from big box retailers. It is recommended that future surveys cushion the timeline to allow for flexibility when unexpected hurdles arise.
- Obtaining corporate approval was the most time consuming part of the shelf survey and resulted in the sample size being reduced to a smaller-than-ideal size. In addition to allowing for more time to gain corporate approvals in future surveys, it is also recommended that one person on the survey team be identified to manage the corporate approval process and follow up with corporate contacts.
- Overall, the method of holding up a ruler to the shelf and documenting products with digital

photos resulted in a detailed, accurate data set; however, the time spent downloading photos was cumbersome.

- PECEI survey staff suggest the data collection could be sped up in the future by identifying lighting products present on the shelf using a UPC scanner. The resulting list of products could then be compared to the store's shelf plan for the shelf space and price file.⁸
- If the above suggestion of using a UPC scanner is not feasible, it is recommended that all field staff responsible for implementing the photo survey be given hands-on training for how to properly set up and take pictures with a digital camera. For the 2010 survey a printed spec sheet was circulated and this resulted in varying photo quality from one staff member to another. A hands-on training would help ensure a consistent quality across all pictures taken for the shelf survey.
- Most A-lamp CFLs were categorized as general lighting in this study, a decision which reflects market conditions well. To ensure comparability with 2010 data, future studies should continue this categorization.
- Study staff should identify or collect data on the population of lighting retailers in Oregon and in Energy Trust territory early in the design phase of the study. This will improve the accuracy of weighting and aid in the creation of a sampling plan.
- Methods of weighting and estimating average price paid should be developed for future studies. This would improve Energy Trust's ability to monitor the price paid over time.

⁸ This method would require a greater level of coordination with, and cooperation from retailers than was necessary for the 2010 shelf survey.

Works Cited

110th Congress of the United States of America. (2007). *Energy Independence and Security Act of 2007*. Retrieved May 23, 2011, from http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110_cong_bills&docid=f:h6enr.txt.pdf

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NEEA. (2010). 2010 Energy Trust of Oregon Lighting Shelf Survey Data Set.xls.

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U.S. Office of Management and Budget. (2009, December 1). *Update of Statistical Area Definitions And Guidance on Their Uses*. Retrieved May 23, 2011, from <http://www.whitehouse.gov/sites/default/files/omb/assets/bulletins/b10-02.pdf>

Appendix A

2009 Northwest Alliance Lighting Tracking Study – Data Collection Form

Northwest Alliance Lighting Tracking Study Shelf Inventory Store Id: _____

NORTHWEST ALLIANCE LIGHTING TRACKING STUDY: LIGHTING SHELF INVENTORY

CONTACT INFORMATION

PLEASE FILL IN THIS SECTION USING THE INFORMATION CONTAINED IN THE SAMPLE DATABASE

Field Staff Name:	Date of Survey:
Store name:	Strata:
Store address:	Store city:
Store state:	Store zip code:

A1. What type of store is this? [CIRCLE ONE ONLY.]

- Warehouse (Sam's, Costco)..... 1
- Do-It-Yourself (for example, Home Depot) 2
- Drugstore, Grocery Store..... 3
- Mass Merchandise (for example, Wal-Mart, Target)..... 4
- Small Hardware Store..... 5
- Other (Describe) _____ 6

A2. Types of Products Sold [CIRCLE ALL THAT APPLY.]

- ENERGY STAR® CFL bulbs..... 1
- Standard CFL bulbs (Non ENERGY STAR®) 2
- Standard Fluorescent Tubes (Non ENERGY STAR®)..... 3
- LED Holiday Lights 4

Bulb displays

- A3. Are there any end-cap lighting displays? Yes No
- A4. Are CFL bulbs featured in the end-cap displays? Yes No
- A5. Are ENERGY STAR® CFL bulbs featured in the end-cap displays? Yes No
- A6. Are CFLs in a specially-labeled section of lighting product (e.g. ENERGY STAR®)? Yes No

IF YES, ENTER NAME OF SECTION: _____

A7. What type of POP are present that promote CFL bulbs? [CIRCLE ALL THAT APPLY]

- 1 Display with instant rebate forms (note rebate sponsor) _____
- 2 Retailer sign
- 3 Brochures
- 4 ENERGY STAR clings
- 5 Aisle violator
- 6 Bulb wheel
- 7 Other (Describe) _____
- 8 No identifying material present
- 9 "Savings with a Twist" Sign

SHELF SPACE ALLOCATION - CFLs

PLEASE GO TO ALL THE SECTIONS OF THE STORE WHERE LIGHT BULBS CAN BE FOUND. FOR EACH DIFFERENT DEPARTMENT, PLEASE LIST:

NOTES: (1) When tallying floor displays or pallets, add the linear feet of all exposed (viewable) sides for each shelf.

(2) Choose one of the following two: Linear Feet per Shelf and Total Linear Feet

- 1 **All Light Bulbs-** Linear Feet per Shelf, # of Shelves, Total Linear Feet for all light bulbs, including CFL, incandescent, halogens, fluorescent, etc.
- 2 **CFLs-** A subset of (1): the Linear Feet per Shelf, # of Shelves, Total Linear Feet that are dedicated to CFLs (with or without an Energy Star® label)
- 3 **ENERGY STAR® CFLs-** A subset of (2): the Linear Feet per Shelf, # of Shelves, Total Linear Feet that are dedicated to Energy Star® CFLs.
- 4 **LEDs / COLD CATHODES-** Repeat steps 2 and 3 for LEDs and Cold Cathodes.

