2012-2013 Energy Trust of Oregon Lighting Retail Store Shelf Survey Report

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KEMA
DNV

CONTENTS

Table of Tables

Table of Figures

1 INTRODUCTION

DNV KEMA Energy & Sustainability (DNV KEMA, formerly KEMA, Inc.) has conducted regional residential lighting market tracking efforts for the Northwest Energy Efficiency Alliance (NEEA) on roughly an annual basis since 2004. During this timeframe, DNV KEMA has periodically contracted with Energy Trust of Oregon to replicate some of this research in Oregon.

NEEA contracted with DNV KEMA during the third quarter of 2011 to conduct another Northwest residential lighting tracking study, which included another round of comprehensive lighting retail store shelf inventories (shelf surveys). Shortly after DNV KEMA began work with NEEA on the 2011-2012 study, Energy Trust of Oregon representatives contacted the DNV KEMA project manager to request an oversample of Oregon stores to support Oregon-specific analyses of shelf survey results. Similarly, in late 2012, Energy Trust of Oregon representatives requested another oversample of Oregon stores from NEEA's 2012-2013 study.

This report presents the methodology used to collect the shelf survey data (including the sampling approach) as well as the results for Oregon stores compared to the Northwest as a whole (Idaho, Montana, Oregon, and Washington). Appendix A includes details on the sources cited in this report (a bibliography) and Appendix B includes the shelf survey data collection instrument. Appendix C includes the number of sample points for report figures where this information is not included and Appendix D includes tables with detailed information on the number of lamps, lamp models, wattage, and pricing across all store types for specific lamp technologies and styles by lumen bin among Oregon stores in the 2012-2013 sample.

2 METHODS

This section of the report provides details on research methods, beginning with an overview and concluding with a discussion of the sampling approach. Note that the methods utilized in producing this report are largely the same as used in developing the 2012 report on this topic for Energy Trust of Oregon.[1]

2.1 Overview

As part of the shelf survey effort conducted for NEEA, DNV KEMA field researchers conducted 96 complete inventories (shelf surveys) of Northwest retail stores that sell lighting products. Researchers conducted 76 of these shelf surveys throughout the Northwest under contract with NEEA and an additional 20 in Oregon under contract with Energy Trust of Oregon. Researchers conducted the shelf surveys in a variety of retail store types throughout Idaho, Montana, Oregon and Washington during December 2012 and January 2013 for the 2012-2013 study and in December 2011 and January 2012 for the 2011-2012 study. In each store, researchers collected detailed information on product characteristics and prices for all CFLs, Light-Emitting Diode (LED) lamps, and incandescent lamps found on the shelves. During the 2012-2013 data collection period, researchers also gathered data on four-foot T8 and T12 linear fluorescent lamps.

During the 2012-2013 data collection period, field researchers recorded these data using electronic collection tools developed for NEEA (see Appendix B). During the 2011-2012 period, researchers recorded the data manually (i.e., using pen and paper).[2] These data were compiled into one database for each period. The records in each database include key information regarding each store visited (such as the store type, store name, and store address) as well as information specific to each package of lamps in the store, including lamp technology, lamp style, base type, manufacturer, wattage, number of lamps in each package, and so on. Additionally, field staff recorded the number of packages, full price, discounted price (if relevant)[3], and whether each package contained 3-way, dimmable, and/or Energy Star labeled lamps.

During both the 2011-2012 and 2012-2013 studies, field staff recorded these data across five retail store types throughout the Northwest region (Table 1). As shown in the table, Oregon stores comprised 40 of the total 96 stores visited in each data collection period.

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1 See DNV KEMA 2012a for details.

2 *Ibid.*

3 Note that in some cases, retail store signage or lamp packages clearly indicated the presence of a discount and the discount amount – in these cases, field staff recorded both the full price and discounted price. It is possible, however, that some discounts were available with no signage or other materials in the stores to indicate the presence of such discounts. When no such information was present, field staff assumed there was no discount and record only one price (the full price) for each product.

Table 1
Number of Completed Visits by Store Type, 2011-2012 and 2012-2013

Store Type	Number of Store Visits*	
	Northwest Region	Oregon
Wholesale Club	6	4
Do-It-Yourself	13	7
Drug or Grocery	28	12
Mass Merchandise	22	7
Small Hardware	27	10
Total Stores	**96**	**40**

*Note that the number of store visits was the same in each data collection period. Researchers visited the same stores in each period whenever possible.

2.2 Sampling

The sample frame for the lighting retailers was taken directly from the third Market Progress Evaluation Report (MPER3) of NEEA's Energy Star Consumer Products – Lighting Project[4], the original source of which was the prior project implementation contractor's 2006 lighting retailer database.[5] DNV KEMA analysts stratified the sample by Rural Urban Continuum Code (RUCC) classification (urban versus rural); store type; and within store type, by store ownership type (national, regional or franchise chain versus independent store).[6] Table 2 shows the distribution of retailers in the sample frame and the distribution of completed 2011-2012 and 2012-2013 shelf surveys for the Northwest region, both by strata.

[4] KEMA, Inc., 2007.
[5] PECI, 2006.
[6] See KEMA, Inc., 2007 and DNV KEMA, 2012b for more details on these categories.

Table 2
Retailer Shelf Survey Sample Frame and Completes by Strata
Northwest Region, 2011-2012 and 2012-2013

Store Type	Store Ownership	Population Count	Population Percentage	Sample Count	Sample Percentage
Wholesale Club	National Chain	33	1%	6	6%
Do-It-Yourself	National Chain	155	6%	13	14%
Drug and Grocery	National Chain	728	29%	15	16%
	Regional Chain	305	12%	13	14%
Mass Merchandise	Independent	44	2%	3	3%
	National Chain	363	14%	16	17%
	Regional Chain	46	2%	3	3%
Small Hardware	Franchise	508	20%	13	14%
	Independent	282	11%	9	9%
	Regional Chain	84	3%	5	5%
Total		**2,548**	**100%**	**96**	**100%**

Note: Percentages may not total 100% due to rounding.

Table 3 shows the distribution of retailers in the sample frame as well as completed shelf surveys by strata within Oregon only, including the 20 store visits conducted for NEEA and the 20 oversample store visits conducted for Energy Trust.

Table 3
Retailer Shelf Survey Sample Frame and Completes by Strata
Oregon, 2011-2012 and 2012-2013

Store Type	Store Ownership	Population Count	Population Percentage	Sample Count	Sample Percentage
Wholesale Club	National Chain	6	1%	4	10%
Do-It-Yourself	National Chain	45	7%	7	18%
Drug and Grocery	National Chain	220	32%	5	13%
	Regional Chain	88	13%	7	18%
Mass Merchandise	National Chain	125	18%	6	15%
	Regional Chain	13	2%	1	3%
Small Hardware	Franchise	94	14%	5	13%
	Independent	72	10%	4	10%
	Regional Chain	25	4%	1	3%
Total		**688**	**100%**	**40**	**100%**

Note: Percentages may not total 100% due to rounding.

Researchers calculated sample expansion weights by strata and applied them to each retailer in the sample such that the findings represent the population of lighting retailers in the region (and in Oregon, specifically) as approximated by Portland Energy Conservation Inc.'s (PECI) 2006 database. For pricing results across store types in the Northwest and within Oregon, we also

applied sales weights based on regional CFL sales data gathered for NEEA by Fluid Market Strategies (2011 sales to the 2011-2012 shelf survey data and 2012 sales to the 2012-2013 data).[7] Note that because incandescent, LED and fluorescent tube sales data are not available for the region, sales weights for these lamp types cannot be calculated; as such, the report presents pricing data for CFLs only.[8]

Some results presented in the report are grouped by store category to highlight differences between these two major retail delivery channels. The "big box" store category includes wholesale club, large home improvement, and mass merchandise stores. The "non- big box" category includes drug, grocery, and small hardware stores.

[7] Fluid Market Strategies, 2012 and 2013.

[8] Note that the 2011 and 2012 sales data collected for NEEA by Fluid Market Strategies does not include any CFL sales within the drug store channel, thus skewing the weights for the drug/grocery/hardware store category and the drug/grocery store type. This likely skews some of the pricing data reported herein.

3 RESULTS

The sections below present results from the 2011-2012 and 2012-2013 Northwest lighting retail store shelf surveys organized into five major subsections:

1. Availability, which reviews the percentage of stores by store category that carry each lamp type included in the analyses (CFLs, LEDs, incandescent lamps) and the proportion of lamps in each store type comprised by each of the three lamp types.
2. Diversity, which examines the average number of CFL, LED lamp, and incandescent lamp models per store by lamp type, style and wattage.
3. CFL Pricing, including average CFL prices paid by Northwest and Oregon consumers, and for products stocked on retail store shelves, also includes price ranges for general purpose and specialty CFLs as well as more detailed CFL styles.
4. Linear Fluorescent Lamps, which includes results describing the availability and diversity of T8 and T12 linear fluorescent lamps. The results in this subsection are new for the 2013 report.
5. Promotional Materials, which reviews the types of materials present in Northwest retail stores, the technologies promoted, positioning of materials in the stores, and the key messages included on these materials. The results in this subsection are also new for the 2013 report.

Where possible, the report presents results for the state of Oregon and for the Northwest as a whole, and also compares results between the 2011-2012 and 2013-2013 data collection periods. For the sake of convenience, the report refers to results from the 2011-2012 period as 2011 results and results from the 2012-2013 period as 2012 results.

3.1 Availability

To assess lamp availability, field researchers collected information on the types of lamps present in each of the stores they visited, enabling calculation of the percentage of stores carrying specific lamp technologies. Researchers also recorded detailed counts of the total number of packages for each lamp type and style as well as the number of lamps per package, which enables calculation of the total number of lamps for each lamp technology in each store. This section presents results below for CFLs, LED lamps, and incandescent lamps by store category and geography between 2011 and 2012.

3.1.1 Percent of Stores Stocking Lamps

The sample frame for the shelf survey stores includes only stores that carry one or more lamp types. The tables in this section provide details on the percentage of stores visited by DNV KEMA researchers in the 2011 and 2012 data collection periods that stocked each lamp technology (CFLs, LED lamps, and incandescent lamps) by store category during the time of our shelf survey visit. For the purposes of this discussion, “Big box” stores refer to mass

merchandise, Do-It-Yourself (DIY), and wholesale club stores, while "non- big box stores" refers to drug, grocery, and small hardware stores. To be counted as a store that stocked a particular technology, each store must have one or more lamps in stock for that particular technology at the time of the shelf survey visits.[9] Results are presented below by lamp style, technology and store category.

3.1.1.1 Lamp Technology and Style

Figure 1 below shows the percentage of stores in Oregon and in the Northwest region that stocked different lamp technologies—including LED lamps, general purpose CFLs, specialty CFLs, and incandescent lamps— at the time of the shelf survey visits in 2011/2012 and 2012/2013. (The general purpose CFL category includes spirals and A-lamps, while the specialty category includes all other CFL styles.) As shown, the overwhelming majority of stores carried general purpose CFLs, specialty CFLs, and incandescent lamps in each year. Between 2011 and 2012, the percentage of stores carrying LED lamps increased in both Oregon and the Northwest region. The biggest jumps occurred in the percentage of drug, grocery, and small hardware stores carrying LED lamps in both geographic areas. These results suggest that LED lamps may be poised for general availability throughout Oregon and the Northwest region.

[9] This is a binary variable – a store either stocked a particular technology or did not – and does not reflect the volume of product stocked. Product volume is discussed in Section 3.1.2 below.

Figure 1
Percentage of Stores Carrying Lamps by Lamp Technology and Store Category
Oregon and Northwest Region, 2011 and 2012

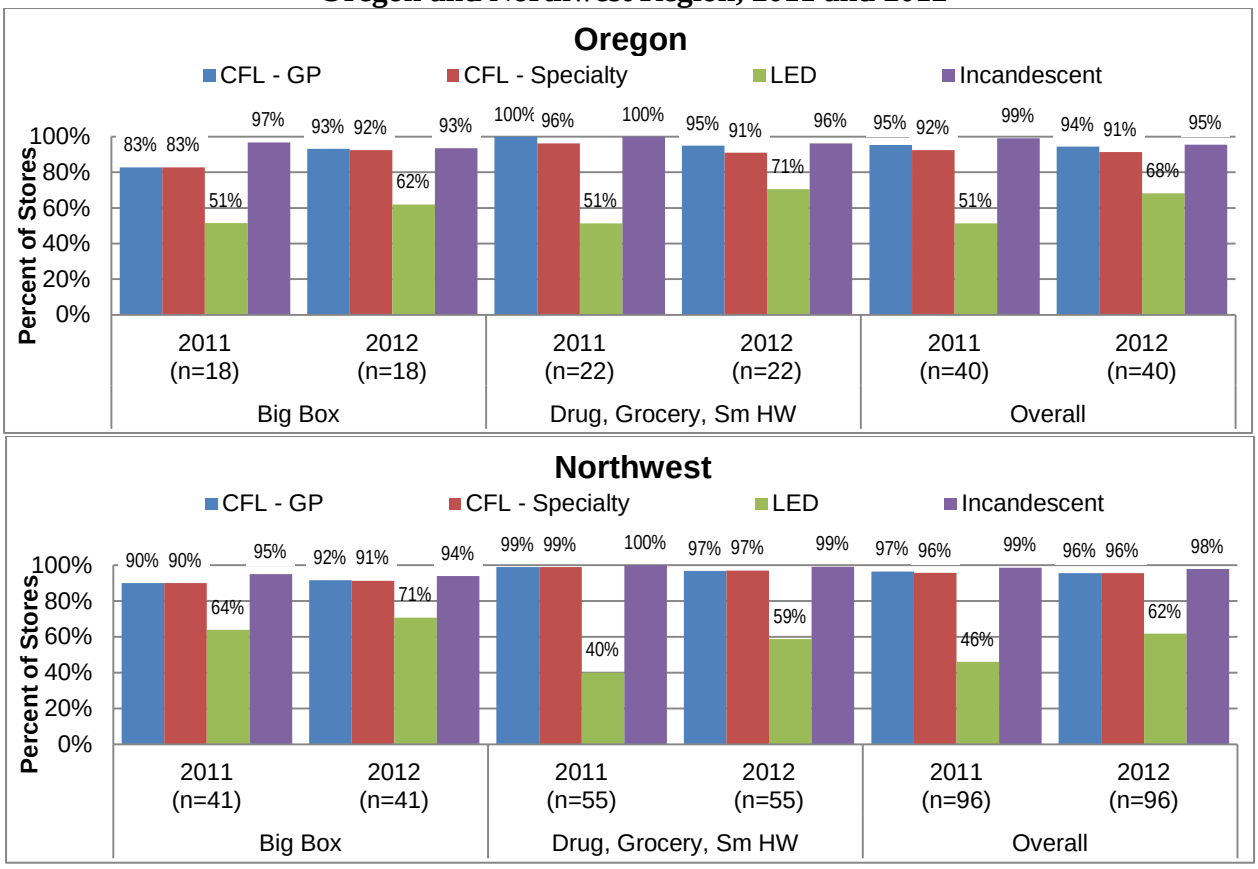
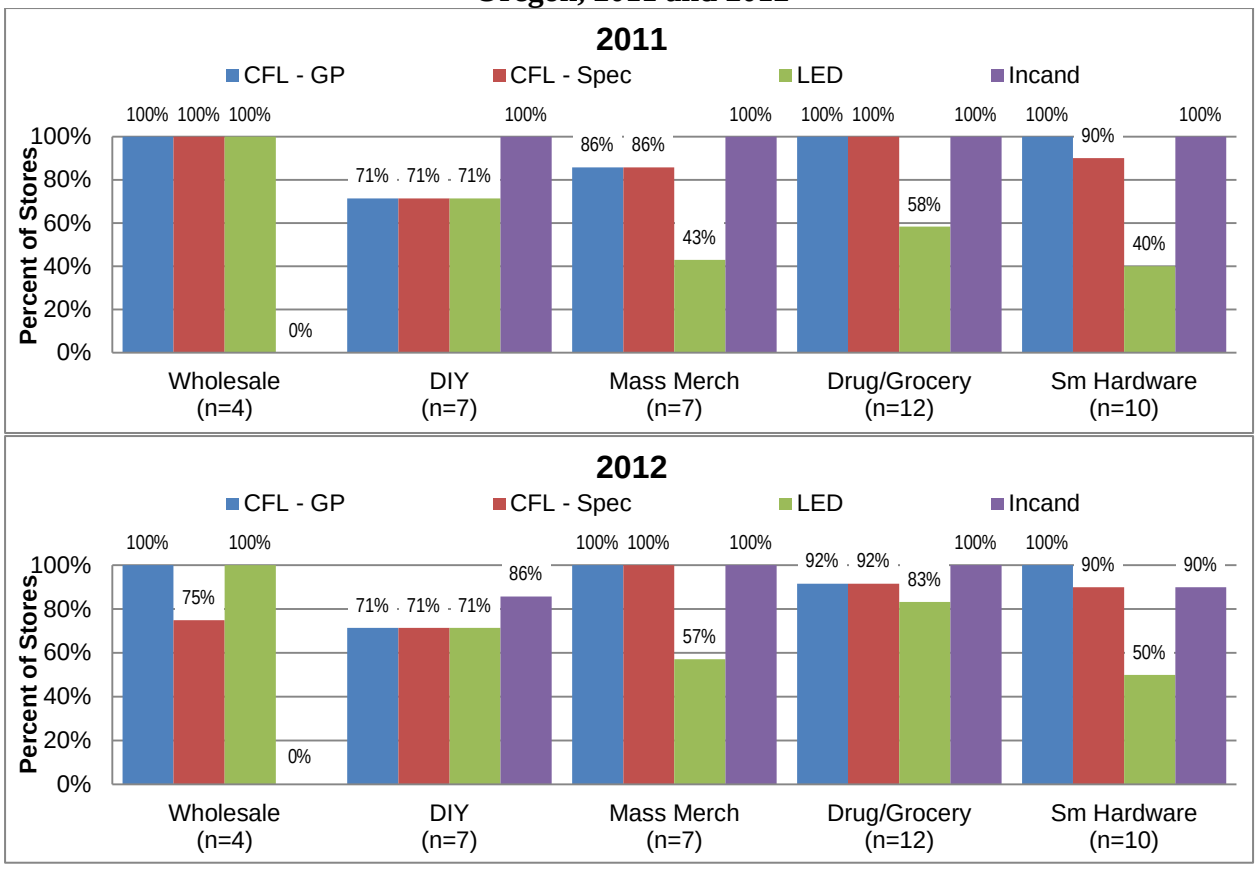


Figure 2 shows the percentage of stores in Oregon that carry CFL, LED, and incandescent lamps broken down by type of store. Within all store types, the percentage of stores that carried general purpose CFLs, specialty CFLs, and LEDs increased or remained the same. For incandescent lamps, the percentage of DIY and small hardware stores that carried incandescent lamps declined between 2011 and 2012, while no wholesale clubs carried incandescent lamps in 2011 or 2012.

Figure 2
Percentage of Stores Carrying Lamps by Lamp Technology and Store Type
Oregon, 2011 and 2012



When the data are further examined by lamp style, the percentage of stores carrying incandescent lamps declined across all incandescent lamp styles between 2011 and 2012. There were no meaningful differences in the percentage of stores stocking various CFL styles between 2011 and 2012, but for LED lamps, percentage of stores that carried A-lamp, globe, reflector, pin-based and other LED styles increased between years—most notably in terms of the percentage of stores that carried LED A-lamps (which increased from 35% of stores in 2011 to 48% of stores in 2012).