Dept. Code	All Light Bulbs			CFLs			ENERGY STAR® CFLs		
	Linear Feet Per Shelf	# of Shelves	Total Linear Feet	Linear Feet Per Shelf	# of Shelves	Total Linear Feet	Linear Feet Per Shelf	# of Shelves	Total Linear Feet
B1_1	B1_2	B1_3	B1_4	B1_5	B1_6	B1_7	B1_8	B1_9	B1_10
B2_1	B2_2	B2_3	B2_4	B2_5	B2_6	B2_7	B2_8	B2_9	B2_10
B3_1	B3_2	B3_3	B3_4	B3_5	B3_6	B3_7	B3_8	B3_9	B3_10
B4_1	B3_2	B3_3	B3_4	B3_5	B3_6	B3_7	B3_8	B3_9	B3_10
B5_1	B5_2	B5_3	B5_4	B5_5	B5_6	B5_7	B5_8	B5_9	B5_10
B6_1	B6_2	B6_3	B6_4	B6_5	B6_6	B6_7	B6_8	B6_9	B6_10
B7_1	B7_2	B7_3	B7_4	B7_5	B7_6	B7_7	B7_8	B7_9	B7_10
B8_1	B8_2	B8_3	B8_4	B8_5	B8_6	B8_7	B8_8	B8_9	B8_10
B9_1	B9_2	B9_3	B9_4	B9_5	B9_6	B9_7	B9_8	B9_9	B9_10
B10_1	B10_2	B10_3	B10_4	B10_5	B10_6	B10_7	B10_8	B10_9	B10_10

Department Codes: Electrical - 1, Kitchen - 2, Hardware - 3, Lighting - 4, Furniture - 5, Other (Specify)- 6.

Dept. Code	All Light Bulbs			CFLs			ENERGY STAR® CFLs		
	Linear Feet Per Shelf	# of Shelves	Total Linear Feet	Linear Feet Per Shelf	# of Shelves	Total Linear Feet	Linear Feet Per Shelf	# of Shelves	Total Linear Feet
B11_1	B11_2	B11_3	B11_4	B11_5	B11_6	B11_7	B11_8	B11_9	B11_10
B12_1	B12_2	B12_3	B12_4	B12_5	B12_6	B12_7	B12_8	B12_9	B12_10
B13_1	B13_2	B13_3	B13_4	B13_5	B13_6	B13_7	B13_8	B13_9	B13_10
B14_1	B14_2	B14_3	B14_4	B14_5	B14_6	B14_7	B14_8	B14_9	B14_10
B15_1	B15_2	B15_3	B15_4	B15_5	B15_6	B15_7	B15_8	B15_9	B15_10
B16_1	B16_2	B16_3	B16_4	B16_5	B16_6	B16_7	B16_8	B16_9	B16_10
B17_1	B17_2	B17_3	B17_4	B17_5	B17_6	B17_7	B17_8	B17_9	B17_10
B18_1	B18_2	B18_3	B18_4	B18_5	B18_6	B18_7	B18_8	B18_9	B18_10
B19_1	B19_2	B19_3	B19_4	B19_5	B19_6	B19_7	B19_8	B19_9	B19_10
B20_1	B20_2	B20_3	B20_4	B20_5	B20_6	B20_7	B20_8	B20_9	B20_10
B21_1	B21_2	B21_3	B21_4	B21_5	B21_6	B21_7	B21_8	B21_9	B21_10
B22_1	B22_2	B22_3	B22_4	B22_5	B22_6	B22_7	B22_8	B22_9	B22_10

Department Codes: Electrical - 1, Kitchen - 2, Hardware - 3, Lighting - 4, Furniture - 5, Other (Specify)- 6.

SHELF SPACE ALLOCATION – SPECIALTY CFLs

Dept. Code	All Specialty Light Bulbs			Specialty CFLs		
	Linear Feet Per Shelf	# of Shelves	Total Linear Feet	Linear Feet Per Shelf	# of Shelves	Total Linear Feet
SC1_1	SC1_2	SC1_3	SC1_4	SC1_5	SC1_6	SC1_7
SC2_1	SC2_2	SC2_3	SC2_4	SC2_5	SC2_6	SC2_7
SC3_1	SC3_2	SC3_3	SC3_4	SC3_5	SC3_6	SC3_7
SC4_1	SC3_2	SC3_3	SC3_4	SC3_5	SC3_6	SC3_7
SC5_1	SC5_2	SC5_3	SC5_4	SC5_5	SC5_6	SC5_7
SC6_1	SC6_2	SC6_3	SC6_4	SC6_5	SC6_6	SC6_7
SC7_1	SC7_2	SC7_3	SC7_4	SC7_5	SC7_6	SC7_7
SC8_1	SC8_2	SC8_3	SC8_4	SC8_5	SC8_6	SC8_7
SC9_1	SC9_2	SC9_3	SC9_4	SC9_5	SC9_6	SC9_7
SC9_1	SC9_2	SC9_3	SC9_4	SC9_5	SC9_6	SC9_7
SC10_1	SC10_2	SC10_3	SC10_4	SC10_5	SC10_6	SC10_7
SC11_1	SC11_2	SC11_3	SC11_4	SC11_5	SC11_6	SC11_7

SHELF SPACE ALLOCATION - LEDs

Dept. Code	LEDs			ENERGY STAR® LEDs		
	Linear Feet Per Shelf	# of Shelves	Total Linear Feet	Linear Feet Per Shelf	# of Shelves	Total Linear Feet
LED1_1	LED1_5	LED1_6	LED1_7	LED1_8	LED1_9	LED1_10
LED2_1	LED2_5	LED2_6	LED2_7	LED2_8	LED2_9	LED2_10
LED3_1	LED3_5	LED3_6	LED3_7	LED3_8	LED3_9	LED3_10
LED4_1	LED3_5	LED3_6	LED3_7	LED3_8	LED3_9	LED3_10
LED5_1	LED5_5	LED5_6	LED5_7	LED5_8	LED5_9	LED5_10

Department Codes: Electrical - 1, Kitchen - 2, Hardware - 3, Lighting - 4, Furniture - 5, Other (Specify)- 6.

SHELF SPACE ALLOCATION - Cold Cathodes

Dept. Code	Cold Cathodes			ENERGY STAR® Cold Cathodes		
	Linear Feet Per Shelf	# of Shelves	Total Linear Feet	Linear Feet Per Shelf	# of Shelves	Total Linear Feet
CC1_1	CC1_5	CC1_6	CC1_7	CC1_8	CC1_9	CC1_10
CC2_1	CC2_5	CC2_6	CC2_7	CC2_8	CC2_9	CC2_10
CC3_1	CC3_5	CC3_6	CC3_7	CC3_8	CC3_9	CC3_10
CC4_1	CC3_5	CC3_6	CC3_7	CC3_8	CC3_9	CC3_10
CC5_1	CC5_5	CC5_6	CC5_7	CC5_8	CC5_9	CC5_10

Department Codes: Electrical - 1, Kitchen - 2, Hardware - 3, Lighting - 4, Furniture - 5, Other (Specify)- 6.