3.1.2 Percent of Lamps Stocked

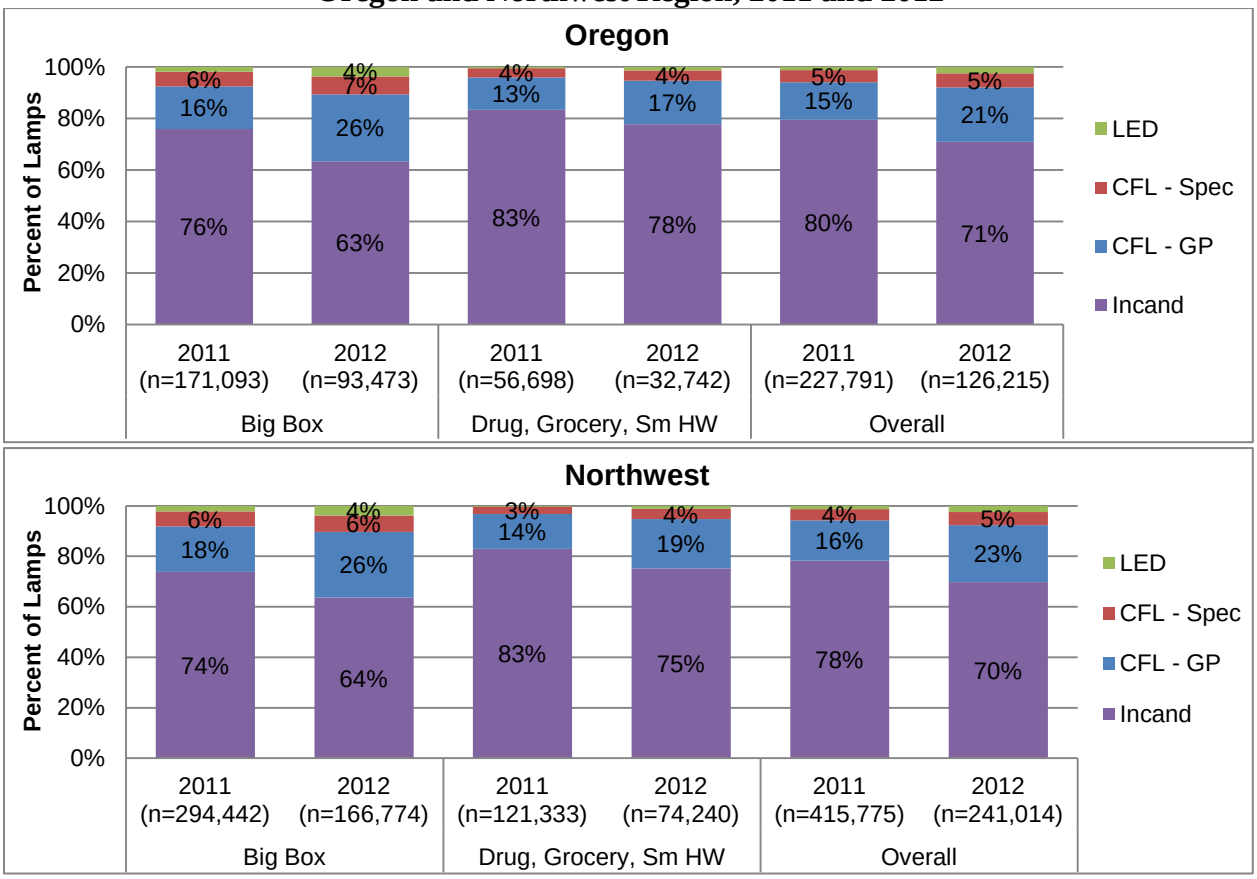
This section presents details on the percentage of all lamps stocked in the stores visited by shelf survey researchers by store category and technology as well as by technology and base type. For CFLs, details on the percentage of lamp packages that are Energy Star versus non- Energy Star for general purpose and specialty CFLs by store category are also presented. Finally, this section discusses the percentage of incandescent lamps that met the standards associated with the Energy Independence and Security Act of 2007 (EISA) and those that did not within the specific lumen ranges affected by the legislation.

3.1.2.1 Lamp Technology and Style

Figure 3 shows the percentage of lamps stocked across retail stores in Oregon and the Northwest region by technology (LED lamps, general purpose CFLs, specialty CFLs, and incandescent lamps) from 2011 to 2012. These data represent the percentage of total lamps (not lamp models or lamp packages) stocked across the stores. As shown, incandescent lamps still dominate store stock in both Oregon and the Northwest region. However, the percentage of incandescent lamps stocked across all stores surveyed declined overall between 2011 and 2012. This decrease in the proportion of total lamps comprised by incandescent lamps was absorbed by a corresponding increase in CFLs stocked in both Oregon and the Northwest and across all store categories.

Results also suggest that the overall quantity of lamps stocked in retail stores declined between 2011 and 2012 – by approximately 45 percent in Oregon and by 42 percent in the Northwest. These calculations are based on the number of lamps counted by shelf survey researchers each year in 96 Northwest stores and 40 Oregon stores. The quantity of incandescent lamps dropped by roughly half, and the only lamp type to increase in quantity was LED lamps. The quantity of general purpose CFLs declined by nearly 20 percent between the 2011/2012 and 2012/2013 shelf surveys and the quantity of specialty CFLs declined by roughly a third in the same timeframe. It is possible that the decline in incandescent lamp quantities is driven by EISA, but the reasons for declining stock among the other lamp types are unclear.

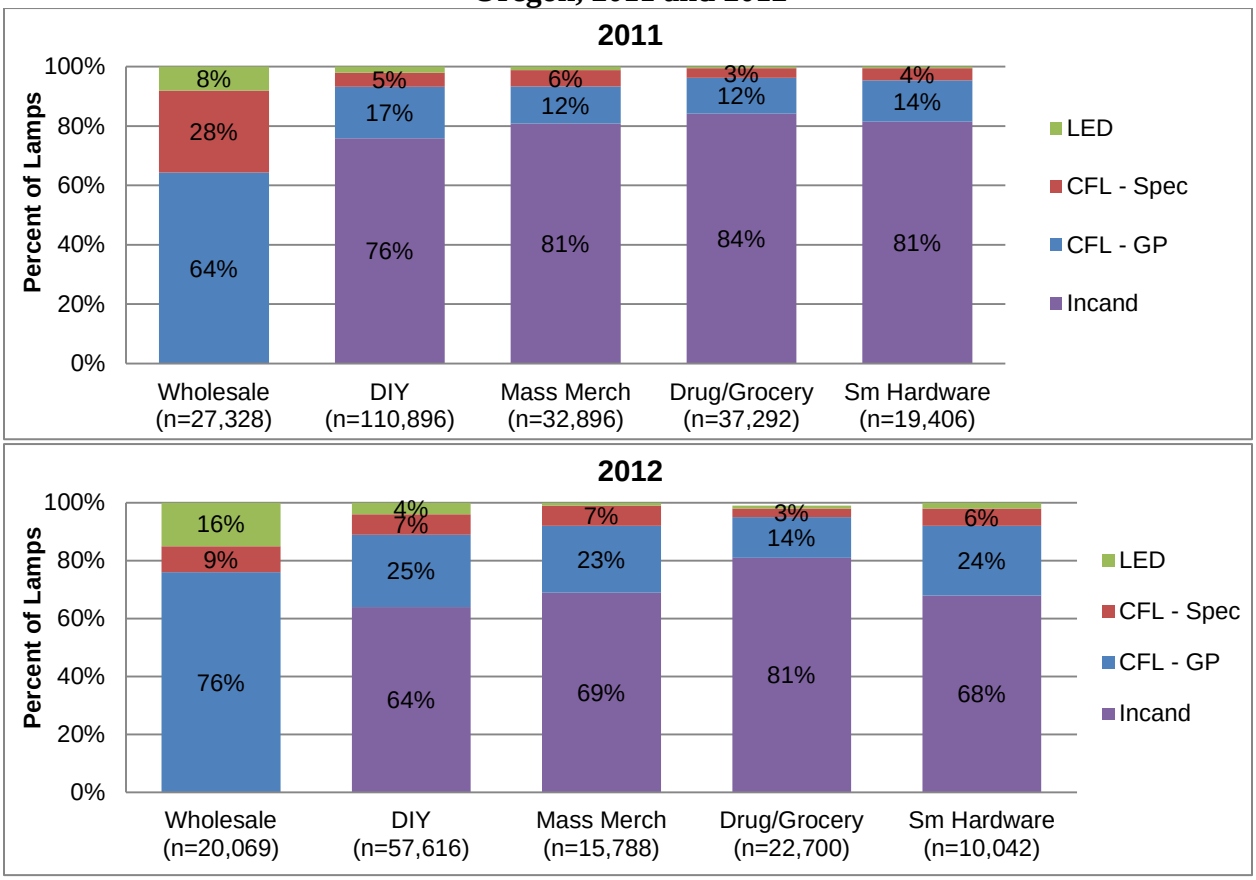
Figure 3
Percentage of Lamps Stocked by Lamp Technology and Store Category
Oregon and Northwest Region, 2011 and 2012



Note: Percentages may not total 100% due to rounding.

Figure 4 shows the breakdown of lamps stocked by store type within the stores sampled in Oregon. General purpose CFLs increased as a proportion of lamps stocked across all store types between the two years, while the proportion of total lamps comprised by incandescent lamps decreased. As mentioned above, wholesale club did not stock any incandescent lamps in 2011 or 2012, and general purpose CFLs comprised the majority of lamps stocked at wholesale clubs in both years. Specialty CFL stock in wholesale stores decreased by two-thirds between 2011 and 2012, while the proportion of LED lamps doubled, from 8 percent to 16 percent.

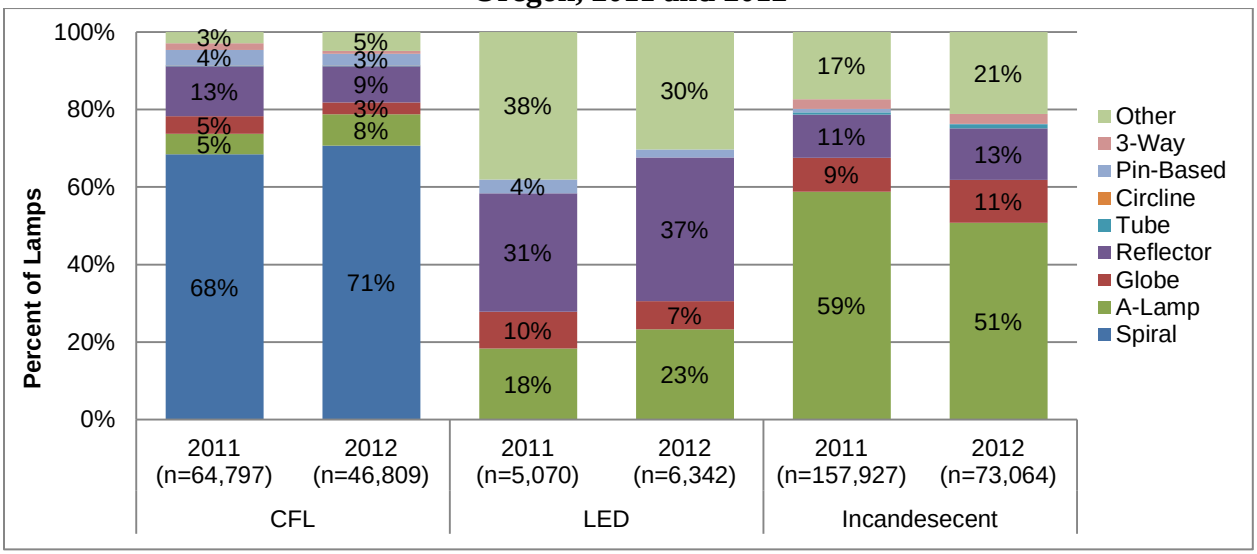
Figure 4
Percentage of Lamps Stocked by Lamp Technology and Store Type
Oregon, 2011 and 2012



Note: Percentages may not total 100% due to rounding.

Figure 5 shows the percentage of CFL, LED, and incandescent lamp styles stocked in Oregon retail stores in 2011 and 2012. For CFL and incandescent lamps, their respective traditional shapes, spiral and A-lamp, continued to comprise the majority of stock; however, stock of A-lamp incandescent lamps decreased by nearly 14 percent. For LED lamps, the proportion of total stock comprised by A-lamps and reflector lamps both increased between years. Also noteworthy in Figure 5 is that the overall quantity of lamps stocked in Oregon retail stores declined for CFLs and incandescent lamps (by and 25% and 51%, respectively) while the quantity of LED lamps increased by 15 percent. The overall quantity of LED lamps is still approximately 9 percent of the quantity of CFLs stocked in Oregon stores and only 3 percent of incandescent lamps stocked.

Figure 5
Percentage of Lamps Stocked by Lamp Technology and Lamp Style
Oregon, 2011 and 2012



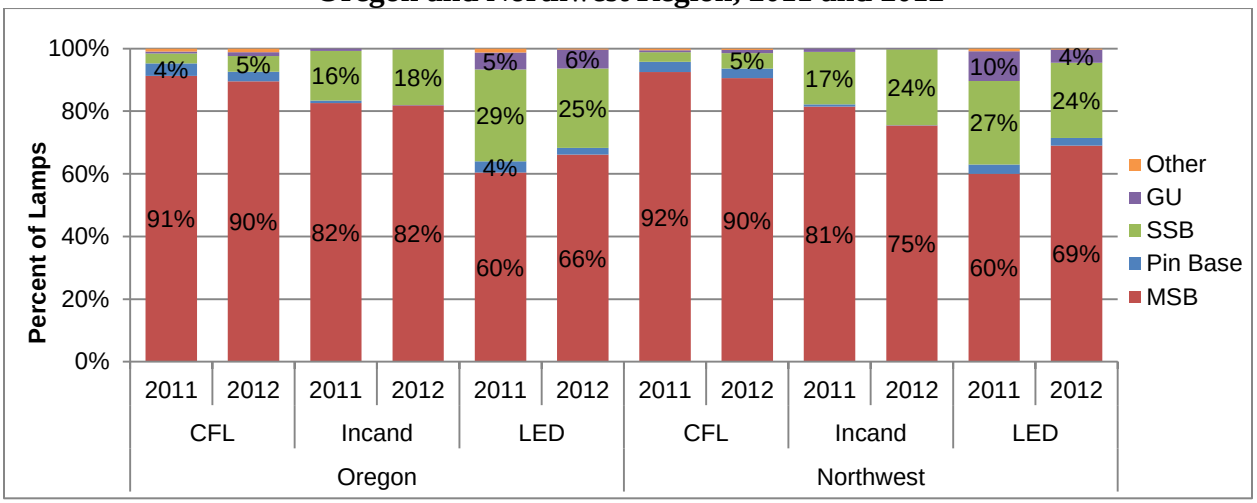
Note: Percentages may not total 100% due to rounding.

3.1.2.2 Base Type

Figure 6 below shows the percentage of lamps observed by field staff in Oregon and the Northwest region by technology (CFL, incandescent lamp, and LED lamp) by base type. Base types include pin base, medium screw base (MSB), and all other screw base lamps (primarily candelabra-base with a small number of large base lamps). As shown, CFL inventory in the Northwest and in Oregon was dominated by MSB lamps in 2011 and in 2012, although they saw a slight decline in both areas in terms of the percentage of total lamps stocked between 2011 and 2012. Approximately two-thirds of LED lamps in both Oregon (66 percent) and the Northwest region (69 percent) were MSB while the remainder was comprised by other screw base lamps.

The same trends are apparent when results are broken out by store category (big box versus non-big box). The share of MSB lamps decreased for CFLs and incandescent lamp types in both store categories in Oregon and the Northwest region. When further examined by store category (big box versus non- big box), results were consistent. Similarly, when further examined by individual store types within Oregon for 2011 and 2012, there were few differences among the store types. The percentage of incandescent lamp stock comprised by MSB lamps declined across all store types except wholesale clubs, which did not carry any incandescent lamps in 2011 or 2012.

Figure 6
Percentage of Lamps Stocked by Lamp Technology and Base Type
Oregon and Northwest Region, 2011 and 2012



Note: Percentages may not total 100% due to rounding.
Refer to Appendix C, Table 9 for number of lamps.

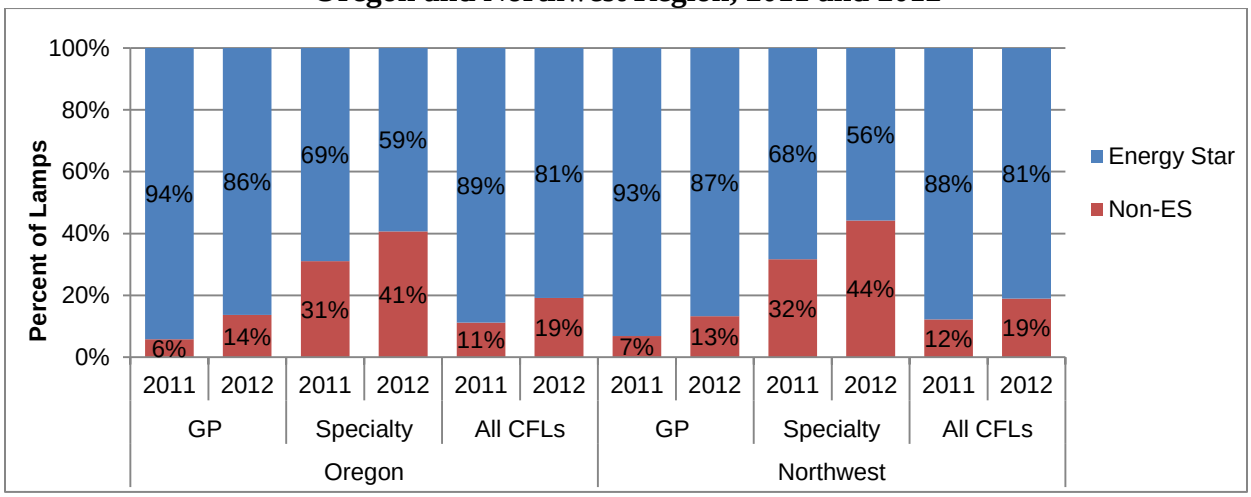
3.1.2.3 Energy Star and Non- Energy Star

Below, the report discusses the percentage of lamps (CFLs and LEDs) stocked in Oregon and the Northwest that did and did not bear the Energy Star label on their packages.

CFLs

Figure 7 shows the percentage of lamps that bore the Energy Star label versus those that did not for general purpose, specialty and all CFLs in Oregon and the Northwest region in 2011 and 2012. Interestingly, the proportion CFLs with the of Energy Star label in both Oregon and the Northwest region decreased between 2011 and 2012.This is true of both general purpose and specialty CFLs, although a larger percentage of general purpose CFLs were rated Energy Star than were specialty CFLs.

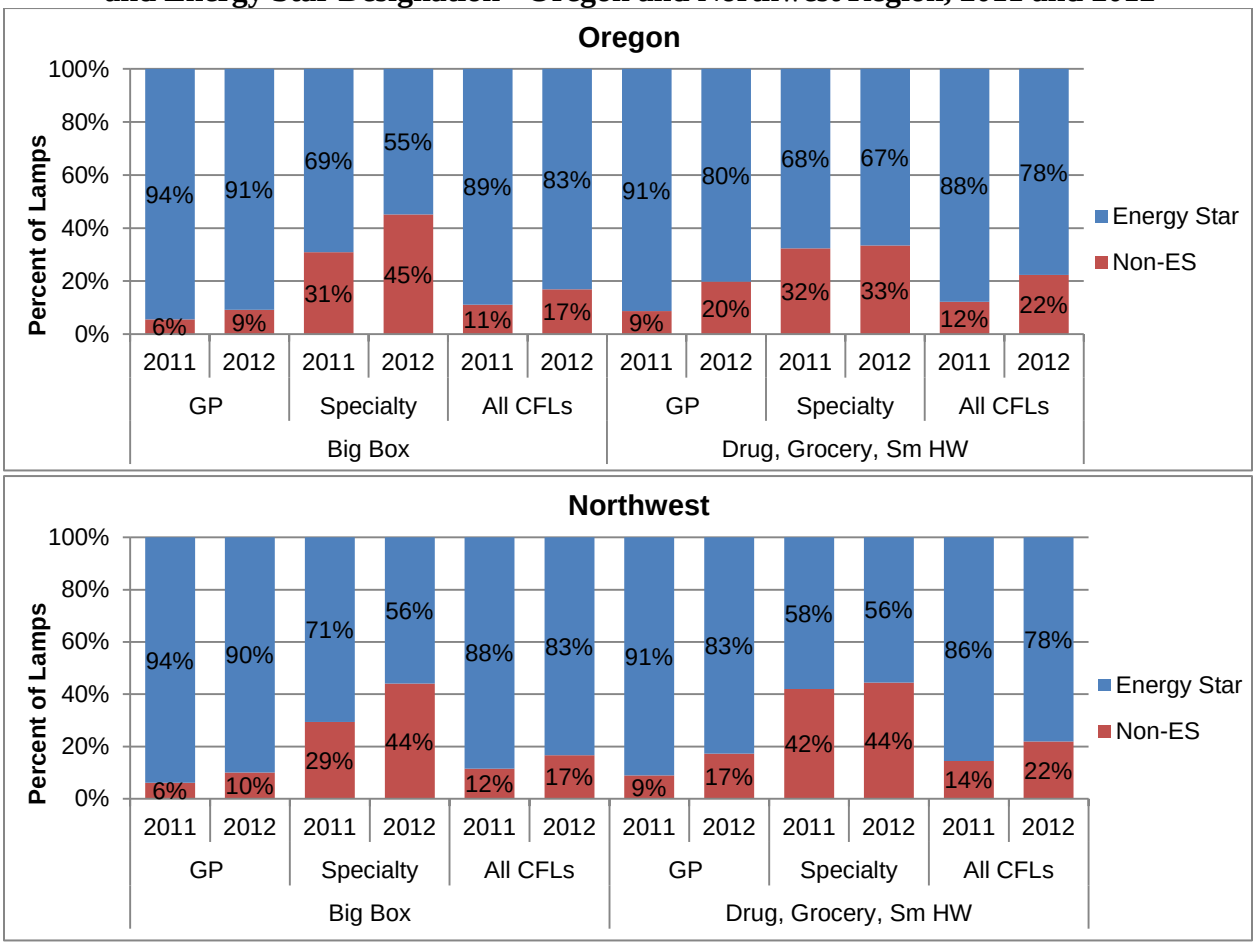
Figure 7
Percentage of CFLs Stocked by Lamp Style and Energy Star Designation
Oregon and Northwest Region, 2011 and 2012



Note: Percentages may not total 100% due to rounding.
Refer to Appendix C, Table 10 for number of lamps.