Bulb Profile

- For **Brand, Style, and Rebate Codes**, see tables below. Use the “Notes” space to enter characteristics such as bug light, sold out, natural light, etc.
- For **Watts** list the actual wattage of the bulb, not the incandescent equivalent. If the bulb is 3-way, list all levels separated by “/”.
- For **Price**, use price per package before sale or rebate, as shown on package or shelf for pack. If a rebate is available, indicate the rebate type (from table) and the rebate amount. If the bulb is on sale, indicate the sale price (not the amount of the sale discount.)
- Indicate if package has an Energy Star® label on it.
- Indicate is the bulb is dimmable.
- Use additional sheets if needed

CODES

Brand	Brand Code
Commercial Electric	1
Cooper Electric	2
Feit Electric	3
General Electric	4
Lights of America	5
MaxLite	6
Osram Sylvania	7
Philips Lighting Co	8
Technical Consumer Prod's	9
Westinghouse	10
Greenlight	11
Good Earth	12
Bright Effects	13
Lithonia	14
Sea Gull	15
Durabright	16
Other (DESCRIBE)	97

Style	Style Code
2-tube	1
4-tube	2
Twister	3
Globe	4
Spot	5
Incand. Style (A-Lamp)	6
Circline	7
Replacement pin	8
Reflector (Flood)	9
Other	97

Rebate	Rebate Code
Utility	1
Retailer	2
Manufacturer	3
Other	97
Can't Determine	98

CFL Bulb Profile (please use as many pages as necessary)

Brand (see table)	Style (see table)	Qty in Pack	Price per pack before rebate or sale	Rebate Type (see table)	Rebate Amount	Rebate Visibility	Sale Price (if package is on sale)	Watts 1	Watts 2 (for 3- way)	Watts 3 (for 3-way)	Lumens	ES [®] label on package (check if Yes)	Bulb is dimmmable (check if Yes)
D1			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D2			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D3			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D4			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D5			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D6			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D7			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D8:			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D9			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D10			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D11			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D12			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D13			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D14			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													

Northwest Alliance Lighting Tracking Study Shelf Inventory

Store Id: _____

Brand (see table)	Style (see table)	Qty in Pack	Price per pack before rebate or sale	Rebate Type (see table)	Rebate Amount	Rebate Visibility	Sale Price (if package is on sale)	Watts 1	Watts 2 (for 3-way)	Watts 3 (for 3-way)	Lumens	ES [®] label on package (check if Yes)	Bulb is dimmable (check if Yes)
D15			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D16			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D17			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D18:			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D19			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D20			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D21			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D22			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D23			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D24			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D25			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D26			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D27			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D28			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D29			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													

Northwest Alliance Lighting Tracking Study Shelf Inventory

Store Id: _____

Brand (see table)	Style (see table)	Qty in Pack	Price per pack before rebate or sale	Rebate Type (see table)	Rebate Amount	Rebate Visibility	Sale Price (if package is on sale)	Watts 1	Watts 2 (for 3-way)	Watts 3 (for 3-way)	Lumens	ES [®] label on package (check if Yes)	Bulb is dimmable (check if Yes)
D30			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D31			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D32			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D33			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D34			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D35			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D36			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D37			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D38			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D39			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D40			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D41			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D42			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D43			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D44			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													

Northwest Alliance Lighting Tracking Study Shelf Inventory

Store Id: _____

Brand (see table)	Style (see table)	Qty in Pack	Price per pack before rebate or sale	Rebate Type (see table)	Rebate Amount	Rebate Visibility	Sale Price (if package is on sale)	Watts 1	Watts 2 (for 3-way)	Watts 3 (for 3-way)	Lumens	ES [®] label on package (check if Yes)	Bulb is dimmable (check if Yes)
D45			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D46			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D47			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D48			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D49			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D50			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D51			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D52			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D53			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D54			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D55			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D56			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D57			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
D58			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													

LED Bulb Profile (please use as many pages as necessary)

Brand (see table)	Style (see table)	Qty in Pack	Price per pack before rebate or sale	Rebate Type (see table)	Rebate Amount	Rebate Visibility	Sale Price (if package is on sale)	Watts 1	Watts 2 (for 3- way)	Watts 3 (for 3-way)	Lumens	ES® label on package (check if Yes)	Bulb is dimmmable (check if Yes)
LED1			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
LED2			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
LED3			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
LED4			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
LED5			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
LED6			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
LED7			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
LED8:			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
LED9			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
LED10			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
LED11			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
LED12			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													
LED13			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
Notes:													

Cold Cathode Bulb Profile (please use as many pages as necessary)

Brand (see table)	Style (see table)	Qty in Pack	Price per pack before rebate or sale	Rebate Type (see table)	Rebate Amount	Rebate Visibility	Sale Price (if package is on sale)	Watts 1	Watts 2 (for 3- way)	Watts 3 (for 3-way)	Lumens	ES [®] label on package (check if Yes)	Bulb is dimmmable (check if Yes)
CC1 Notes:			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
CC2 Notes:			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
CC3 Notes:			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
CC4 Notes:			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
CC5 Notes:			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
CC6 Notes:			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
CC7 Notes:			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
CC8 Notes:			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
CC9 Notes:			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
CC10 Notes:			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
CC11 Notes:			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
CC12 Notes:			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>
CC13 Notes:			\$		\$	Good Bad	\$					<input type="checkbox"/>	<input type="checkbox"/>

Appendix B

Example Communication to Retail



851 SW Sixth Ave. #1200

Portland, OR 97204

To: Energy Trust of Oregon Program Ally Retailers

From: Julie VanDyne

1.866.368.7878

Date: October 25, 2010

503.546.6862 *fax*

Re: Lighting shelf survey

Energy Trust of Oregon is conducting a lighting shelf survey at several retail locations throughout Oregon. The survey will allow us to analyze the availability and pricing of specialty CFL bulbs in Oregon as well as help inform decisions about 2011 lighting incentives and qualifications.

Craig Muedeking is visiting retailers on behalf of Energy Trust to conduct a survey of the current lighting products on the shelf.

Craig will also speak with available sales associates to get qualitative feedback on their experience with customers and the various products, including:

- What bulbs sell best
- Preferred specialty bulbs
- Barriers to purchasing specialty CFL bulbs

Your regular ENERGY STAR field representatives, Ben Soileau in Northern Oregon and Kathleen Rienhardt-Waring in Southern Oregon will continue to provide their scheduled visits to supply program materials and updates.