Figure 8 shows the percentage of Energy Star and non-Energy Star CFLs in Oregon and the Northwest region in big box stores and drug, grocery, and small hardware stores in 2011 and 2012. Again, the percentage of Energy Star rated CFLs declined between 2011 and 2012, particularly for specialty CFLs in big box stores, which fell 14 percent in Oregon and 15 percent in the Northwest region.

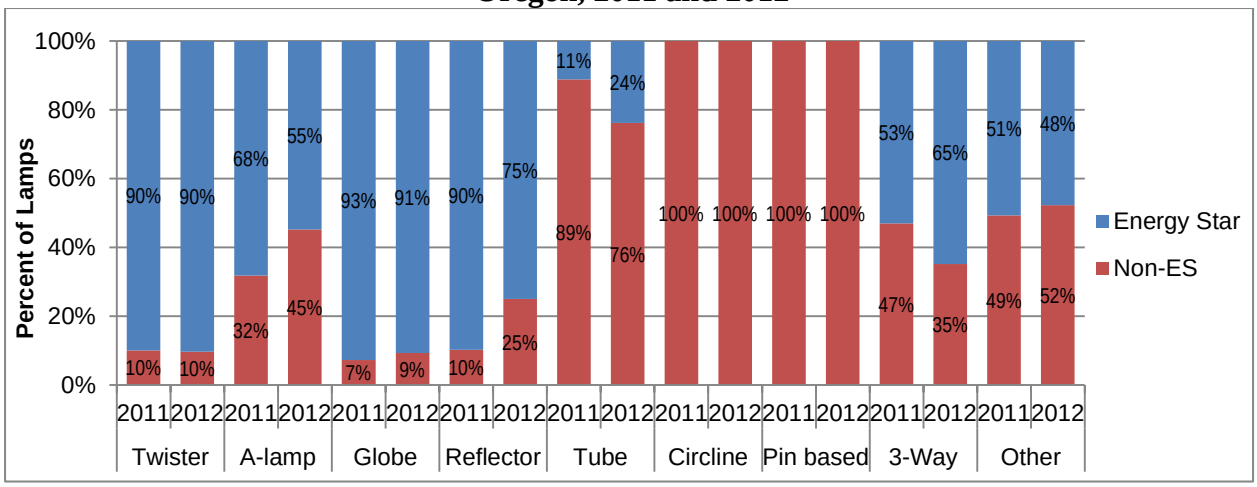
Figure 8
Percentage of CFLs Stocked by Lamp Style, Store Category and Energy Star Designation - Oregon and Northwest Region, 2011 and 2012



Note: Percentages may not total 100% due to rounding.
Refer to Appendix C, Table 11 for number of lamps.

Figure 9 examines results in more detail for Oregon, showing the percentage of CFLs that are Energy Star qualifying versus non-qualifying in 2011 and 2012 by lamp style. Results suggest that in 2012, a greater percentage of the twister and globe lamps stocked in Oregon qualified for Energy Star than other lamp styles. There were no circline or pin-based CFLs that qualified for Energy Star because Energy Star standards do not exist for these lamp styles. Among CFL styles for which Energy Star standards exist, tube-style CFLs represent the style for which the lowest percentage of lamps stocked in Oregon in 2012 qualified for Energy Star at only 24 percent. "Other" lamps are comprised by bug lights as well as torpedo and bullet style CFLs.

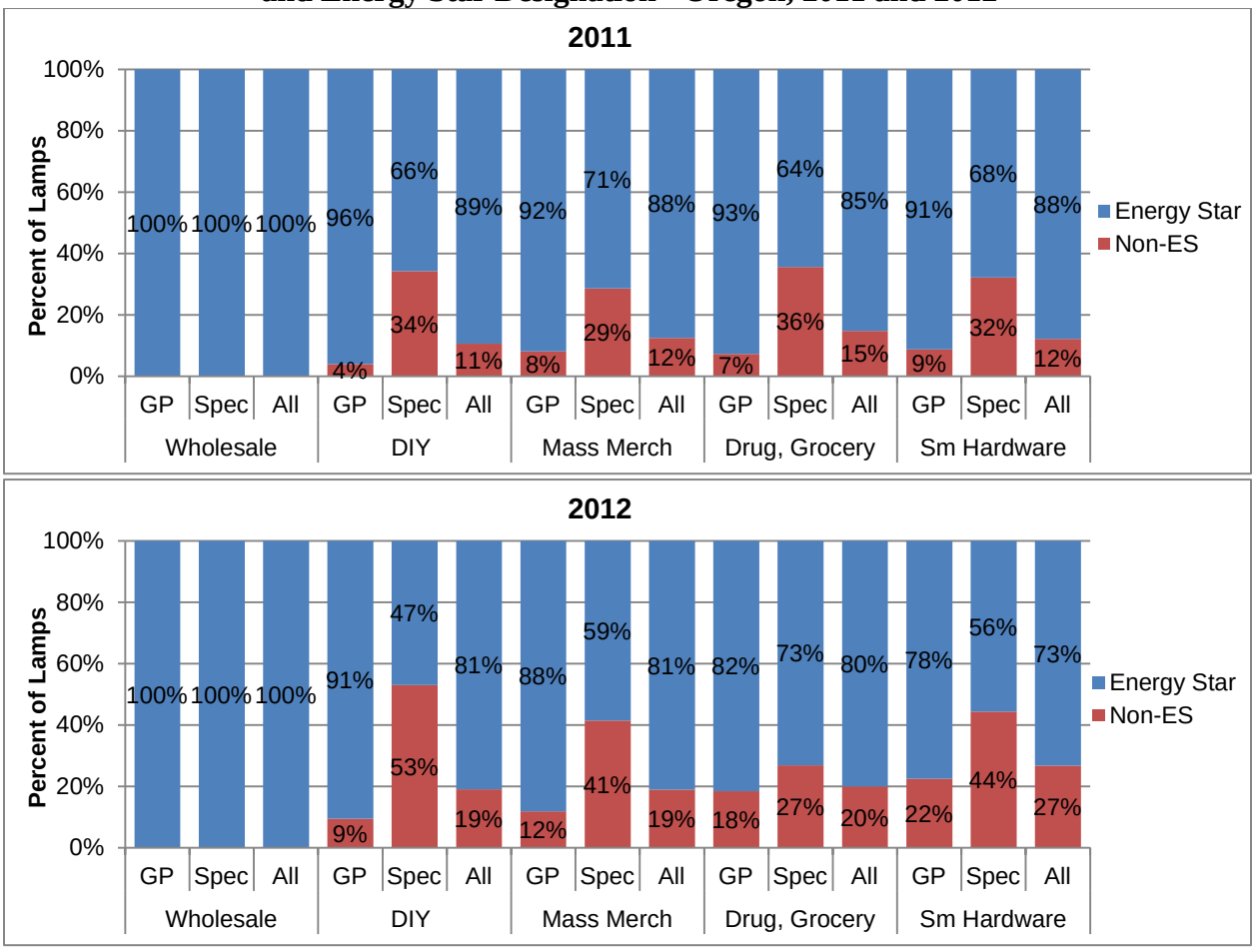
Figure 9
Percentage of CFLs Stocked by Detailed Lamp Style and Energy Star Designation
Oregon, 2011 and 2012



Note: Percentages may not total 100% due to rounding.
Refer to Appendix C, Table 12 for number of lamps.

Figure 10 shows the percentage of CFLs that are Energy Star versus non-Energy Star for general purpose and specialty CFLs within each of five store types in Oregon during 2011 and 2012. Overall, small hardware stores had the greatest decline in the proportion of CFLs comprised by Energy Star -rated lamps, both general purpose and specialty, between 2011 and 2012. One hundred percent of CFLs in wholesale clubs bore the Energy Star label, which corroborates information from past evaluations for NEEA. Thus, the increase in non- Energy Star lamps in the big box channel shown in the figure above was driven by changes mass merchandise and DIY stores only.

Figure 10
Percentage of CFLs Stocked by Lamp Style, Store Type and Energy Star Designation - Oregon, 2011 and 2012

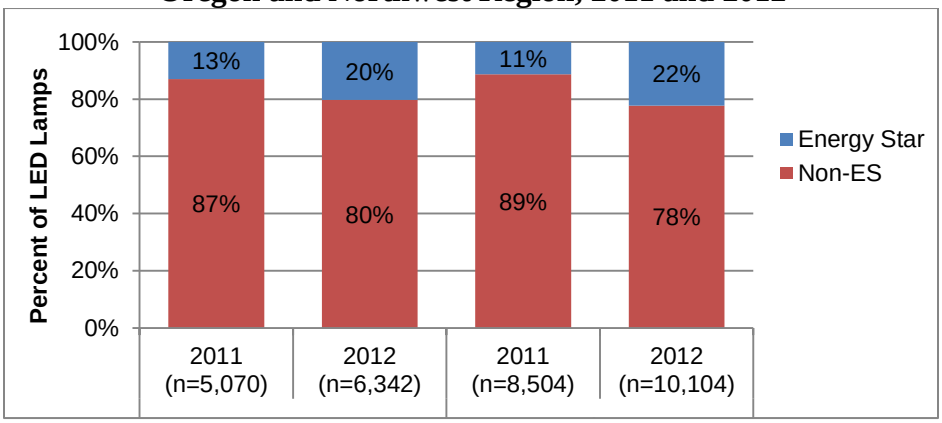


Note: Percentages may not total 100% due to rounding.
Refer to Appendix C, Table 13 for number of lamps.

LED Lamps

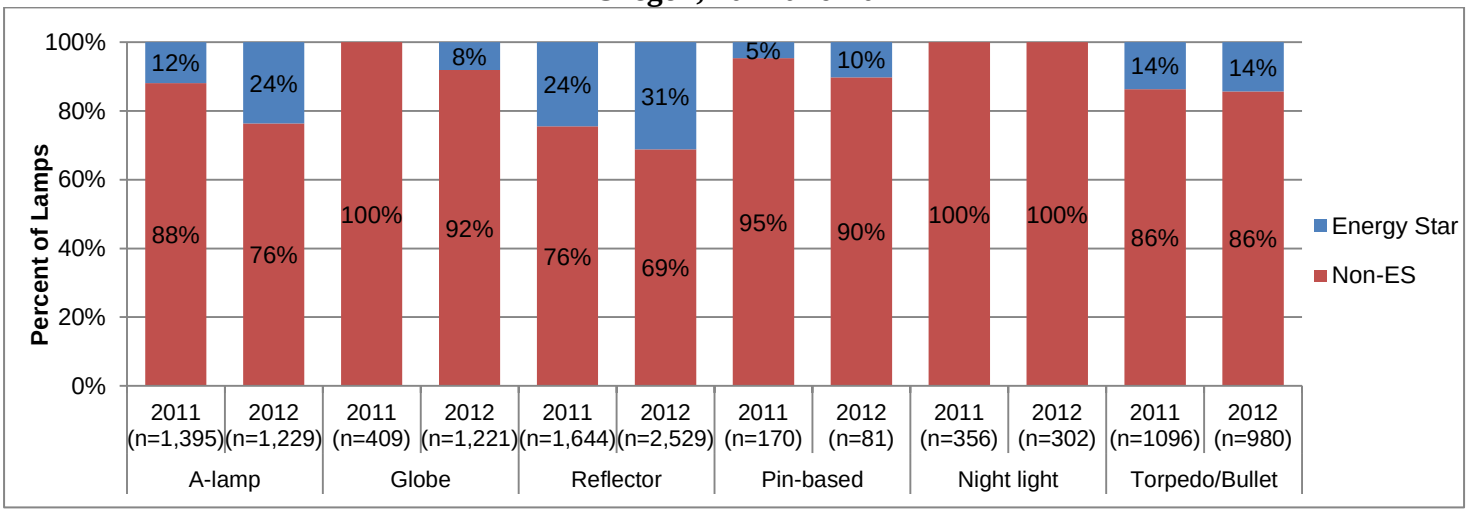
Figure 11 shows the percentage of LED lamps that bore the Energy Star label versus those that did not in Oregon and the Northwest region in 2011 and 2012. Results were similar between Oregon and the Northwest in both years. As shown, the percentage of LED lamps with the Energy Star label on their packages increased by roughly 50 percent between 2011 and 2012 (from 13 to 20% in Oregon and from 11 to 22% in the Northwest).

Figure 11
Percentage of LED Lamps Stocked by Energy Star Designation
Oregon and Northwest Region, 2011 and 2012



When Oregon results are examined more closely by LED lamp style for 2011 and 2012 (Figure 12), results suggest an increase in the percentage of Energy Star qualifying lamps between years across all styles except night lights and torpedo/bullet style lamps, for which the percentage of qualifying lamps in Oregon stores was unchanged between 2011 and 2012. Reflector lamps had the highest proportion of Energy Star qualifying LED lamps in Oregon in 2012 at just under one-third of total stock in Oregon, while globe lamps were among the lowest in terms of the proportion that qualified for Energy Star (only 8% of globe LED lamps).

Figure 12
Percentage of LED Lamps Stocked by Lamp Style and Energy Star Designation
Oregon, 2011 and 2012



3.1.2.4 EISA-Qualifying Lamps

The U.S. Congress passed the Energy Independence and Security Act (EISA) in 2007.[10] EISA requires general purpose incandescent lamps to meet minimum efficacy standards that traditional general purpose incandescent lamps cannot meet, effectively pushing the most inefficient lamps out of the market.[11] As shown in Table 4, the EISA standards phase in gradually; on January 1, 2012, the legislation prohibits the manufacture and importation of general purpose incandescent lamps above 72 watts with light output in the 1490 to 2600 lumen range (referred to as "high brightness" throughout this report), beginning the phase-out of many traditional 100 watt incandescent lamps. After this date, it is illegal to manufacture or import lamps that do not meet the standard, but retailers are allowed to sell through their existing stock of these lamps.

Table 4
Summary of EISA Efficiency Standards

EISA Effective Dates	Incandescent Lamp Wattage (Watts)	Typical Incandescent Light Output (Lumens)	Typical Incandescent Efficacy (Lumens/Watt)	EISA Replacement Wattage (Watts)	EISA Light Output Ranges (Lumens)	EISA Minimum Efficacy Ranges (Lumens/Watt)
1/1/2012	100 W	1690 lm	17 lm/W	72 W	1490-2600 lm	21-36 lm/W
1/1/2013	75 W	1170 lm	16 lm/W	53 W	1050-1489 lm	20-28 lm/W
1/1/2014	60 W	840 lm	14 lm/W	43 W	750-1049 lm	17-24 lm/W
1/1/2014	40 W	490 lm	12 lm/W	29 W	310-749 lm	11-26 lm/W

Source: U.S. EPA, 2011.

The percentages in this section of the report focus only on MSB incandescent A-lamps (including halogen technologies). This section excludes non-incandescent technologies from the analyses so as not to skew the overall results (because the vast majority of general purpose CFLs and LED lamps meet EISA standards). This report section categorizes the lumen ranges presented in Table 4 above as follows:

- **High Brightness.** This lamp category refers to medium screw-base (MSB) incandescent A-lamps with light output between 1490 and 2600 lumens, equivalent to the light output of many traditional 100 watt incandescent lamps. Lamps in this lumen range that meet the EISA standard have a maximum wattage of 72 watts. Lamps in this lumen range that do not meet the standard exceed 72 watts, the maximum wattage allowed by EISA (i.e.

[10] H.R. 6--110th Congress, 2007.

[11] The sections of this report referring to general purpose incandescent lamps (or "MSB incandescent a-lamps") utilize the EISA definition of a general purpose incandescent lamp, which is "a standard incandescent or halogen type lamp that – 1) is intended for general service applications; 2) has a medium screw base; has a lumen range of not less than 310 lumens and not more than 2,600 lumens; and 4) is capable of being operated at a voltage range at least partially within 110 and 130 volts" (H.R. 6--110th Congress, 2007). EISA also includes separate efficiency standards for reflector and modified spectrum lamps as well as a list of lamp types that are excluded from regulation. This report focuses on general purpose lamps only, excluding reflector, modified spectrum, and other EISA exemptions.

traditional 100 watt lamps do not meet the standard). The phase-out for lamps in this brightness category began on January 1, 2012.

- **Medium High Brightness.** This lamp category refers to MSB incandescent A-lamps with light output between 1050 and 1489 lumens, equivalent to the light output of many traditional 75 watt incandescent lamps. Lamps in this lumen range that meet the EISA standard have a maximum wattage of 53 watts. Lamps in this lumen range that do not meet the standard exceed 53 watts, the maximum wattage allowed by EISA (i.e. traditional 75 watt lamps will not meet the standard). The phase-out for lamps in this brightness category will begin on January 1, 2013.
- **Medium Low Brightness.** This category refers to MSB incandescent A-lamps with light output between 750 and 1049 lumens, equivalent to the light output of many traditional 60 watt incandescent lamps. Lamps in this lumen range that meet the EISA standard have a maximum wattage of 43 watts. Lamps in this lumen range that do not meet the standard exceed 43 watts, the maximum wattage allowed by EISA (i.e. traditional 60 watt lamps will not meet the standard). The phase-out for lamps in this brightness category will begin on January 1, 2014.
- **Low Brightness.** This lamp category refers to MSB incandescent A-lamps with light output between 310 and 749 lumens, equivalent to the light output of many traditional 40 watt incandescent lamps. Lamps in this lumen range that meet the EISA standard have a maximum wattage of 29 watts. Lamps in this lumen range that do not meet the standard exceed 29 watts, the maximum wattage allowed by EISA (i.e. traditional 40 watt lamps will not meet the standard). The phase-out for lamps in this brightness category will begin at the same time as for lamps in the Medium Low Brightness category (on January 1, 2014).

During the lighting retailer shelf surveys, field researchers gathered information that enables classification of all MSB incandescent A-lamps as either meeting or not meeting the EISA standard relevant to their lumen output. Analysts classified lamps that meet the EISA efficiency standards at the times field staff conducted shelf surveys as “Meets EISA Standard.” All other MSB incandescent A-lamps within these lumen ranges fall into the “Does Not Meet EISA” category. This report presents results for lamps at all four lumen bins affected by EISA, starting with those affected by the first phase (as of January 1, 2012). Note that the standards for medium low brightness MSB A-lamps (750 to 1049 lumens) and low brightness MSB A-lamps (310 to 749 lumens) will not go into effect until 2014—however, this report provides information on current rates of EISA qualification for lamps in these categories as a point of comparison for future tracking efforts.