If you have any question or concerns about the survey please call Julie VanDyne at 503.595.4440.

We appreciate your cooperation and support in completing this survey.

Thank you!

Energy Trust of Oregon is an independent nonprofit organization dedicated to helping utility customers benefit from saving energy and tapping renewable resources. Our services, cash incentives and energy solutions have helped customers of Portland General Electric, Pacific Power, NW Natural and Cascade Natural Gas save more than \$440 million in energy costs. Our work helps keeps energy costs as low as possible, creates jobs and builds a sustainable energy future.

Appendix C

2010 Lighting Shelf Survey Sample Weights Memo

To: Matt Braman, Phil Degens and Brien Sipe – Energy Trust of Oregon

From: Crispin Wong, Angel Swanson, and Sarah Tingey

Date: May 23, 2011

This memo provides an overview of the proposed weighting scheme for the 2010 ETO lighting shelf survey including:

Background information on the NEEA/KEMA weighting approach

Proposed 2010 Weighting

Comparison of a few weighted and unweighted values.

Historical Weighting Approach

The previous studies conducted by KEMA on behalf of NEEA weight the retailer sample to match the overall distribution of stores in the region. The population (as of 2006 data) is shown in Table 1. KEMA weighted its sample by three strata: retail type, retail ownership, and regions.

Table 1: Regional Population of Stores, 2006 KEMA Weighting Scheme										
			Number of Stores				% of Stores			
Store Type	Store Ownership Category	# of Chains	Metro West	Metro East	Non-Metro	Total	Metro West	Metro East	Non-Metro	Total
Warehouse	National Chain	1	21	3	9	33	1%	0%	0%	1%
DIY	National Chain	3	83	26	46	155	3%	1%	2%	6%
Drug and Grocery	National Chain	4	528	125	184	837	21%	5%	7%	33%
	Regional Chains	6	126	15	55	196	5%	1%	2%	8%
Mass Merch.	National Chain	4	181	61	121	363	7%	2%	5%	14%
	Regional Chains	7	6	12	28	46	0%	0%	1%	2%
	Ind.		15	1	28	44	1%	0%	1%	2%

Small Hardware	Franchises	3	147	55	308	510	6%	2%	12%	20%
	Regional Chains	20	46	13	26	85	2%	1%	1%	3%
	Ind.		89	38	154	281	3%	1%	6%	11%
Total			1,242	349	959	2,550	49%	14%	38%	100%

2010 Sample and Weighting

PECI surveyed 19 stores within ETO service territory in 2010. With only 19 stores, this sample is not large enough to stratify in the same manner as KEMA. Thus, we simplified the strata to include only three retail types (big box, grocery/drug, and hardware) and two regions (metro and rural). There was one lighting showroom in the 2010 sample; we placed this in the small hardware category to be consistent with KEMA's categorization of lighting stores in previous studies.

Table 2: New Population and Strata

Store Type	Number of Stores			% of Stores		
	Metro	Rural	Total	Metro	Rural	Total
Big Box (Warehouse, MM, DIY)	409	232	641	16%	9%	25%
Drug and Grocery	794	239	1033	31%	9.4%	41%
Small Hardware	388	488	876	15%	19%	34%
Total	1591	959	2550	62%	38%	100%

Table 3: 2010 Store Sample

Retail Type	Metro	Rural	Total
Big Box	5	3	8
Grocery	5	2	7
Hardware	3	1	4
Grand Total	13	6	19

There are a couple assumptions we need to make in order to use the simplified KEMA weighting scheme:

- ETO's service territory retail lighting market is inherently the same distribution as the region. The distribution of stores in Table 1 is representative of the northwest region. By using this scheme,

we are acknowledging that the mix of store types and rural to metro locations is the same as the region. This is a reasonable assumption as ETO has a mix of rural and metro areas, and the ratio of big box, grocery, and hardware is likely similar to the overall distribution.

- Rural hardware is represented by one hardware store in Grants Pass. The sample only captured one rural hardware store. The regional data indicate that hardware stores are more prevalent than other store types in rural areas. Thus, the one store represents 19 percent of the overall region. While this is a significant assumption, it may lend more reliability and representation of rural hardware stores in the analysis.

There are not many options to create different weights without going to new, updated data sources to understand the population of retailers in ETO service territory. New weights will make comparisons to previous studies difficult.

Alternate Weighting

Weighting by retail type only (and not rural/metro distinction) would not lend much additional clarity to the survey results. Because the weights are by number of stores, the stores have equal weights within a category. Thus, only overall service territory averages would truly be weighted.

It is difficult to develop other weighting schemes since data are limited. More appropriate weighting schemes would include:

- weights by percent of lighting market share or
- linear lighting shelf space within ETO territory.

These data are not readily available for Oregon within the timeframe of this analysis. Total market share of stores—based on total annual sales—is also not readily available and does not provide a very accurate weight for the purposes of this survey. For example, a Target store that has particularly large annual sales would have more weight in the sample, indicating that their lighting shelf space is more important even if the store does not make up a particularly large portion of regional lighting sales.

Weighting results

Overall, applying the weights does not yield much difference in the survey results. There is, however, a noticeable difference in the hardware store results. Because the rural hardware store represents a much higher portion of the retail type in the region than in the 2010 sample, it is weighted substantially more than the metro stores. For example, Figure 1 provides the percent of shelf space by each technology. The weighted and unweighted distribution for big box stores is nearly identical, while the percent of CFLs and incandescent in hardware stores change slightly between the unweighted and weighted results.

Figure 2 provides a comparison of weighted and unweighted percent shelf space by bulb type.

Final Recommendation

We plan on using the simplified weights developed by KEMA for the 2010 lighting shelf survey results. If ETO conducts future lighting studies, a more appropriate and current weighting scheme for ETO service territory should be developed.