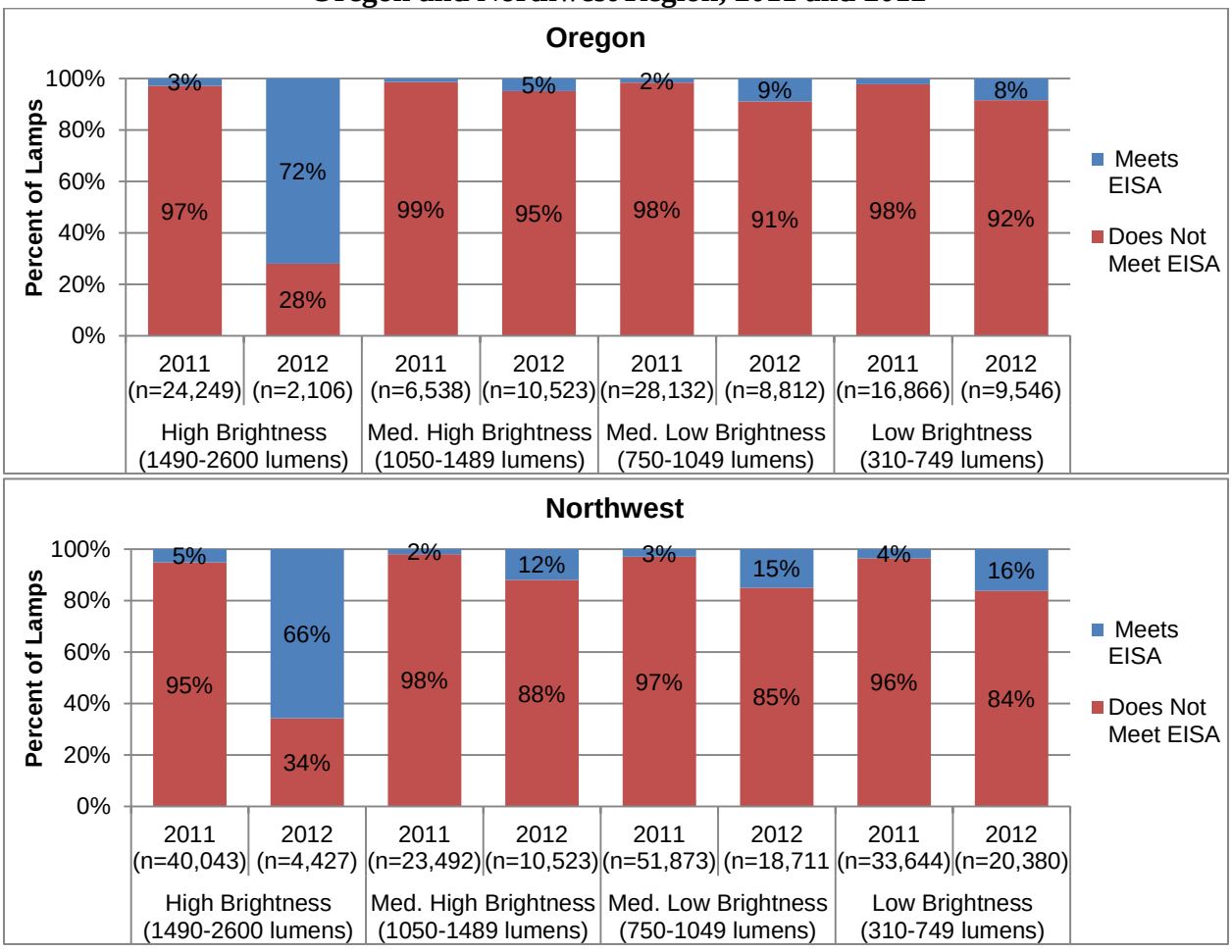
All Lumen Bins

Figure 13 shows the percentage of MSB incandescent A-lamps in each EISA lumen bin that meet and did not meet the relevant EISA standards at the time of the shelf survey visits in 2011 and 2012. Recall that the regulation took effect for lamps in the high brightness bin (roughly equivalent to traditional 100 watt incandescent A-lamps) on January 1, 2012 and for the medium

high brightness bin (roughly equivalent to traditional 75 watt incandescent lamps) on January 1, 2013. The regulation takes effects for the two lower lumen bins on January 1, 2014.

As shown in the figure, the proportion of MSB incandescent A-lamps that met the EISA standards at the time of the 2012 shelf survey visits was significantly greater in both Oregon and the Northwest region than in 2011, suggesting that EISA compliance is increasing over time. In the high brightness lumen bin, the percentage of lamps that met the standard was higher in Oregon than in the Northwest in 2012. For all other lumen bins, there were only minor changes between years in Oregon between 2011 and 2012—but results in these three lumen bins suggest that twice the proportion of lamps met the standard in the Northwest than in Oregon during the 2012 shelf survey visits.

Figure 13
Percentage of MSB Incandescent A-Lamps That Meet the EISA Standard by Lumen Bin
Oregon and Northwest Region, 2011 and 2012

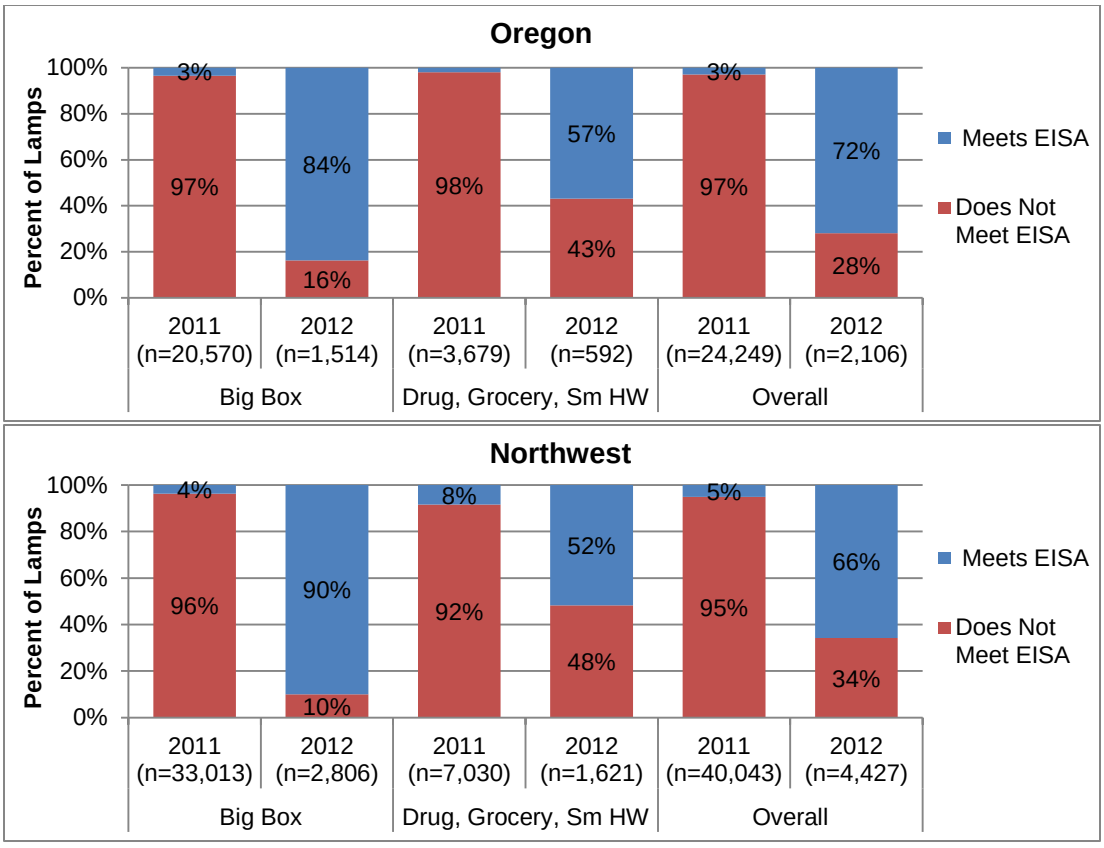


Note: Percentages may not total 100% due to rounding.

High Brightness

Figure 14 below shows the percentage of high brightness (1490—2600 lumens) MSB incandescent A-lamps in Oregon and the Northwest region that met the EISA standard that went into effect on January 1, 2012 and those that did not. Field researchers conducted the 2011-2012 shelf surveys in late 2012/early 2013, so the standard was just coming into effect as researchers were completing the shelf surveys. Researchers collected the 2012-2013 data roughly one year after the standard for lamps in this lumen range went into effect. As shown, the percentage of lamps that met the standard increased between 2011 and 2012 in both store categories in Oregon and in the Northwest, but a greater percentage of MSB A-lamps in the high brightness lumen bin met the standard in big box stores in both years than in non- big box, both in Oregon and the Northwest. These results may reflect the faster sell-through rates typical in big box stores as compared to non- big box stores.

Figure 14
Percentage of High Brightness MSB Incandescent A-Lamps (1490—2600 lumens) That Meet EISA Standards by Store Category - Oregon and Northwest Region, 2011 and 2012



Note: Percentages may not total 100% due to rounding.

3.2 Diversity

The sections below discuss diversity in terms of the average number of general purpose CFL, specialty CFL, LED, and incandescent lamp models available by store category between 2011 and 2012, as measured in average number of lamp models per store. The sections also present details regarding the percentage of lamps within each store within wattage bins specific to each of the three technologies and store category.

3.2.1 Lamp Technology and Style

Figure 15 shows product diversity (in terms of the average number of lamp models stocked per store) by technology (general purpose CFL, specialty CFL, LED, and incandescent lamps) and store category (big box versus non- big box) for Oregon and the Northwest region between 2011 and 2012. Diversity was the greatest among incandescent lamps across both store categories in both Oregon and the Northwest region as a whole. Interestingly, diversity declined across all lamp types between 2011 and 2012, with incandescent lamps seeing the greatest decline, dropping roughly 30 to 40 models per store in that time period. In general, diversity was higher among big box stores than drug, grocery, and small hardware stores, in particular for LED lamps.

Figure 15
Average Number of Lamp Models per Store by Lamp Technology and Store Category
Oregon and Northwest Region, 2011 and 2012

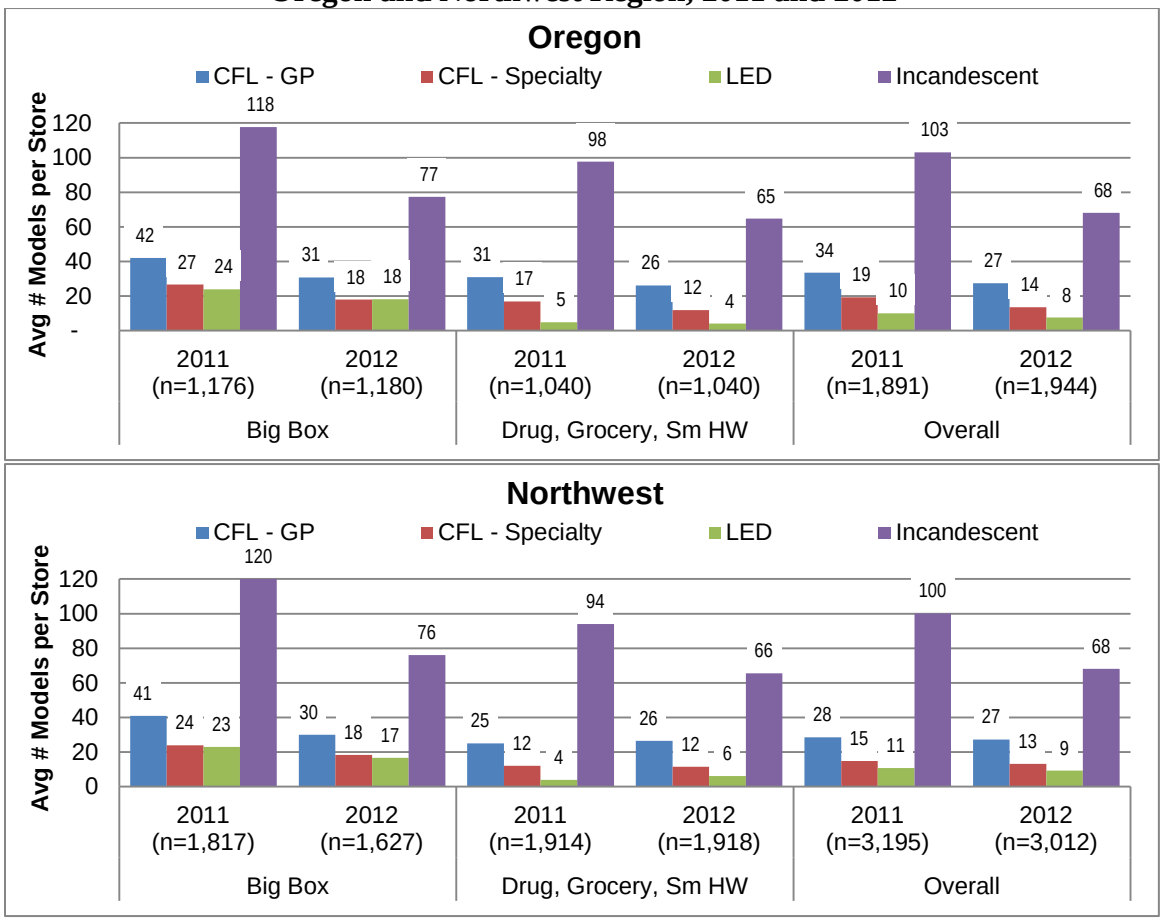


Figure 16 shows the average number of lamp models per Oregon store by store type for 2011 and 2012. Overall, diversity decreased for all lamp types in all store types between 2011 and 2012 except for LED lamps in wholesale clubs in small hardware stores. The average number of LED lamp models stocked in wholesale clubs increased by one lamp per store, on average, between 2011 and 2012, while the average number stocked in small hardware stores increased by two lamp models per store. The underlying reasons for these changes are unclear.

Figure 16
Average Number of Lamp Models per Store by Lamp Technology and Store Type
Oregon, 2011 and 2012

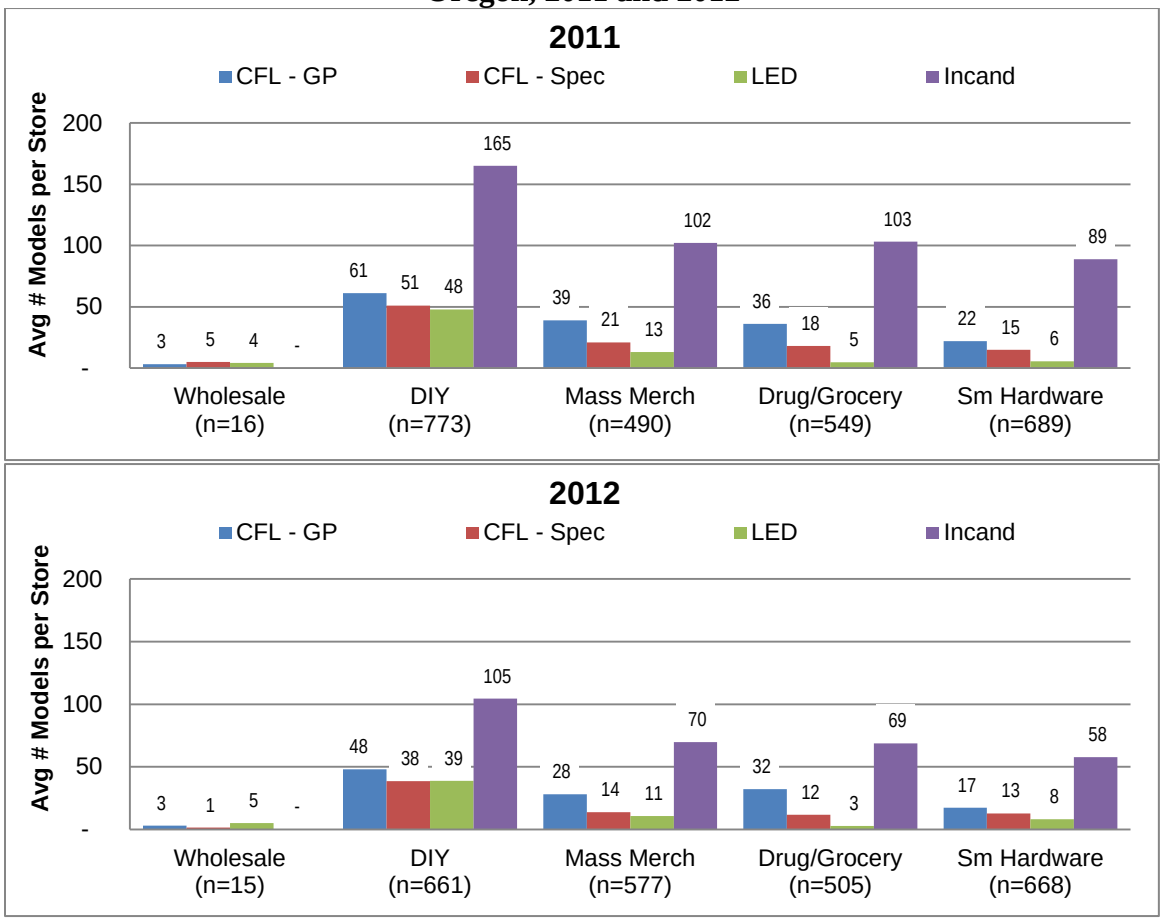
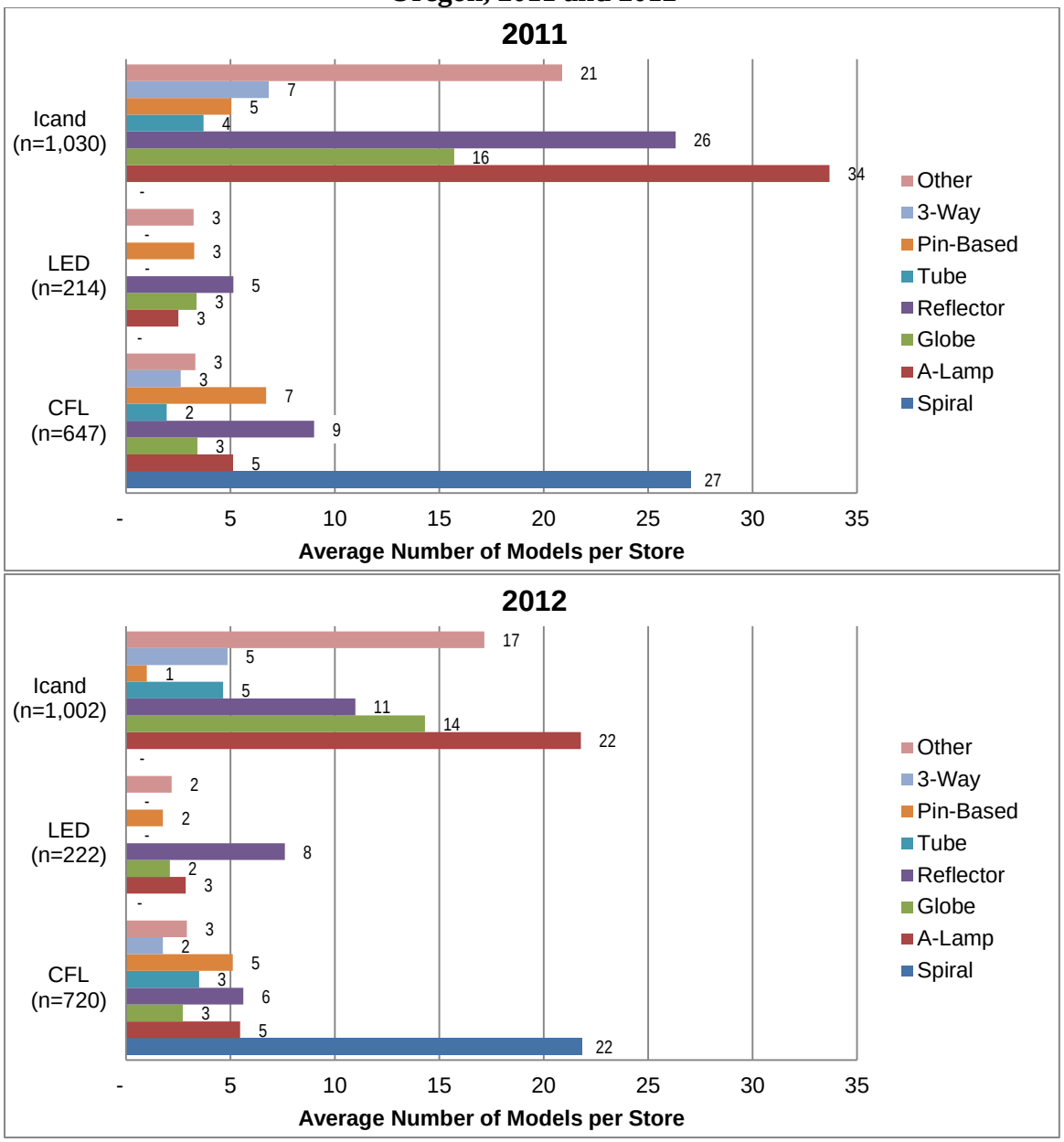


Figure 17 shows the average number of lamp models per store in Oregon by lamp style for CFLs, LED lamps, and incandescent lamps in 2011 and 2012. Within this timeframe, the number of lamp models decreased for all types and styles, except for LED reflector lamps, which increased by an average of three lamp models per store across all store types. The diversity of incandescent lamps decreased by the greatest magnitude, most notably among A-lamp and reflector lamp styles. The decline in A-lamp diversity by this metric may be a result of EISA.

Figure 17
Average Number of Lamp Models per Store by Lamp Technology and Lamp Style
Oregon, 2011 and 2012



3.2.2 Lamp Wattage

The following section provides details regarding the percentage of lamps in each store within wattage bins specific to each of the three lamp technologies – CFL, LED, and incandescent – by store category.

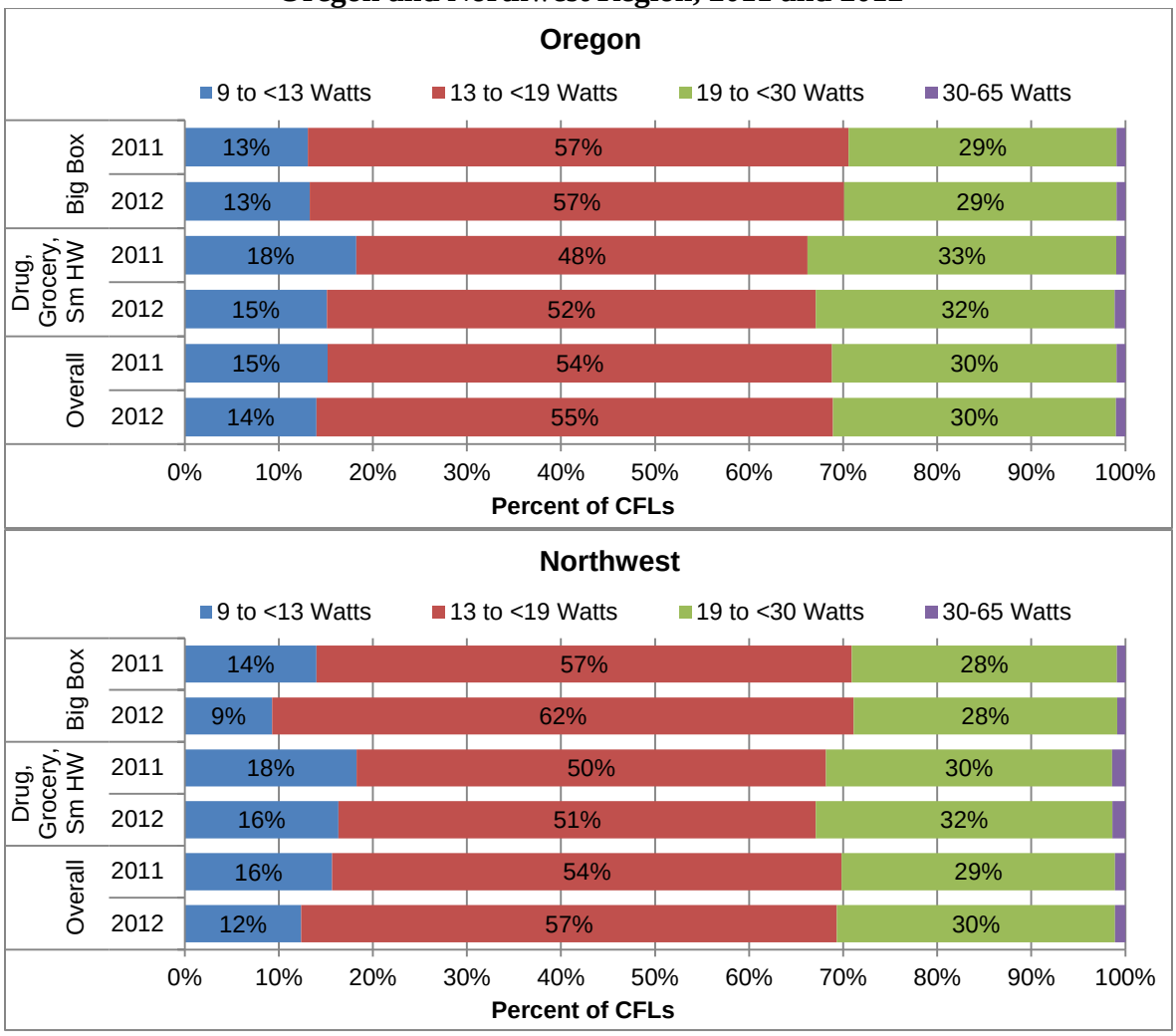
3.2.2.1 CFLs

Figure 18 shows the percentage of CFLs stocked in big box stores and drug, grocery, and small hardware in Oregon and the Northwest region in four CFL wattage categories. These categories (and their rough equivalents among traditional incandescent lamps) include:

- 9 to less than 13 watt CFL (roughly equivalent to a traditional 40 watt incandescent lamp);
- 13 to less than 19 watt CFL (60 watt traditional incandescent lamp);
- 19 to less than 30 watt CFL (75 watt traditional incandescent lamp); and
- 30 to 65 watt CFL (100 watt traditional incandescent lamp).

The greatest share of CFLs was in the 13W to <19W lamp range, which increased overall and in both store categories between 2011 and 2012. This was met with a corresponding decrease in the 9 to <13W and 19W to <30W ranges. By 2012, Oregon stocked a greater percentage of <13W CFL lamps than the Northwest region, in particular in big box stores. The 30-65W lamp range had the smallest share of total CFLs stocked across the board, but had the greatest representation in drug, grocery, and small hardware stores, in both Oregon and the Northwest region in general.

Figure 18
Percentage of CFLs by Store Category and Wattage Category
Oregon and Northwest Region, 2011 and 2012



Note: Percentages may not total 100% due to rounding.
Refer to Appendix C, Table 14 for number of lamps.

3.2.2.2 LED Lamps

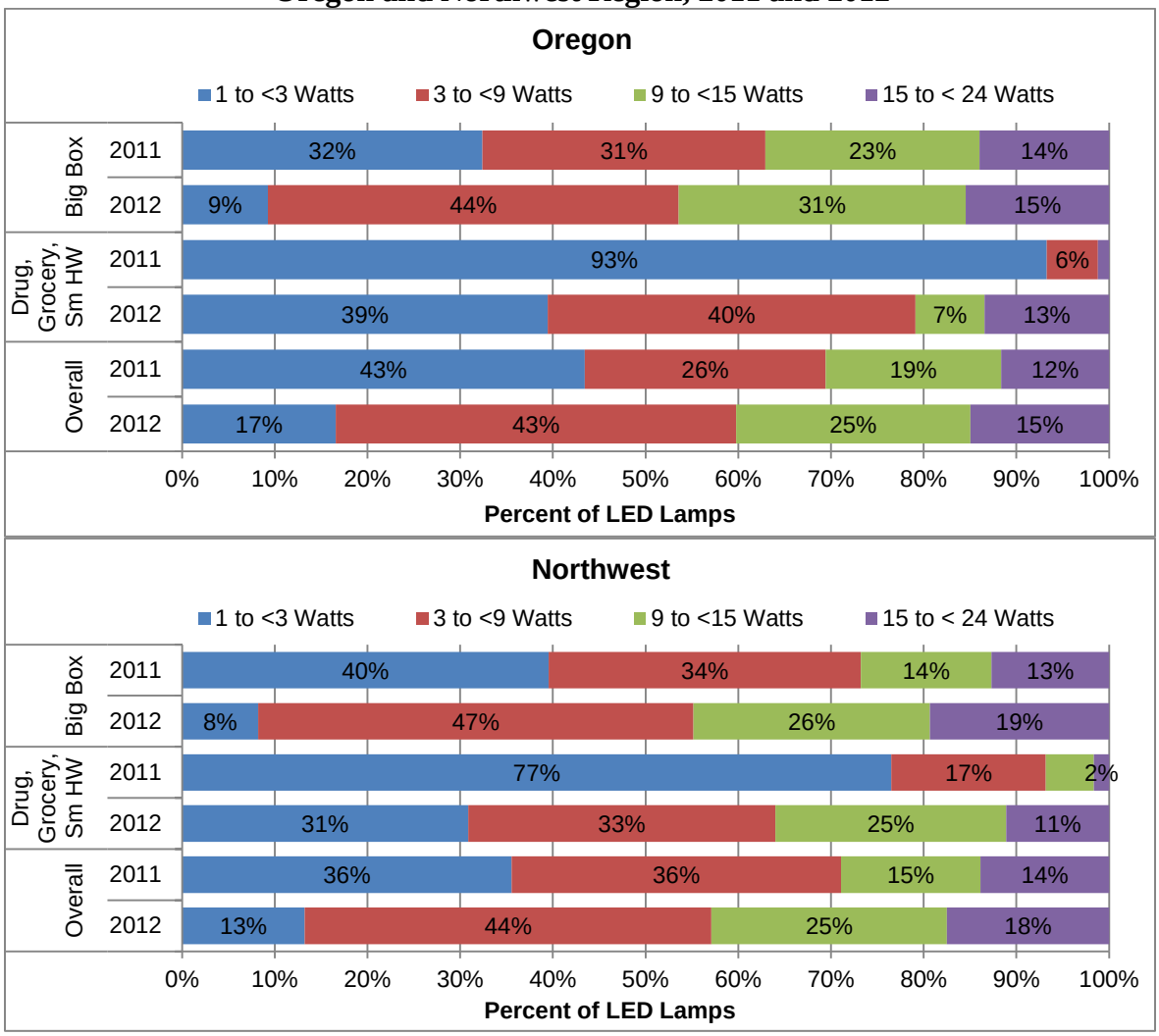
Figure 19 shows the percentage of LED lamps stocked in stores in Oregon and the Northwest region. LED lamps were grouped into four wattage bins:

- 1 to less than 3 watt LED (roughly equivalent to 40 watt traditional incandescent lamp);
- 3 to less than 9 watt LED (60 watt traditional incandescent lamp);
- 9 to less than 15 watt LED (100 watt traditional incandescent lamp); and
- 15 to less than 24 watt LED (100 watt traditional incandescent lamp).

In 2011, LED lamp stock was dominated by 1 to <3W lamps, especially in drug, grocery, and small hardware stores. Between 2011 and 2012, the percentage of 1 to <3W LED lamps

decreased across both store categories in Oregon and in the Northwest. Concurrently, all other LED lamp wattage categories gained share. Big box stores in 2012 had the smallest share of 1 to <3W LED lamps and primarily stocked lamps in the 3W to <9W range. Results suggest that Northwest and Oregon retail stores are increasingly carrying higher-wattage LED lamps in greater quantities.

Figure 19
Percentage of LED Lamps by Store Category and Wattage Category
Oregon and Northwest Region, 2011 and 2012



Note: Percentages may not total 100% due to rounding.
Refer to Appendix C, Table 15 for number of lamps.

3.2.2.3 Incandescent Lamps

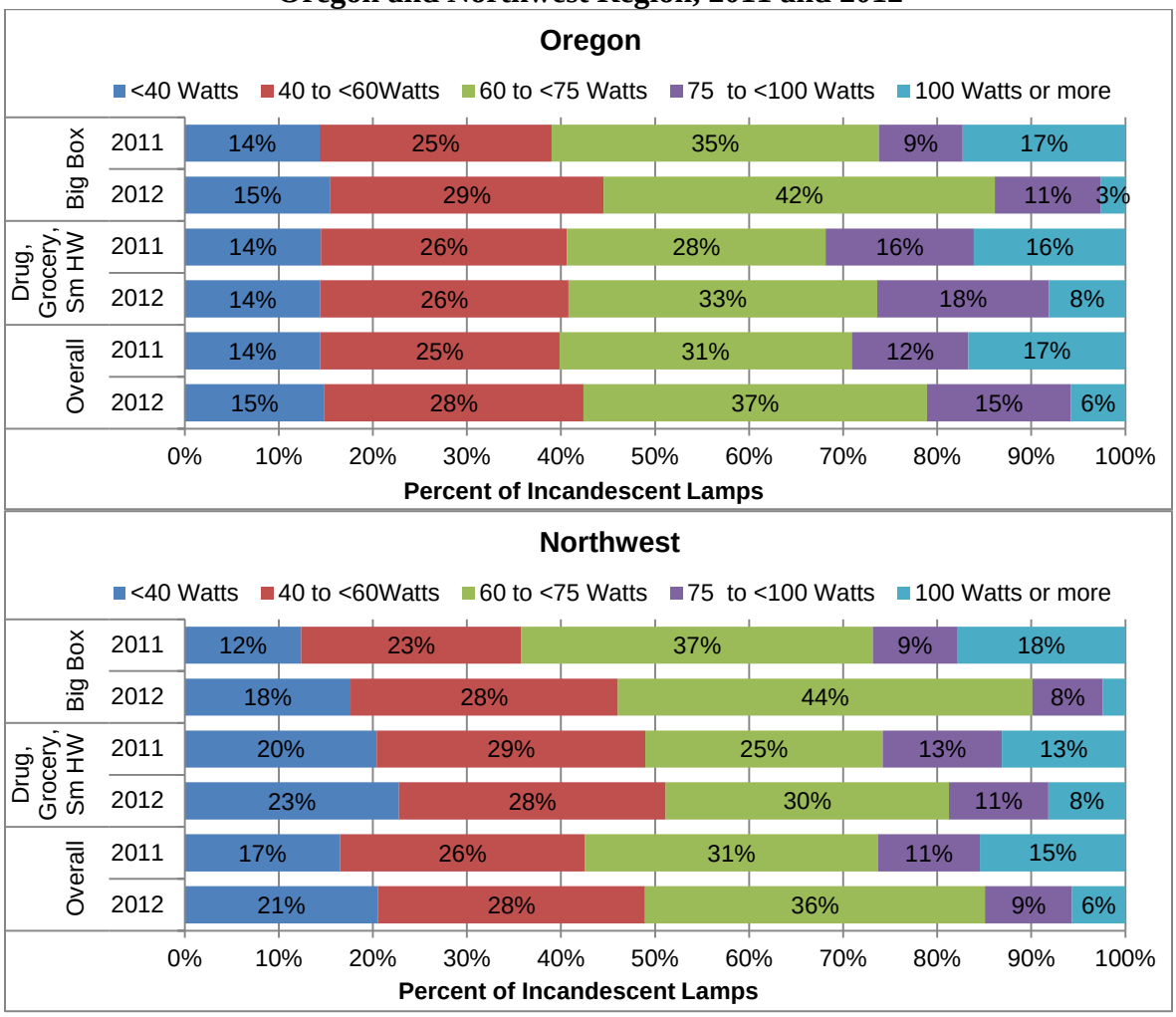
Figure 20 shows the percentage of incandescent lamps in each store category in each of five wattage categories:

- less than 40 watts;

- 40 to less than 60 watts;
- 60 to less than 75 watts;
- 75 to less than 100 watts; and
- 100 watts or more.

Results are shown across all stores and by store category for Oregon and the Northwest region between 2011 and 2012. Across both store categories as well as in both Oregon and the Northwest region in general, the proportion of both 75W to <100W lamps and 100W lamps decreased, likely to satisfy EISA requirements.

Figure 20
Percentage of Incandescent Lamps by Store Category and Wattage Category
Oregon and Northwest Region, 2011 and 2012



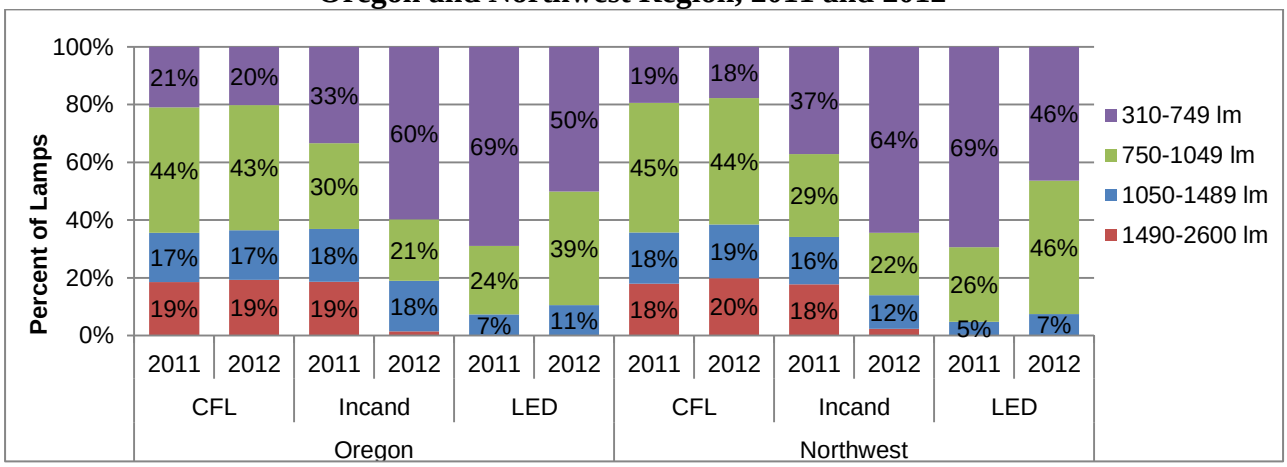
Note: Percentages may not total 100% due to rounding.
Refer to Appendix C, Table 16 for number of lamps.

3.3 Lumens

The figures below show the percentage of total CFLs, LED lamps and incandescent lamps stocked in Oregon and Northwest retail stores by lumen bin. These lumen bins align with those in the EISA legislation as described above. Appendix D includes tables with detailed information on the number of lamps, lamp models, wattage, and pricing across both store categories for lamp technologies for specific lamp shapes (e.g., MSB A-lamp, MR16 lamps) by lumen bin among Oregon stores in the 2012 sample.

While the distribution of lamps across lumen bins remained fairly static for CFLs between 2011 and 2012 in both Oregon and the Northwest region, the distribution of incandescent and LED lamps changed dramatically, as shown in Figure 21. The percentage of incandescent lamps stocked in the lowest lumen bin increased by 27 percentage points in both Oregon and the Northwest region, made up for by a decrease of incandescent lamps in the higher lumen bins. The greatest decline in this regard was among the incandescent lamps in the 1490-2066 lumen category, likely a result of EISA. Conversely, between 2011 and 2012, the percentage of LED lamps in the 310-749 lumen bin decreased, countered with increases in the 750-1049 and 1050-1489 lumen bins. Other shifts were less dramatic.

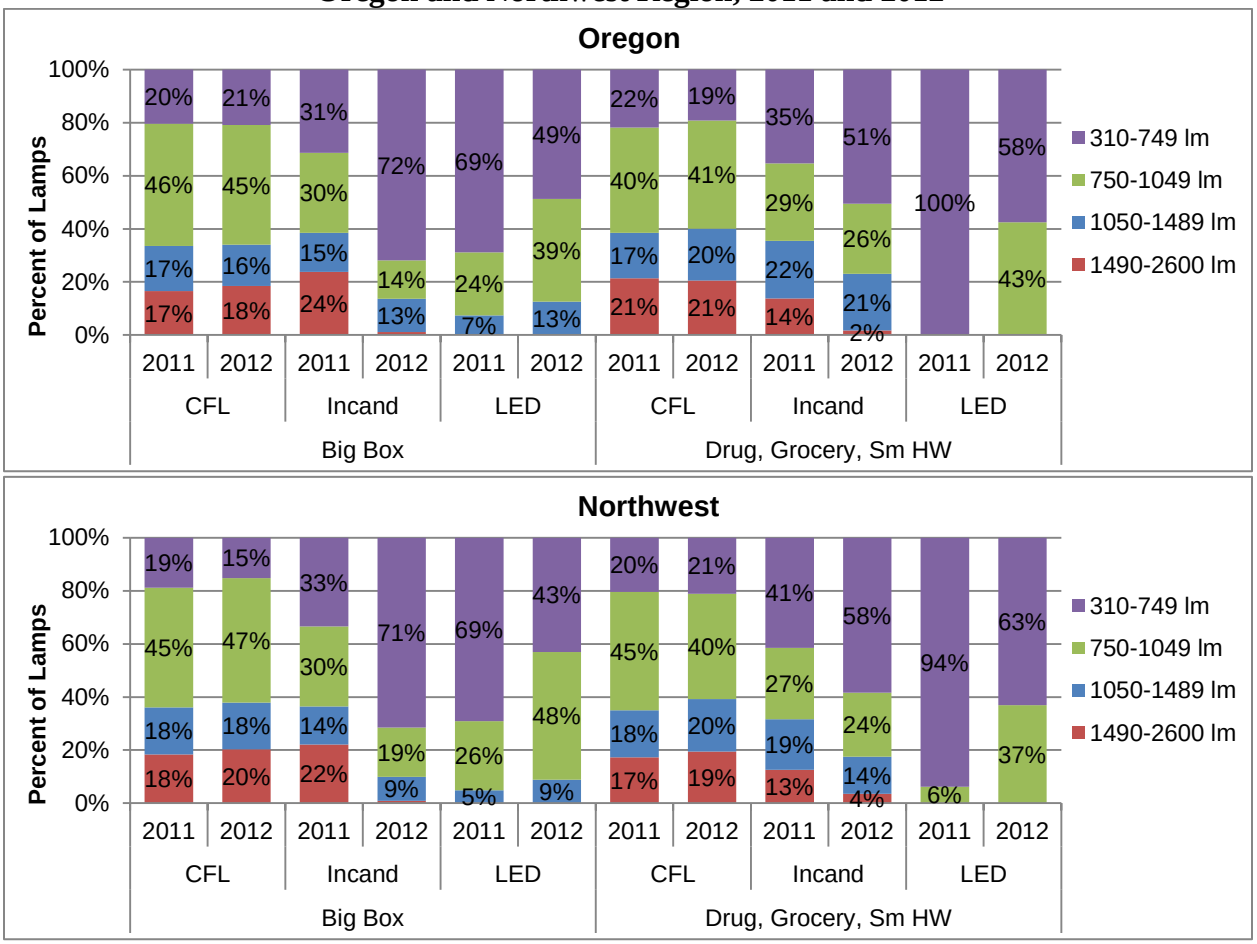
Figure 21
Percentage of Lamps Stocked by Lamp Technology and Lumen Bin
Oregon and Northwest Region, 2011 and 2012



Note: Percentages may not total 100% due to rounding.
Refer to Appendix C, Table 17 for number of lamps.