Figure 1. Comparison of Weighted and Unweighted Percent of Shelf Space by Technology and Retail Type

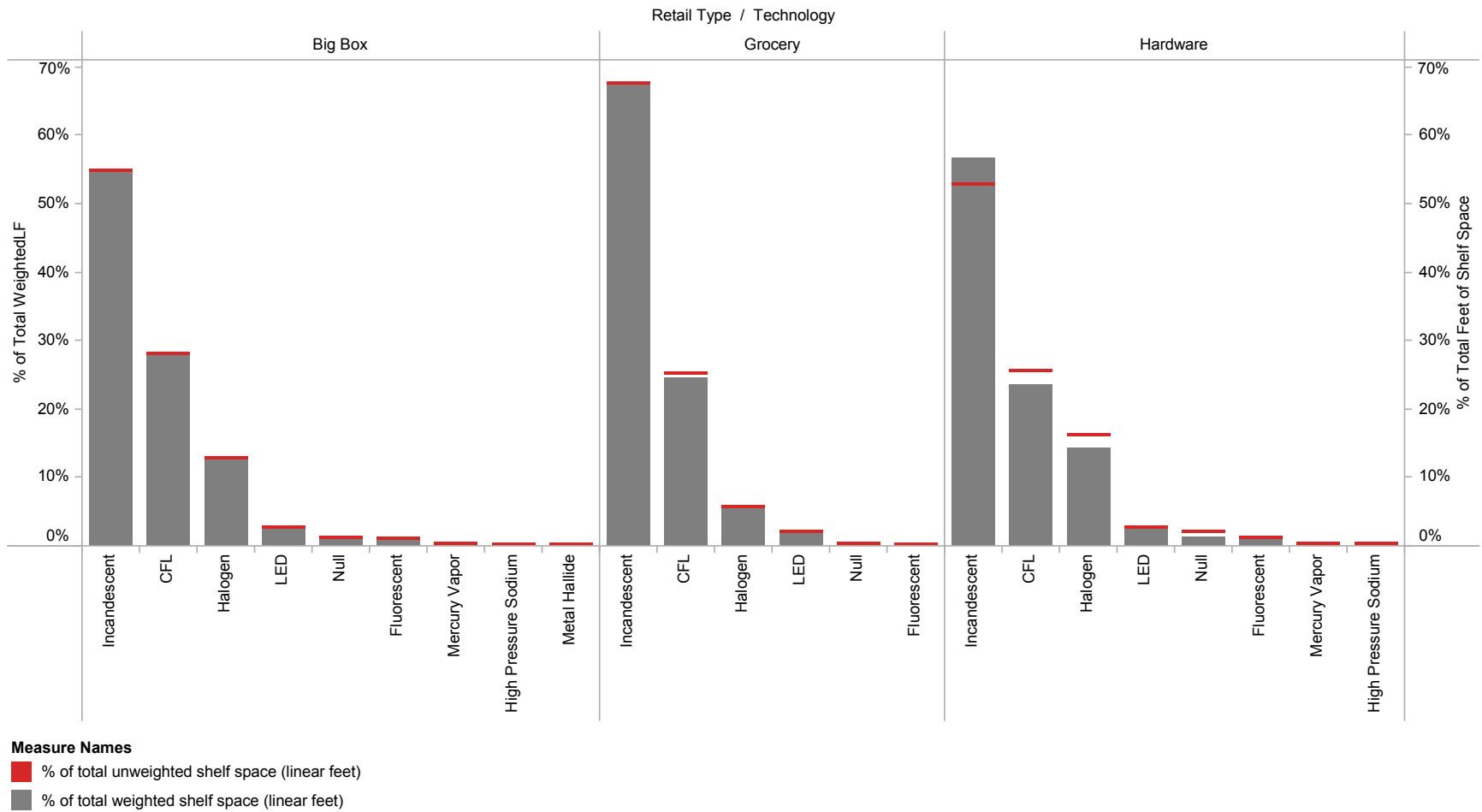
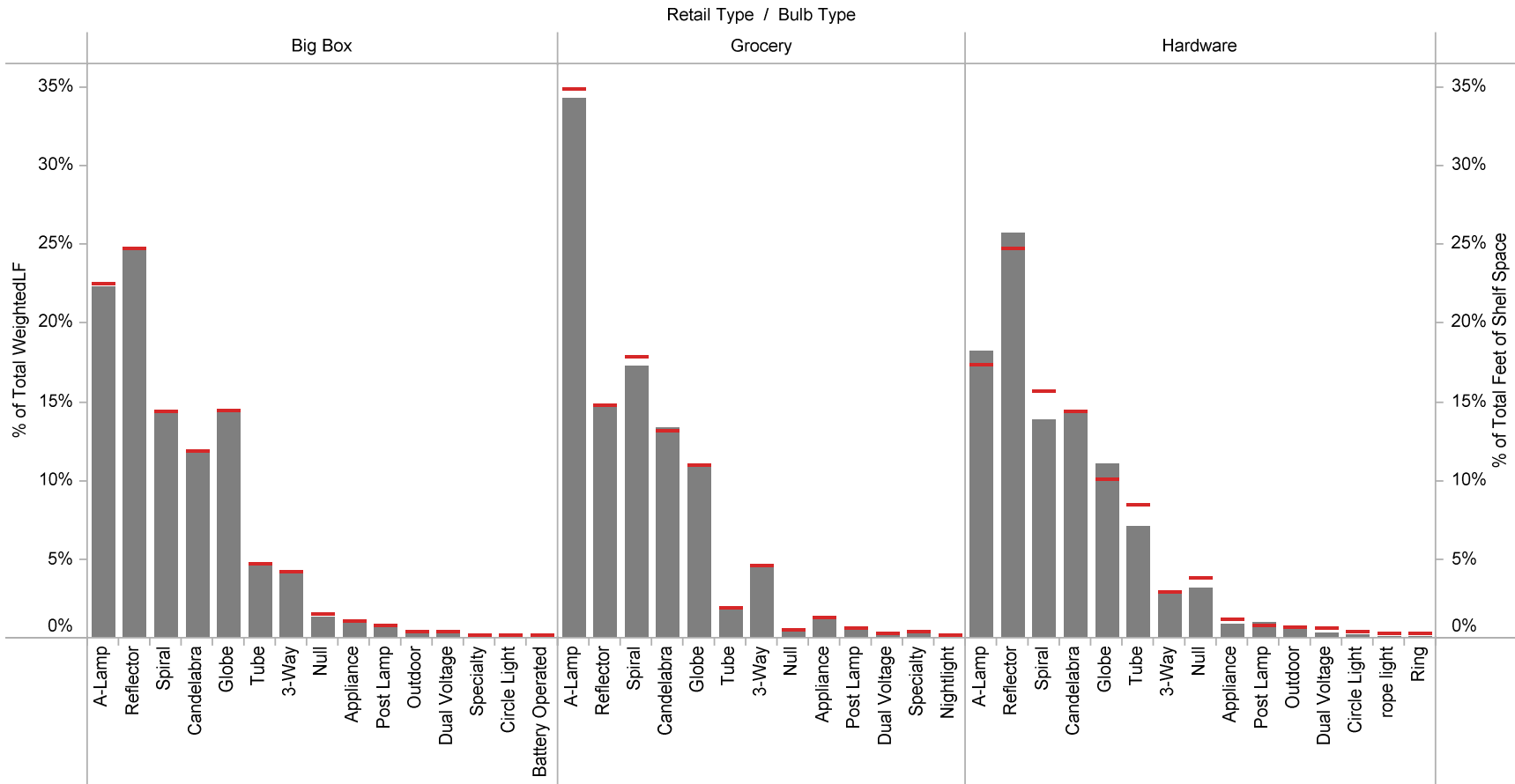