Figure 22 shows the percentage of CFLs, LED lamps and incandescent lamps by lumen bin stocked in big box and non- big box (drug, grocery, and small hardware) stores. Big box stores in both Oregon and the Northwest region carried a greater percentage of incandescent lamps in the lowest lumen bin than non- big box stores. In 2011, LED lamps in non- big box stores were almost exclusively in the lowest lumen bin, but in 2012, they carried LEDs in the 750-1049 lumen bin as well. On the other hand big box stores stocked LED lamps in the 1050-1489 lumen range in addition to the lower two bins.

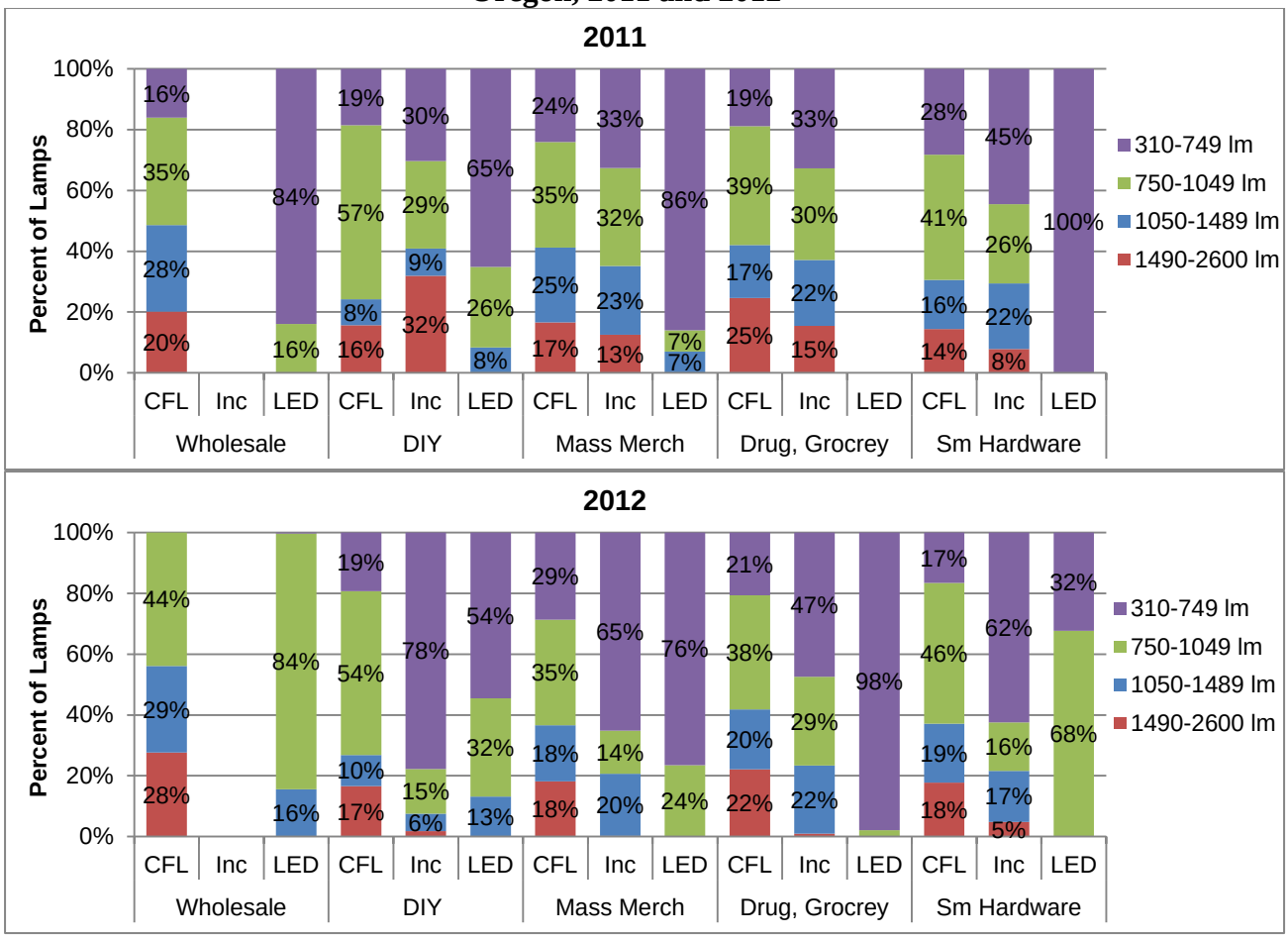
Figure 22
Percentage of Lamps Stocked by Lamp Technology, Store Category and Lumen Bin
Oregon and Northwest Region, 2011 and 2012



Note: Percentages may not total 100% due to rounding.
Refer to Appendix C, Table 18 number of lamps.

Figure 23 shows the distribution of CFL, LED lamps, and incandescent lamps by lumen bin in Oregon stores during 2011 and 2012. Between 2011 and 2012, wholesale clubs in Oregon discontinued stocking LED lamps in the lowest lumen bin (310-749 lm) and replaced them with LED lamps in the 750-1049 and 1050-1489 lumen bins. Conversely, drug and grocery stores did not stock LED lamps in 2011 but in 2012 stocked LED lamps almost exclusively in the lowest lumen bin. In small hardware stores, 100 percent of LED lamps in 2011 were in the lowest lumen bin, but in 2012, this percentage shrank to 32 percent of LED lamps, and lamps in the 750-1049 lumen bin comprised 68 percent of total LED stock in small hardware stores.

Figure 23
Percentage of Lamps Stocked by Lamp Technology, Store Type and Lumen Bin
Oregon, 2011 and 2012



Note: Percentages may not total 100% due to rounding.
Refer to Appendix C, Table 19 for number of lamps.

3.4 CFL Pricing

Field staff collected detailed pricing information for every lamp observed on retail store shelves, including price (before and after utility program discounts or other discounts, when applicable) and number of lamps per package. These data allow analysts to estimate the price per lamp for all lamps in each store. Because these data are sales-weighted, and because 2011 and 2012 lamp sales data are not available for LED and incandescent lamps, this section focuses on CFL pricing exclusively.

3.4.1 Average Price Paid

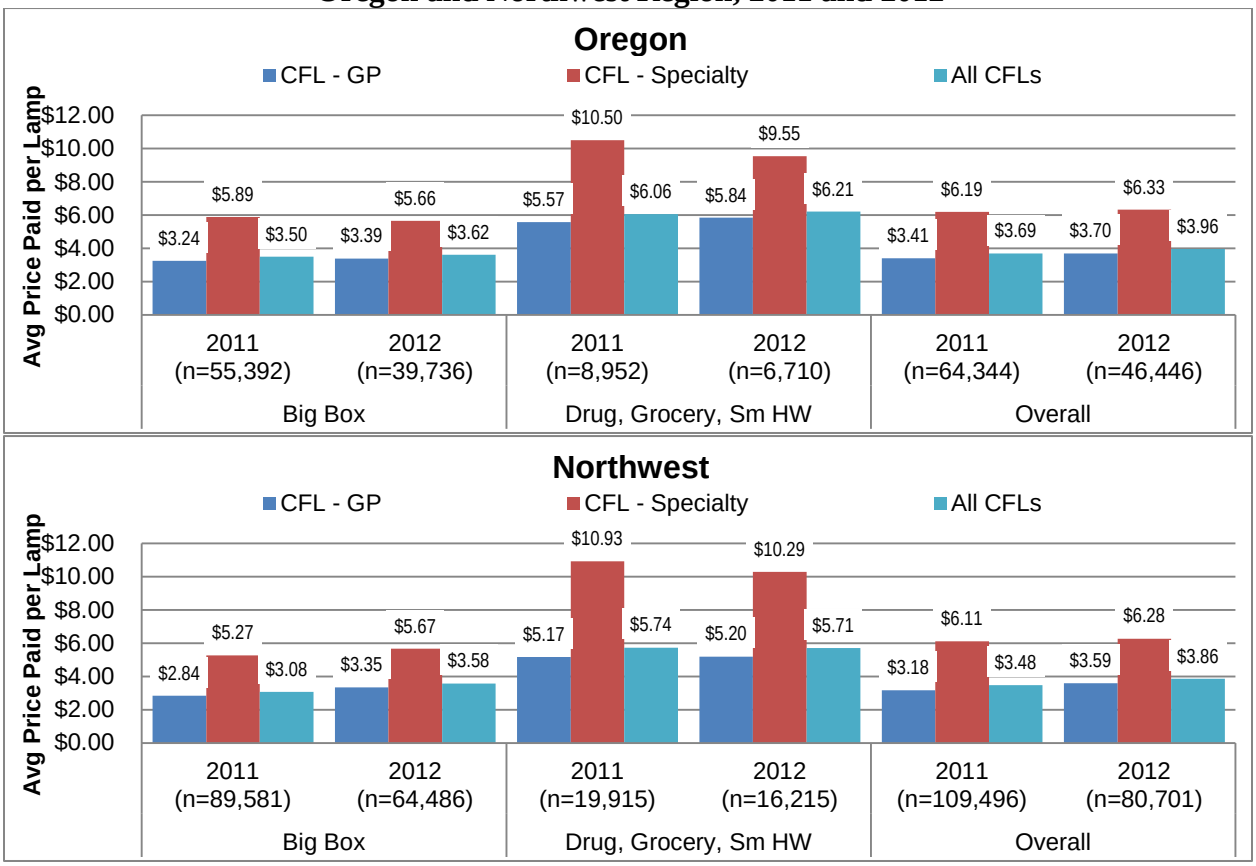
This section reports on average price paid by Northwest consumers for CFLs based on purchasing assumptions described in the 2012 report and weighted by CFL sales (as reported to NEEA by Fluid Market Strategies). Figure 24 shows the average price paid per lamp for general

purpose, specialty, and all CFLs by store category for both Oregon and the Northwest region as a whole between 2011 and 2012. As shown, in 2012, the average price paid for a CFL in Oregon was $3.96 and in the Northwest as a whole, $3.86. The average price paid for a CFL in Oregon and in the Northwest as a whole increased slightly between 2011 and 2012. This overall trend obscures some differences between the average price paid for general purpose versus specialty CFLs by store category.

The average price paid for general purpose CFLs in 2012 was higher in both Oregon and the Northwest than in 2011, but the price increased by a slightly greater amount in Northwest than in Oregon across both store categories ($0.41 versus $0.29, respectively). The year-over-year increases in average price paid for general purpose CFLs in Oregon was approximately 5 percent in both store categories, but in the Northwest, the overall increase in average price paid was driven by an 18 percent increase in big box stores (and only a 1% increase in non- big box stores).

The price paid for specialty CFLs declined in Oregon and the Northwest between 2011 and 2012 by 2 to 3 percent across both store categories (by $0.14 in Oregon and $0.17 in the Northwest). This masks some differences in how the average prices for specialty lamps changed among big box stores, where the average price paid increased by $0.40 in the Northwest between 2011 and 2012 but decreased by $0.23 in Oregon during the same period. In non-big box stores, the price paid for specialty CFLs declined both in Oregon and the Northwest between 2011 and 2012 (by $0.95 and $0.64, respectively).

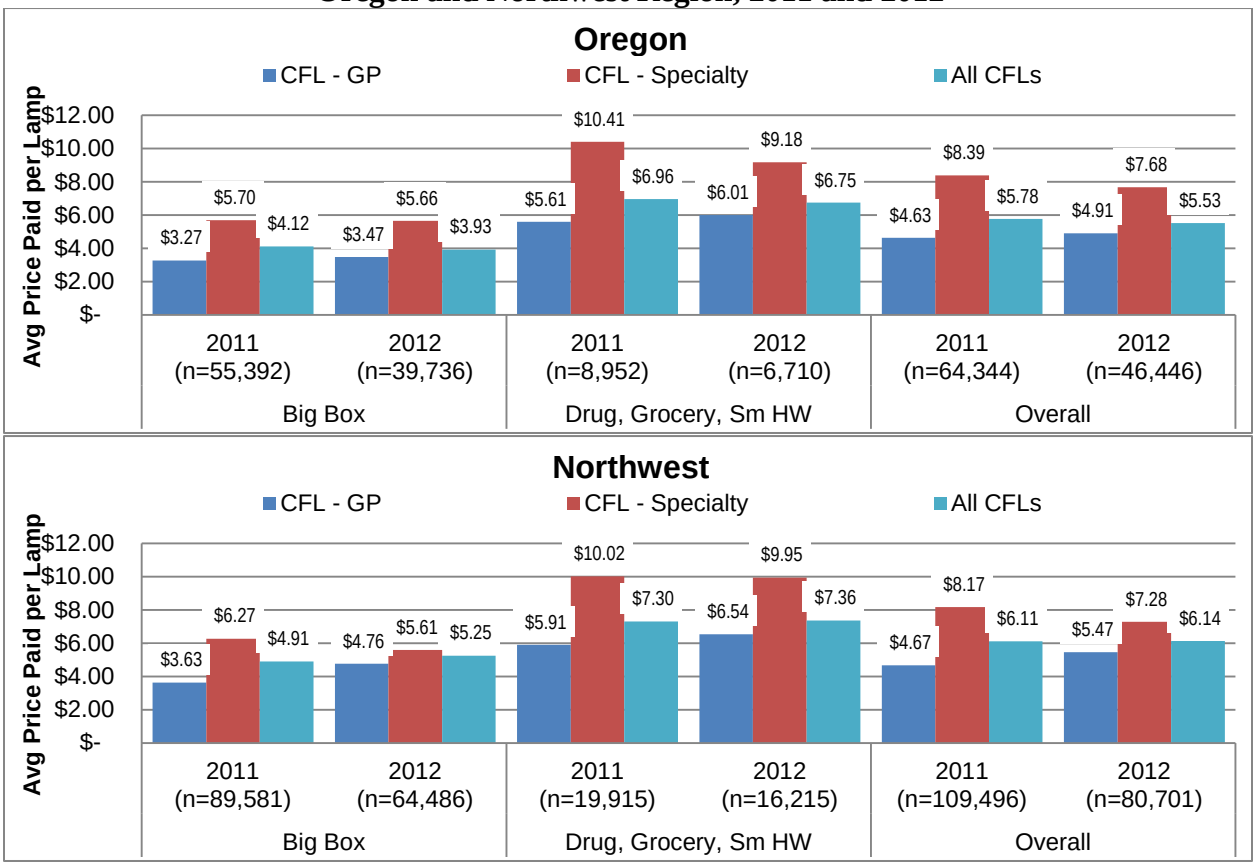
Figure 24
Average Price Paid Per Lamp by Store Category and CFL Style
Oregon and Northwest Region, 2011 and 2012



3.4.2 Average Shelf Price

This section provides details on the average shelf price for CFLs (without the purchasing assumptions) and weighted by CFL sales (as reported to NEEA by Fluid Market Strategies). Figure 25 shows the average shelf prices for CFLs in Oregon and the Northwest during 2011 and 2012 by store category. In 2012, the average shelf price for a CFL (including both general purpose or specialty lamps) declined slightly from 2011 shelf prices in Oregon (by $0.25 per lamp, on average) and stayed about the same in the Northwest during that same period (declining by only $0.03 per lamp, on average). The average shelf price for specialty lamps declined in both Oregon and the Northwest between 2011 and 2012 in both store categories, while the average shelf price for general purpose lamps increased in both regions during the same timeframe.

Figure 25
Average Shelf Price Per Lamp by Store Category and CFL Style
Oregon and Northwest Region, 2011 and 2012



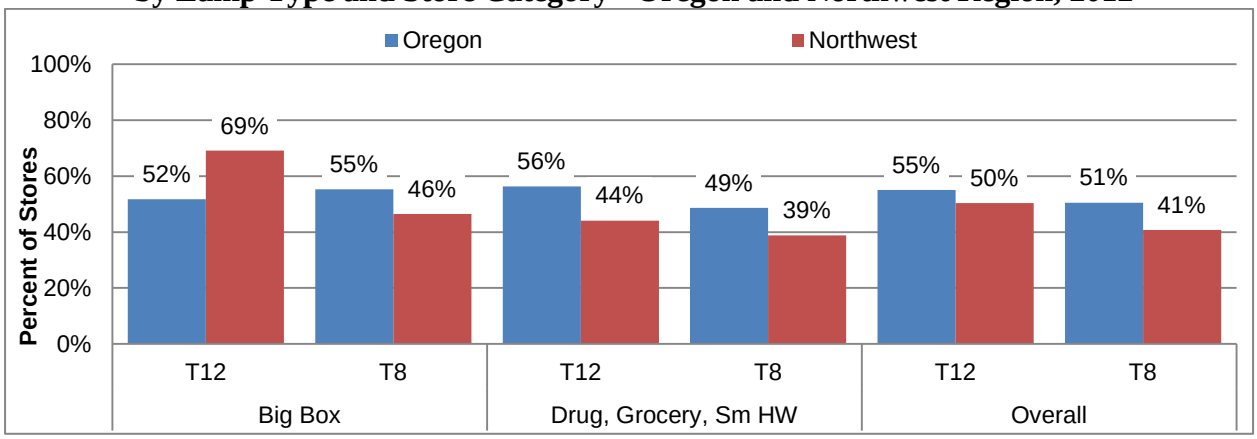
3.5 Linear Fluorescent Lamps

For the first time in 2013, field researchers gathered data on 4-foot fluorescent tube lamps—including both T8 and T12 technologies—during the lighting retail store shelf surveys. T12 lamps are one and a half inches in diameter and T8 lamps are one inch in diameter, and are among the most commonly used tube fluorescent lamps in residential applications (particularly in multi-family settings). The sections below present results on fluorescent tube lamp availability (in terms of the percentage of stores in Oregon and the Northwest region carrying these lamps and the percentage of total fluorescent tube lamps comprised by T8 and T12 lamps) and diversity (in terms of the average number of fluorescent tube lamps stocked per store).

3.5.1 Percent of Stores Stocking Linear Fluorescent Lamps

Figure 26 below shows the percentage of stores in Oregon and the Northwest region that carried linear fluorescent lamps in 2012. Overall, more stores in Oregon stocked T12 and T8 lamps than did stores in the Northwest region. However, a greater percentage of big box stores stocked T12 lamps in the Northwest (69%) than stores in Oregon (52%).

Figure 26
Percentage of Stores Carrying Linear Fluorescent Lamps
by Lamp Type and Store Category - Oregon and Northwest Region, 2012



Refer to Appendix C, Table 20 for number of stores.

3.5.1.1 By Wattage Bin

To understand linear fluorescent lamp availability in Oregon in more detail, we examined wattage data for four-foot T12 and T8 lamps to identify possible wattage groupings (or "bins").

T12 Lamps

For T12 lamps, field staff recorded details on more than 6,000 lamps at 9 different wattages ranging from 15 to 120 (Table 5). As shown, 40 watt lamps comprised more than three-quarters of all T12 lamps in the inventory. To support further analyses of T12 lamps, we collapsed these 9 wattages into four bins:

- less than 34 watts;
- 34 watts;
- 40 watts; and
- greater than or equal to 60 watts.

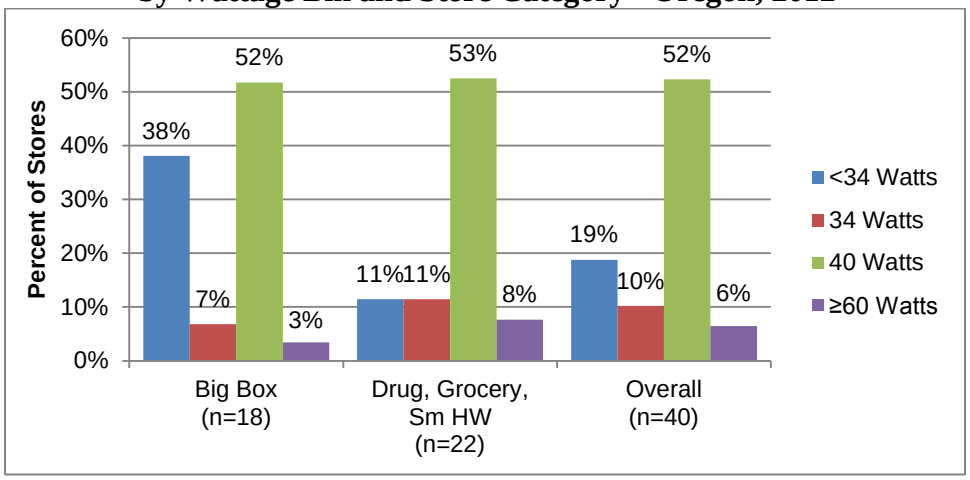
Note that these wattage bins exclude some lamp wattages (e.g., those in the 35 to 39 watt range). The bins included only the wattages for T12 linear fluorescent lamps recorded by field staff during the 2012 shelf surveys in Oregon. (In the previous example, the bins exclude 35 to 39 watt lamps because field staff did not record any lamps at these wattage levels.)

Table 5
Distribution of Linear Fluorescent T12 Lamps by Wattage – Oregon, 2012

Wattage	T12 Lamps	
	n	%
15	3	<1%
20	15	<1%
25	75	1%
30	14	<1%
32	48	1%
34	1,193	19%
40	4,920	78%
60	46	1%
120	5	<1%
Total	**6,319**	**100%**

We examined the percentage of Oregon stores that stocked T12 lamps in 2012 using these wattage bins. As shown in Figure 27, approximately half of Oregon retail stores had 40 watt T12 during the 2012 shelf survey visits (overall and in both store categories). T12 lamps in the lowest wattage bin (less than 34 watts) were present in nearly two out of five big box stores but only one in ten non- big box stores. T12 lamps in the other wattage bins (34 watts and greater than or equal to 60 watts) were present in roughly ten percent or fewer big box and non- big box stores during the 2012 Oregon shelf survey visits.

Figure 27
Percentage of Stores Carrying Linear Fluorescent T12 Lamps by Wattage Bin and Store Category - Oregon, 2012



T8 Lamps

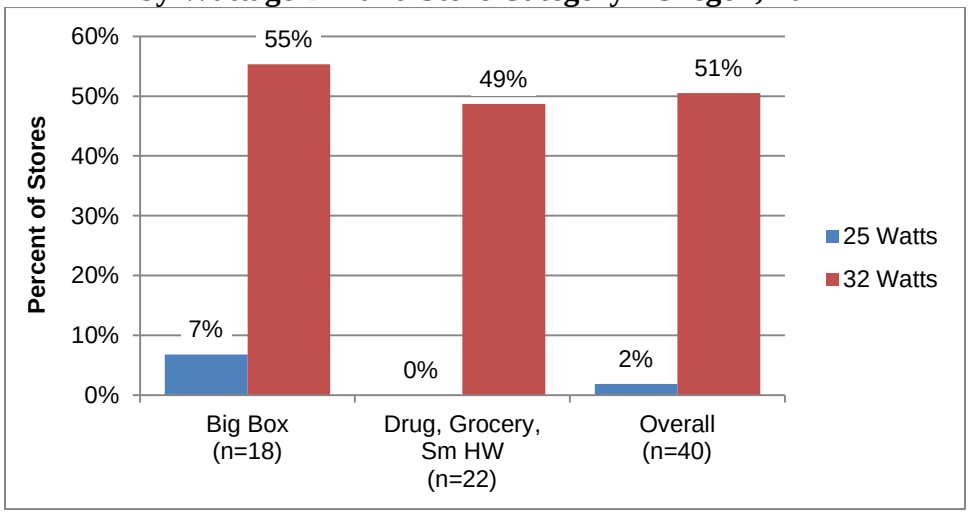
For four-foot linear fluorescent T8s, field staff recorded details on more than 5,500 lamps. All of these lamps were either 25 or 32 watt lamps, with the vast majority at 32 watts (99%; see Table 6). Field staff recorded no T8 lamps at other wattage levels during the 2012 Oregon shelf surveys. Given that only two wattage levels are reflected in the data, it was not necessary to collapse these into smaller wattage bins to support additional analyses of T8 lamps.

Table 6
Distribution of Linear Fluorescent T8 Lamps by Wattage – Oregon, 2012

	T8 Lamps	
Wattage	n	%
25	60	1%
32	5,552	99%
Total	**5,582**	**100%**

For both 25 and 32 watt four-foot linear fluorescent T8 lamps, Figure 28 shows the percentage of Oregon stores that stocked these lamp types during the 2012 shelf survey visits. As shown, roughly half of all Oregon stores (including both big box and non- big box stores) stocked 32 watts T8 lamps. T8 lamps in the 25 watt category were present in only 7 percent of big box stores statewide and field staff did not observe any 25 watt T8 lamps in non- big box stores during the 2012 visits.

Figure 28
Percentage of Stores Carrying Linear Fluorescent T8 Lamps by Wattage Bin and Store Category - Oregon, 2012



3.5.1.2 By Lumen Bin

As with wattage, we created lumen bins for four-foot linear fluorescent T12 and T8 lamps to support more detailed analyses of 2012 Oregon shelf survey results.

T12 Lamps

For T12 lamps, information on lumen output was available for approximately 93 percent of the lamps observed by field staff in Oregon during the 2012 shelf surveys. Table 7 shows the distribution of these lamps by lumen output. As shown, field staff inventoried T12 lamps in approximately 24 different lumen levels, with more than half at 2600 lumens or greater. To support further analyses of T12 lamps by lumen bin, we collapsed these 24 lumen levels into four bins:

- less than or equal to 2200 lumens;
- 2250 to 2550 lumens;
- 2600 lumens; and
- greater than or equal to 2601 lumens.

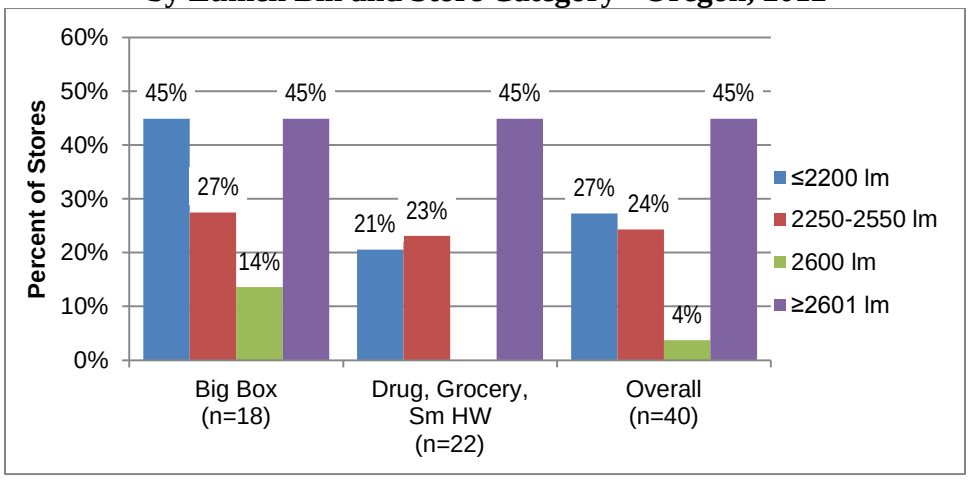
Note that while these lumen bins are mutually-exclusive (i.e., there is no overlap among bins), they are not all-encompassing; there are "gaps" between these bins. For example, the lumen bins exclude lamps between 2251 and 2599 lumens. This is intentional, as field staff recorded no T12 lamps with lumen output outside of these bins during the 2012 shelf surveys (Table 7). For further details regarding the distribution of T12 lamps in Oregon stores by wattage and lumens, see Appendix C, Table 21.

Table 7
Distribution of Linear Fluorescent T12 Lamps by Lumens – Oregon, 2012

Lumens	T12 Lamps	
	n	%
200	60	1%
785	3	<1%
1025	7	<1%
1275	3	<1%
1860	32	1%
1900	40	1%
1925	940	16%
2100	124	2%
2180	10	<1%
2200	38	1%
2250	46	1%
2325	836	14%
2400	14	<1%
2500	556	9%
2550	184	3%
2600	1,986	34%
2650	60	1%
2800	48	1%
2900	474	8%
3050	27	<1%
3150	112	2%
3200	206	4%
3300	4	<1%
3400	61	1%
Total	**5,871**	**100%**

We examined the percentage of Oregon stores that stocked T12 lamps in 2012 using these lumen bins (Figure 29). As shown, nearly half of Oregon stores carried lamps in the highest lumen bin (greater than or equal to 2601 lumens) during 2012. Approximately one-quarter of stores stocked 2600 lumen T12 lamps and T12 lamps less than or equal to 2200 lumens, while only a handful carried 2600 lumen T12 lamps in 2012. Big box stores stocked T12 lamps in all lumen bins, while non- big box stores stocked T12 lamps in all lumen bins except for 2600 lumen lamps.

Figure 29
Percentage of Stores Carrying Linear Fluorescent T12 Lamps
by Lumen Bin and Store Category - Oregon, 2012



T8 Lamps

Ninety-one percent of the four-foot linear fluorescent T8 lamps recorded by shelf survey researchers in Oregon during 2012 had information available on lumen output. Table 12 shows the distribution of these lamps by lumen output. As shown, only 5 percent of the T8s inventoried by field staff had light output less than 2600 lumens. Nearly 90 percent of T8s were in the 2600 to 2850 lumen range. To support further analyses of T8 lamps by lumens, we collapsed the 10 levels of lumen output into 5 bins:

- ≤2500 lumens;
- 2600 lumens;
- 2700-2750 lumens;
- 2800 lumens; and
- >2800 lumens.

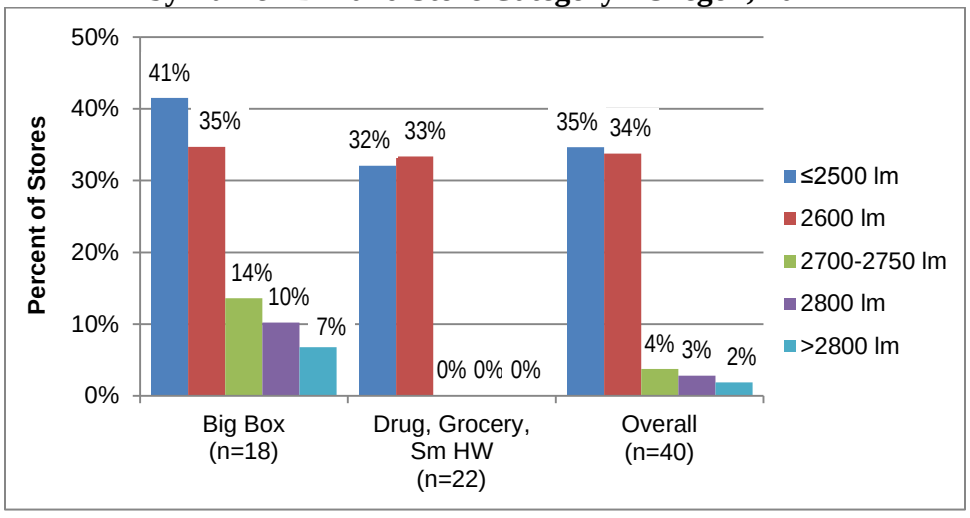
Again, note that the lumen bins are mutually-exclusive but not all-encompassing (i.e., they are limited to the range of lumen outputs recorded by field staff as part of the 2012 shelf surveys in Oregon). For further details regarding the distribution of T8 lamps in Oregon stores by wattage and lumens, see Appendix C, Table 22.

Table 8
Distribution of Linear Fluorescent T8 Lamps by Lumens – Oregon, 2012

Lumens	T8 Lamps	
	n	%
2300	19	<1%
2400	60	1%
2475	12	<1%
2500	148	3%
2600	888	17%
2700	498	10%
2750	842	17%
2800	1,568	31%
2850	742	15%
2950	304	6%
Total	**5,081**	**100%**

Using the lumen bins described above for four-foot linear fluorescent T8 lamps, Figure 30 demonstrates that roughly one-third of all big box and non- big box stores in Oregon stocked lamps in the two lowest lumen bins in 2012. Across both store categories, only a handful of stores stocked T8 lamps in the higher lumen bins (2700 lumens or higher) during the 2012 shelf survey visits, and none of the non- big box stores stocked T8 lamps above 2600 lumens.

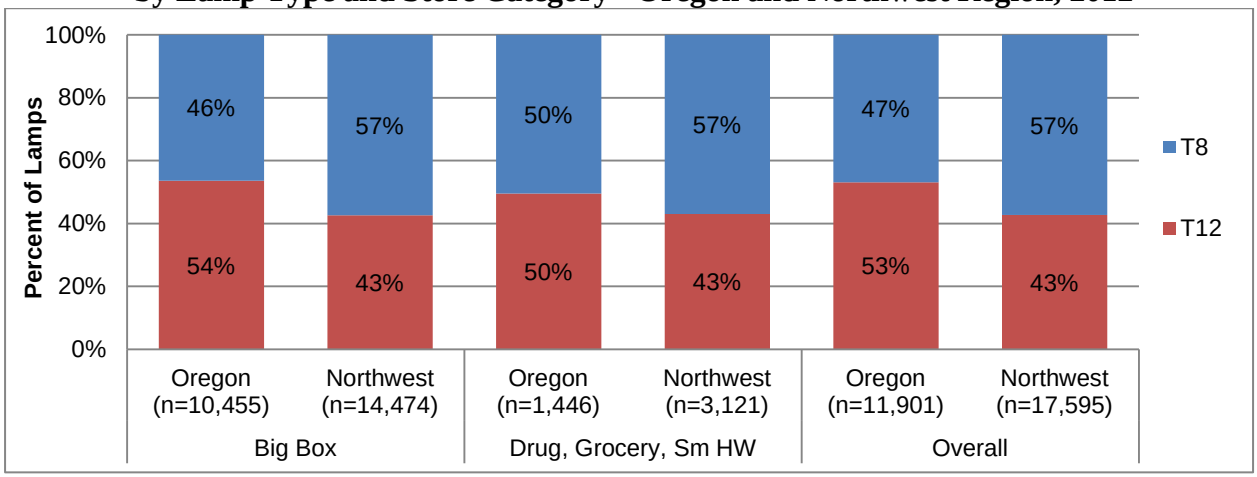
Figure 30
Percentage of Stores Carrying Linear Fluorescent T8 Lamps by Lumen Bin and Store Category - Oregon, 2012



3.5.2 Percent of Linear Fluorescent Lamps Stocked

Figure 31 demonstrates the share of overall fluorescent tube lamp stock comprised by T8s and T12s stocked in big box stores and drug, grocery, and small hardware stores in Oregon and the Northwest region in 2012. In Oregon, T12 lamps comprised 53 percent of the 4-foot fluorescent tube lamps stocked and T8 lamps comprised the remaining 47 percent. In the Northwest, T8 tube lamps were dominant, with 57 percent of stock and T12 lamps comprising the remainder (43 percent). This pattern is also reflected in big box stores and drug, grocery, and small hardware stores.

Figure 31
Percentage of Linear Fluorescent Lamps Stocked
by Lamp Type and Store Category - Oregon and Northwest Region, 2012

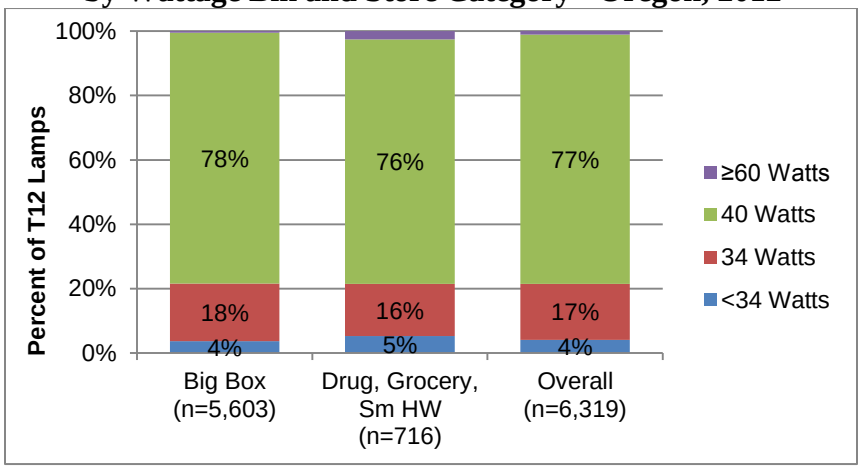


3.5.2.1 By Wattage Bin

T12 Lamps

We examined the distribution of four-foot linear fluorescent T12 lamps stocked in Oregon stores during the 2012 shelf survey visits using the wattage bins described in Section 3.5.1.1 above. As shown in Figure 32, approximately three-quarters of the T12 lamps stocked in Oregon retail stores were 40 watt lamps during the 2012 shelf surveys, compared to 16 to 18 percent at 34 watts, approximately 4 to 5 percent at less than 34 watts, and a negligible proportion of total T12 lamps greater than or equal to 60 watts across both store categories in Oregon.

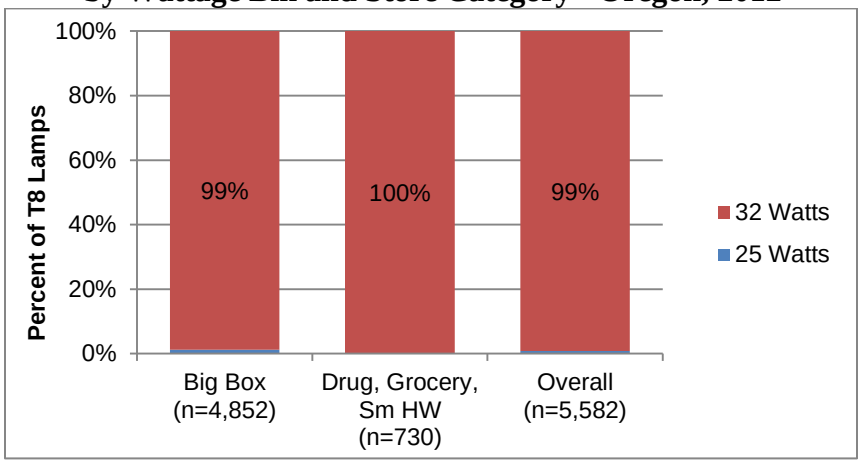
Figure 32
Percentage of Linear Fluorescent T12 Lamps Stocked by Wattage Bin and Store Category - Oregon, 2012



T8 Lamps

We examined the distribution of four-foot linear fluorescent T8 lamps stocked in Oregon stores during the 2012 shelf survey visits using the wattage bins described in Section 3.5.1.1 above. Figure 33 demonstrates that nearly all of the T8 lamps stocked in Oregon retail stores during the 2012 shelf survey visits were 32 watt lamps, with just one percent of T8 lamps in bix box stores at the 25 watt level.

Figure 33
Percentage of Linear Fluorescent T8 Lamps Stocked by Wattage Bin and Store Category - Oregon, 2012

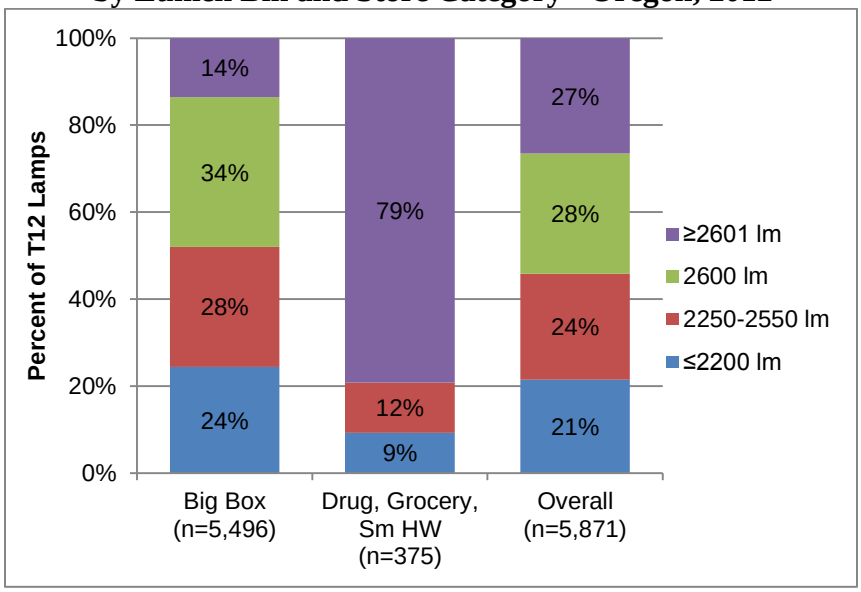


3.5.2.2 By Lumen Bin

T12 Lamps

We examined the distribution of T12 lamps stocked in Oregon stores using the lumen bins described in Section 3.5.1.2 above. Figure 34 suggests that non- big box store stock was concentrated among the highest lumen bin, with nearly 4 out of 5 T12 lamps of greater than or equal to 2600 lumens. Approximately one-third of T12 lamps stocked in Oregon big box stores had light output of 2600 lumens, compared to approximately one-quarter of lamps in each of the two lower bins and only 14 percent of T12 lamps in the highest lumen bin.