Figure 2. Comparison of Weighted and Unweighted Percent Shelf Space by Bulb Type



Measure Names

- % of total unweighted shelf space (linear feet)
- % of total weighted shelf space (linear feet)

Appendix D

Onsite Photo Tracking Form

Store Name	<input type="text"/>	
City	<input type="text"/>	
Date of Survey	<input type="text"/>	
Spoke with / notes	space for misc notes, if you have any worth mention.	
	use more than one page for a single store if necessary	
	<input type="text"/>	
	<input type="text"/>	
Aisle / Location #1	example: Lighting Aisle	
Above Prime Space	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Within Prime Space	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Below Prime Space	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Aisle / Location #2	example: Health aisle	
Above Prime Space	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Within Prime Space	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Below Prime Space	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Aisle / Location #3	example: end cap #1 near entrance	
Above Prime Space	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Within Prime Space	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Below Prime Space	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Aisle / Location #4	example: endcap #2 at rear of store	
Above Prime Space	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Within Prime Space	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Below Prime Space	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Aisle / Location #5	example: floor display in lighting aisle, measures 50" by 60" footprint	
Above Prime Space	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Within Prime Space	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Below Prime Space	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Aisle / Location #6	<input type="text"/>	
Above Prime Space	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Within Prime Space	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Below Prime Space	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Wide angle of whole aisle	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Marketing materials	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>
Other:	<i>First Photo:</i> <input type="text"/>	<i>Last Photo:</i> <input type="text"/>

Appendix E

Data Needs and Implementation Plan for 2010 Oregon Lighting Shelf Survey

The following sections, 'Data Needs' and 'Implementation Plan' detail the specifics of the lighting survey implemented by PECL on behalf of Energy Trust in the fall of 2010.

Data Needs

Survey will include:

- Date of survey
- Field Representative taking survey
- Store identification (name, address)
- UPC
- SKU

Model

- Manufacturer
- Technology (CFL, incandescent, LED, etc.)
- ENERGY STAR (y, n, n/a)
- Type (A-lamp, reflector, etc)
- Inches of linear shelf space (will be used to aggregate into linear feet)
- Retail price
- Special price (if applicable)
- Shelf location (endcap, lighting aisle, checkout stand, floor display, etc)
- Bulbs per pack
- Energy consumption (wattage)
- Dimmable (y/n)
- Packaging type

Following the survey, additional information may be matched to surveyed data for reporting purposes. Additional information may be matched based on Energy Trust requests.

- Store category (grocery, big box, etc)
- Store on current Energy Trust program (y,n)

Implementation Plan

This implementation plan covers survey development, field representatives, field deployment, data

collection at retail, data cleanup and reporting. All data and reports will be delivered to Energy Trust for analysis

Field representatives

- Two field representatives will be employed, one for the greater Portland region and the other to cover southern/eastern Oregon
- Field representatives will be given a retailer list for which they will make store visits based on criteria listed in Scope
- Field reps will survey every product on lighting shelves regardless of technology or product category
- Photo records will be delivered to PECI Portland office as surveys are completed so that data entry can begin as data is being collected from other sites
- Field representatives will have a “credential letter” with them that explains what they are doing and the purpose of the survey

Survey specifications

The methods outlined below represent an innovative way to gather data through an appliance/product survey. These methods were developed to streamline data collection, ingestion and analysis of strategically targeted metrics.

A photo will be taken of the product, the packaging and pricing information. Each photo record will contain a clear and legible representation of

- Front of packaging
- One product per picture only
- Price tag including price(s), UPC and model or SKU
- One picture will be taken for each spot on the shelf
 - i.e. if a product sits side by side with one just like it, two pictures will be taken
 - alleviate the need to track which products are unique when they exist in different places on the shelf, and will allow us to aggregate linear feet by each product
- Measuring tape (or ruler) demonstrating the inches of shelf the packaging uses
- All metrics in section 0.3 Data Needs will be clearly visible

Field reps will review the picture in-camera when it is taken for clarity and conformity to data requirements. Unclear, duplicate, or otherwise unacceptable images will be deleted on-site and retaken. The location of each photo will be recorded on a form on-site, and photos will be delivered to PECI Portland office in a specific format. Staff at PECI Portland office will use the photos to enter information about each product exactly as if they were standing in the store. This method decreases the chance for errors common to data entry (i.e. number transposition, etc) during store visits and throughout the data entry process. There is also a natural advantage of maintaining a visual record that can be referred to at any time after the site visit for backup and auditing.

Appendix F

Specialty CFL Pricing by Bulb Type

Figure 20. Distribution and Median Price Observed for 3-Way Bulbs, by Technology

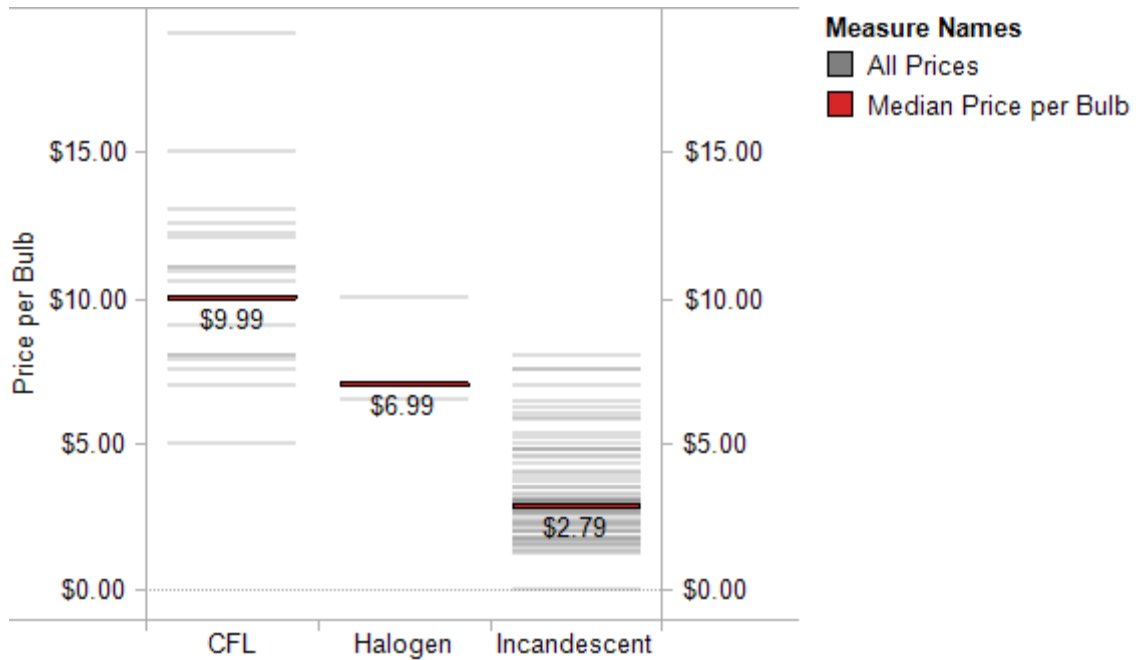


Figure 21. Distribution and Median Price Observed for Candelabra Bulbs, by Technology

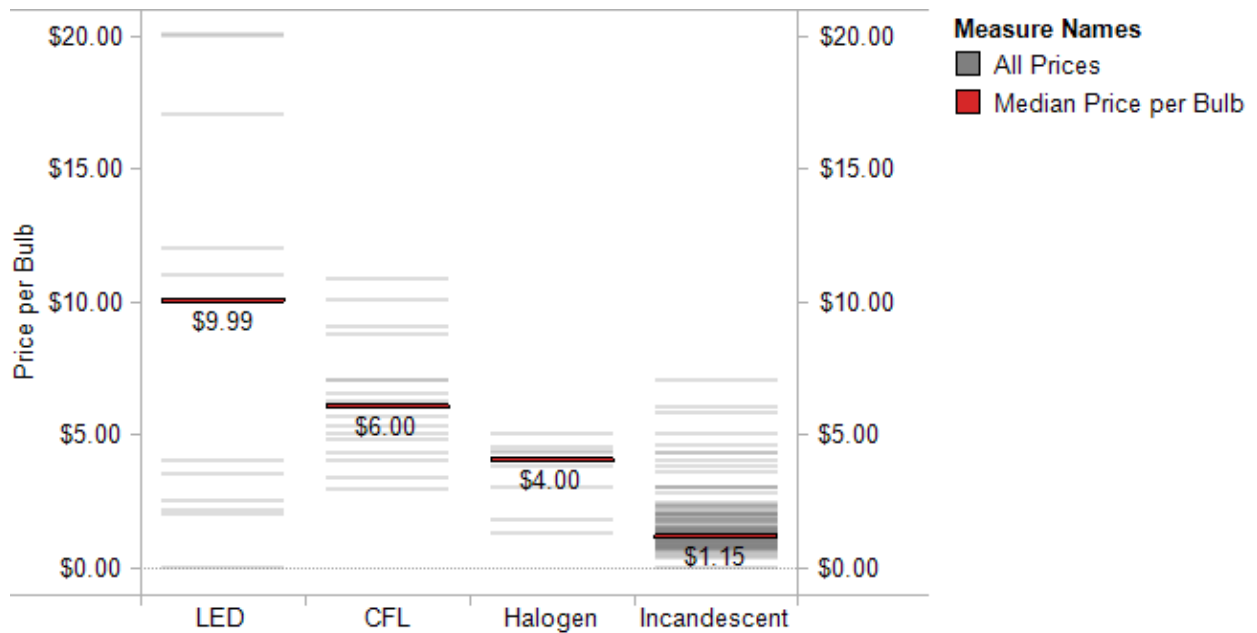


Figure 22. Distribution and Median Price Observed for Reflector Bulbs, by Technology

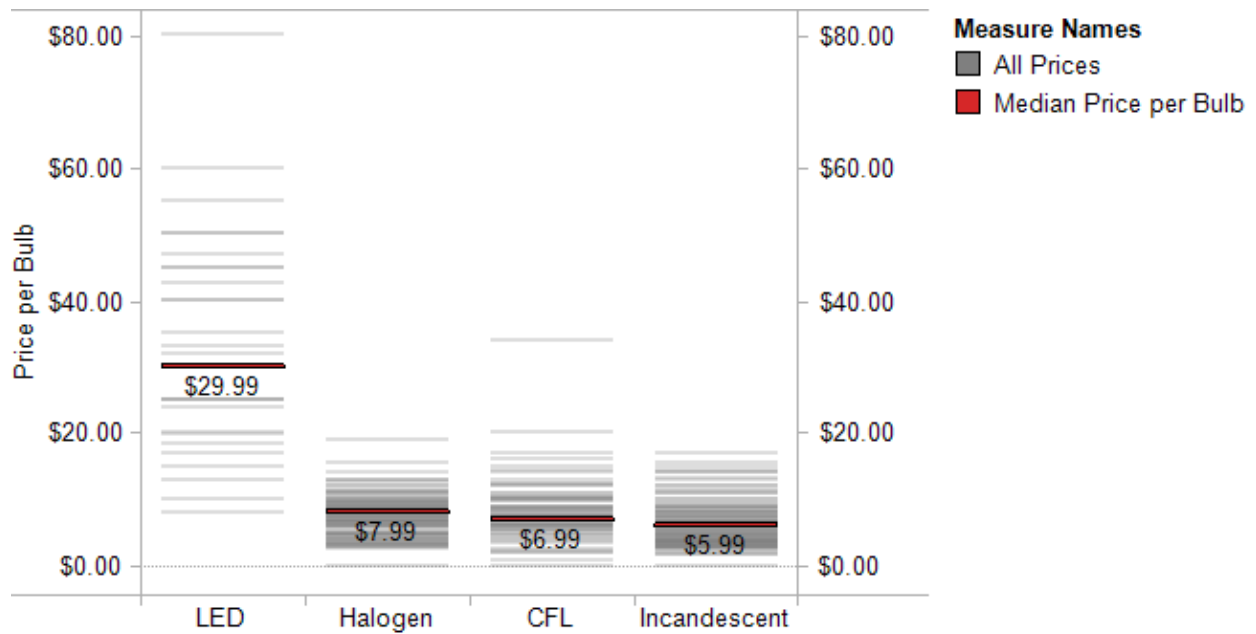
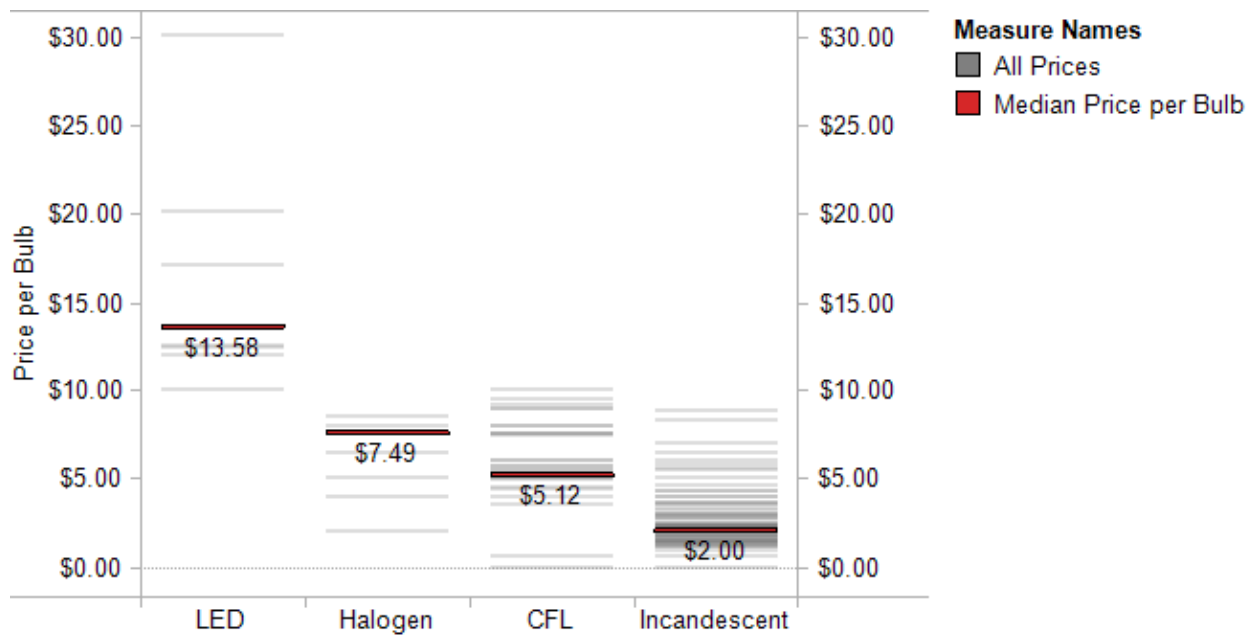


Figure 23. Distribution and Median Price Observed for Globe Bulbs, by Technology



Appendix G

Glossary of Definitions

Table 5. Glossary of Definitions

Term / Field	Description
Big Box	For the purposes of this survey big box contained the following retail types: DIY, warehouse, department and membership
Bulb Type	The shape category of light bulb (i.e. A-Lamp, reflector, 3-Way, Globe, etc.)
Category	Specialty or General lighting
Demand Side Management	Demand Side Management (DSM)
Effective Lumens	The lumen output of lamps. If a product had multiple values (such as for a 3-Ways) this survey looked at the average of those values.
Effective Wattage	The wattage of lamps. If a product had multiple wattages (such as for a 3-Ways) this survey looked at the average of those wattages.
ENERGY STAR®	Product that is ENERGY STAR qualified and labeled.
General Bulbs	- A-lamp (incandescent, halogen, CFL,9 LED) - Bare spiral CFL
Grocery	For the purposes of this survey grocery contained the following retail types: supermarkets and food marts
Hardware	For the purposes of this survey hardware contained the following retail types: small hardware stores and lighting showrooms
IOU	Investor-owned utility. These are privately operated utilities as opposed to a government run utility, or public utility district.
KEMA	KEMA provides consulting, operational support, measurements & inspection, and testing & certification services to the energy industry. www.kema.com
Lighting Technology	For the purposes of this survey lighting products were classified as one of the following technologies: CFL, Halogen, Incandescent, LED, or Other (linear fluorescent, metal halide, high-pressure sodium, mercury vapor)
Lumens	A lumen is a measurement of the light output of a bulb.
Metropolitan Statistical Area	An area with commuting patterns oriented to a city of 50,000 or more. Counties in MSAs in Oregon include Multnomah, Washington, Clackamas, Yamhill, Columbia, Marion, Polk, Lane, and Jackson.
NEEA	The Northwest Energy Efficiency Alliance (NEEA) is a non-profit working to maximize energy efficiency in the Pacific Northwest region. www.neea.org
Prime Space	For the purposes of this survey prime space was defined as the vertical point on the shelf at eye-level

⁹ CFL A-lamps have been categorized as specialty lighting in previous lighting surveys referenced by Energy Trust.

Term / Field	Description
SKU	Stock keeping unit. A unique product identifier for every product in a store. This identifier is specific to the retailer
Specialty Bulbs	<ul style="list-style-type: none"> - Reflector - Globe - Candelabra - 3-Way - A-lamps (not equivalent to 25-200 watts or marketed as decorative, fan, ceiling or candelabra) - Other (appliance, outdoor, etc.)
UPC	Universal Product Code. This is a unique product identifier in the form of a barcode that is commonly printed on product packaging. UPCs are consistent across retailers.
Wattage	Wattage is the measurement of the power it takes to operate a lamp

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