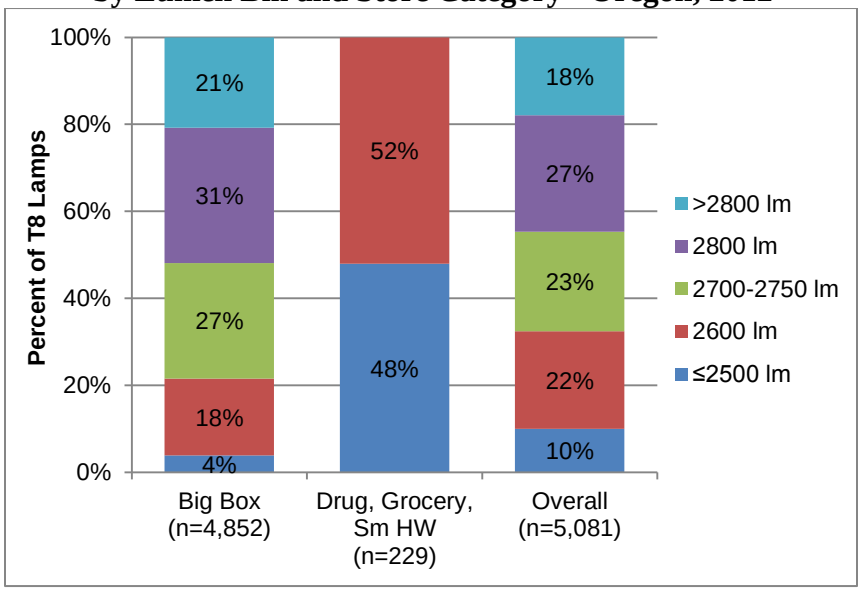
Figure 34
Percentage of Linear Fluorescent T12 Lamps Stocked by Lumen Bin and Store Category - Oregon, 2012



T8 Lamps

Using these lumen bins described in Section 3.5.1.2 above, we examined the distribution of T8 lamps stocked in Oregon during the 2012 shelf survey visits. Figure 35 demonstrates that non-big box stores stocked a fairly even split between T12 lamps in the two lowest lumen bins (52% of T12s were 2600 lumens and 28% were 2500 lumens or less). In big box stores, T12 lamp stock was distributed more evenly among the lumen bins with roughly 20 to 30 percent of lamps in each bin with the exception of the lowest (2500 lumens or less), which comprised only 4 percent of T12 lamps stocked in Oregon big box stores during the 2012 shelf surveys.

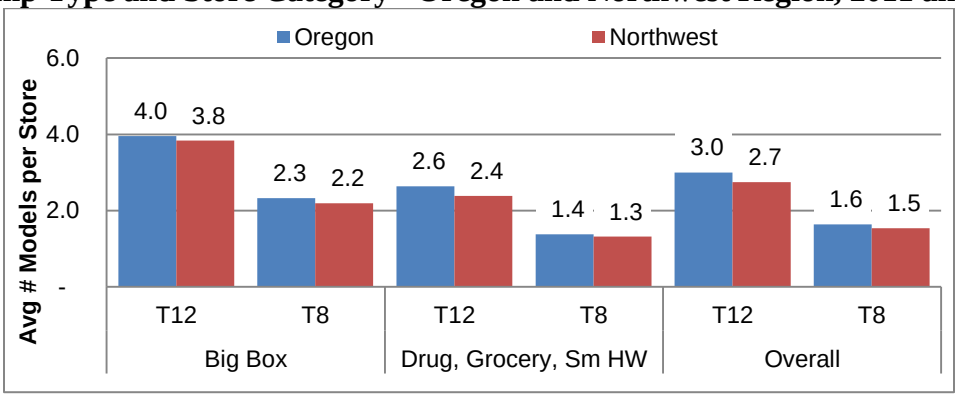
Figure 35
Percentage of Linear Fluorescent T12 Lamps Stocked by Lumen Bin and Store Category - Oregon, 2012



3.5.3 Average Number of Linear Fluorescent Models per Store

Figure 36 below present details on fluorescent tube lamp diversity in terms of the average number of lamp models stocked per store in Oregon and the Northwest region as a whole in 2012. Overall Oregon and Northwest stores both stocked an average of roughly 3 T12 lamp models per store and roughly 1.5 T8 models per store. There were few differences between Oregon and the Northwest by store category, but Oregon stores stocked a slightly greater number of T12 and T8 models in both store categories during 2012 than stores throughout the Northwest region as a whole.

Figure 36
Average Number of Linear Fluorescent Lamp Models per Store by Lamp Type and Store Category - Oregon and Northwest Region, 2011 and 2012



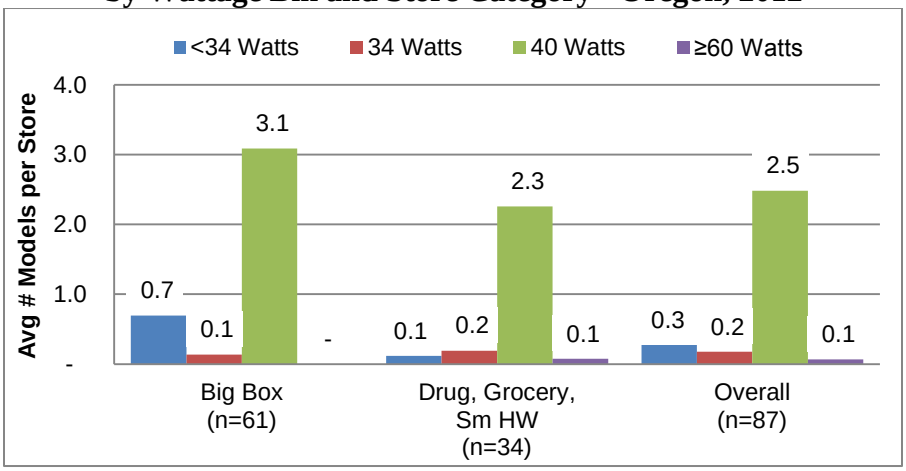
Refer to Appendix C, Table 23 for number of lamp models.

3.5.3.1 By Wattage Bin

T12 Lamps

Using the wattage bins described above for four-foot linear fluorescent T12 lamps, Figure 37 shows that in both store categories, Oregon retail stores stocked a greater diversity of T12 lamp models in the 40 watt category than in other wattage bins, averaging 2.5 models per store across both store categories compared to only 0.1 to 0.3 models per store, on average, across both store categories in the other wattage bins.

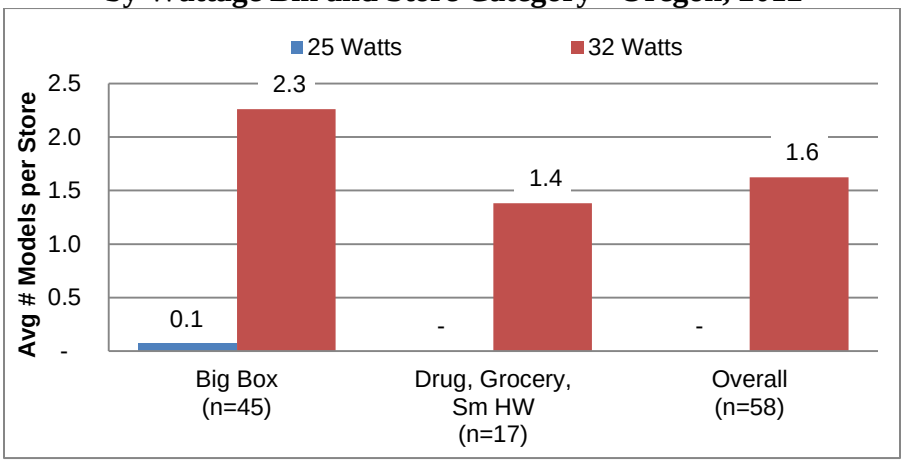
Figure 37
Average Number of Linear Fluorescent T12 Lamp Models per Store by Wattage Bin and Store Category - Oregon, 2012



T8 Lamps

For four-foot linear fluorescent T8 lamps, Figure 38 shows the average number of T8 models per store in the 25 and 32 watt categories. As shown in the figure, field researchers found no 25 watt T8 lamps in non-big box stores and an average of nearly zero 25 watt T8 model per store in big box stores (0.1 lamp models per store, on average). Both store categories stocked a greater diversity of 32 watt T8 models, with an average of more than 2 models per store in big box stores and more than 1 model per store in non-big box stores.

Figure 38
Average Number of Linear Fluorescent T8 Lamp Models per Store
by Wattage Bin and Store Category - Oregon, 2012

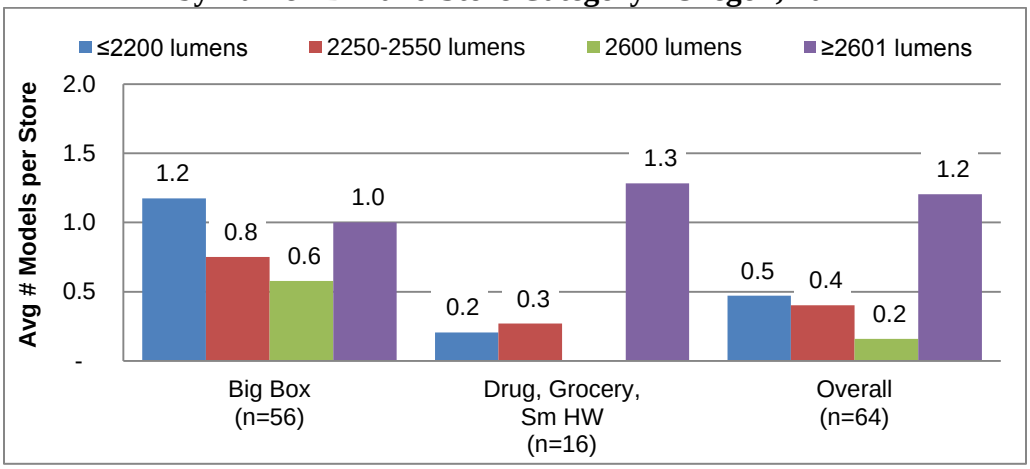


3.5.3.2 By Lumen Bin

T12 Lamps

We examined the distribution of T12 lamps stocked in Oregon stores using the lumen bins described in Section 3.5.1.2 above. Figure 39 shows that with the exception of T12 lamps greater than or equal to 2601 lumens, big box stores stocked more T12 lamp models per store, on average, than non- big box stores. Non- big box stores had no 2600 lumen T12 lamps in stock during the 2012 shelf survey visits, while big box stores averaged roughly 0.5 to 1 T12 lamp model per store, on average, in all four lumen bins.

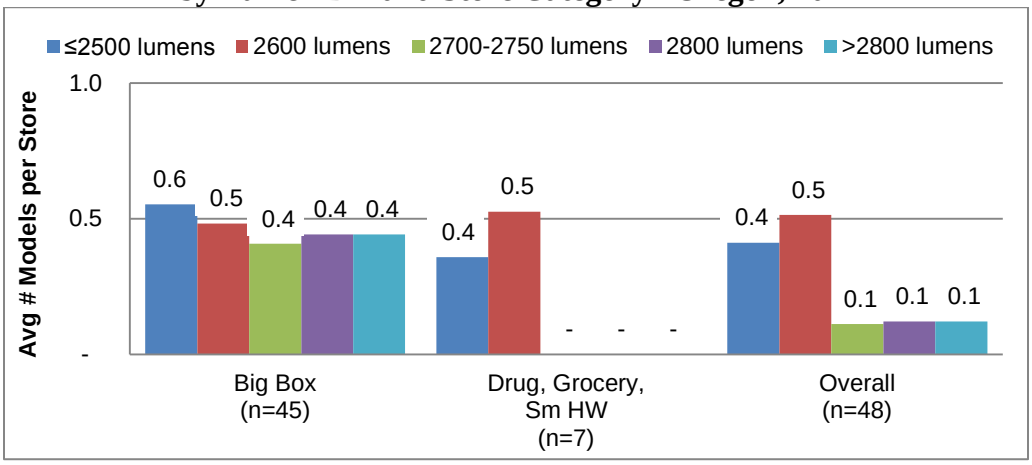
Figure 39
Average Number of Linear Fluorescent T12 Lamp Models per Store
by Lumen Bin and Store Category - Oregon, 2012



T8 Lamps

Using these lumen bins described in Section 3.5.1.2 above, we examined the distribution of T8 lamps stocked in Oregon during the 2012 shelf survey visits. As shown in Figure 40, Oregon big box and non-big box stores had similar levels of T8 lamp diversity in the two lowest lumen bins (less than or equal to 2500 lumens and 2600 lumens), but non-big box stores did not have any T8 lamps in the other lumen bins in stock during the 2012 shelf survey visits. Big box stores averaged roughly 0.5 T8 models per store in the other three lumen bins.

Figure 40
Average Number of Linear Fluorescent T8 Lamp Models per Store
by Lumen Bin and Store Category - Oregon, 2012



3.6 Promotional Materials

During the 2012 shelf survey visits (conducted in late 2012/early 2013), field researchers gathered details on promotional materials or displays regarding replacement lamps. These data enable summarization of promotional materials by the type of lamp promoted and store category. The shelf survey also provides information regarding the types and positioning of promotional materials in Northwest retail store as well as the types of messages included on the materials. The report provides more details on these topics below with comparisons between stores in Oregon and in the Northwest region as a whole.

Fifty-four percent of Northwest retail stores were displaying one or more promotional materials regarding residential replacement lamps during the time of the late 2012/early 2013 shelf survey visits, a significantly smaller proportion than among Oregon stores. In Oregon, 74 percent of stores had promotional materials.

3.6.1 Material Types

All but one of the Northwest retail stores that displayed promotional materials during the time of the late 2012/early 2013 shelf survey visits used wall or shelf signage. All of the Oregon stores with promotional materials used signage. Seven percent of the Northwest stores also used brochures and 1 percent used ceiling signs; none of the Oregon stores used either of these types of promotional materials in 2012. In both geographic areas, the vast majority of stores positioned their promotional materials in the lighting aisle, but a small number had end-cap displays or displayed promotional materials near the cash registers.

3.6.2 Technologies Promoted

Figure 41 shows the percentage of stores surveyed in Oregon and the Northwest region that display lighting promotional materials. Overall, a greater percentage of stores in Oregon were found to display promotional materials for all lighting products (74 percent compared to 54 percent in the Northwest region). Materials focused on primarily on CFLs, with 65 percent of stores in Oregon and 47 percent of stores in the Northwest displaying CFL promotional materials in 2012. Less than half as many stores displayed materials regarding energy-efficient incandescent lamps or traditional incandescent lamps, followed by LED lamps. In most stores that had any promotional materials, the materials focused on more than one type of lamp.

Figure 41
Percent of Stores with Lighting Promotional Materials by Lamp Technology Promoted
Oregon and Northwest Region, 2012

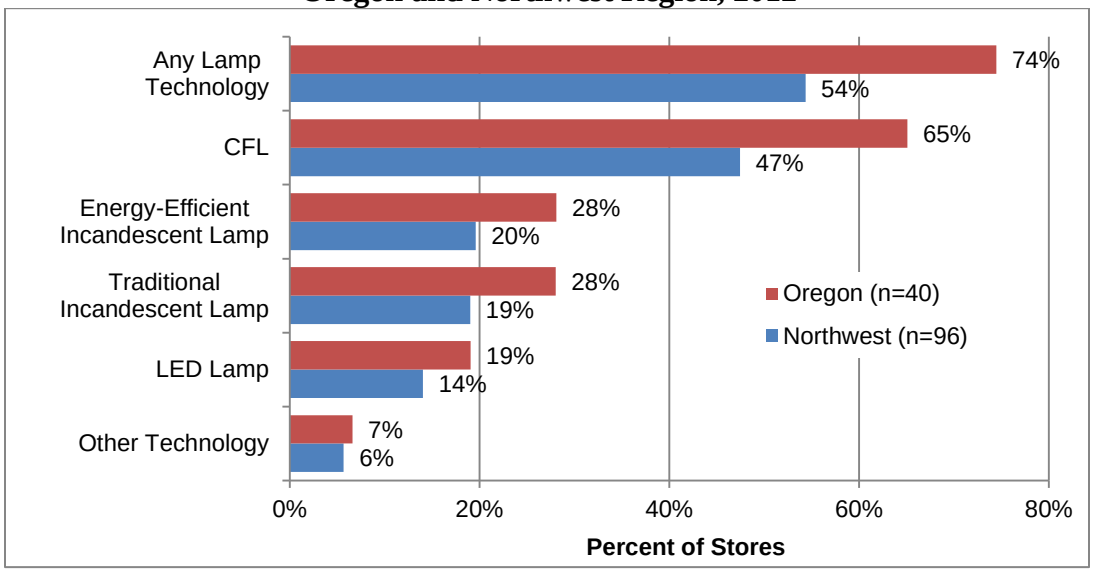
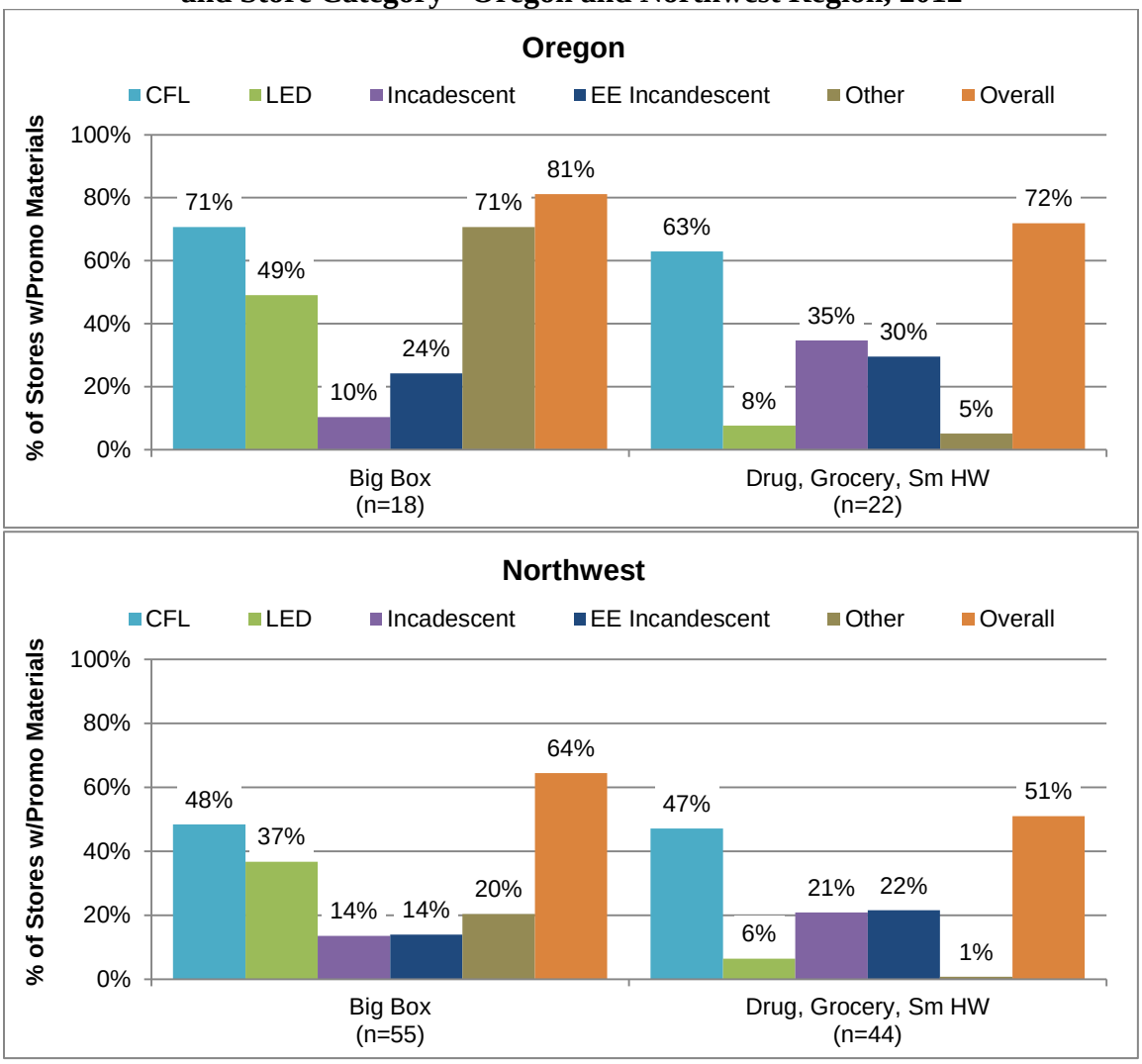


Figure 42 shows the percentage of stores that displayed materials promoting different lighting technologies in Oregon and the Northwest region in 2012 by store category (big box versus non-big box). This reflects the pattern demonstrated above, where stores in Oregon consistently promoted lighting materials more than in the Northwest. Overall, a larger percentage of big box

stores in both regions promoted lighting technologies more; however, more drug, grocery, and small hardware stores had promotional materials for incandescent and energy efficient incandescent lamp types.

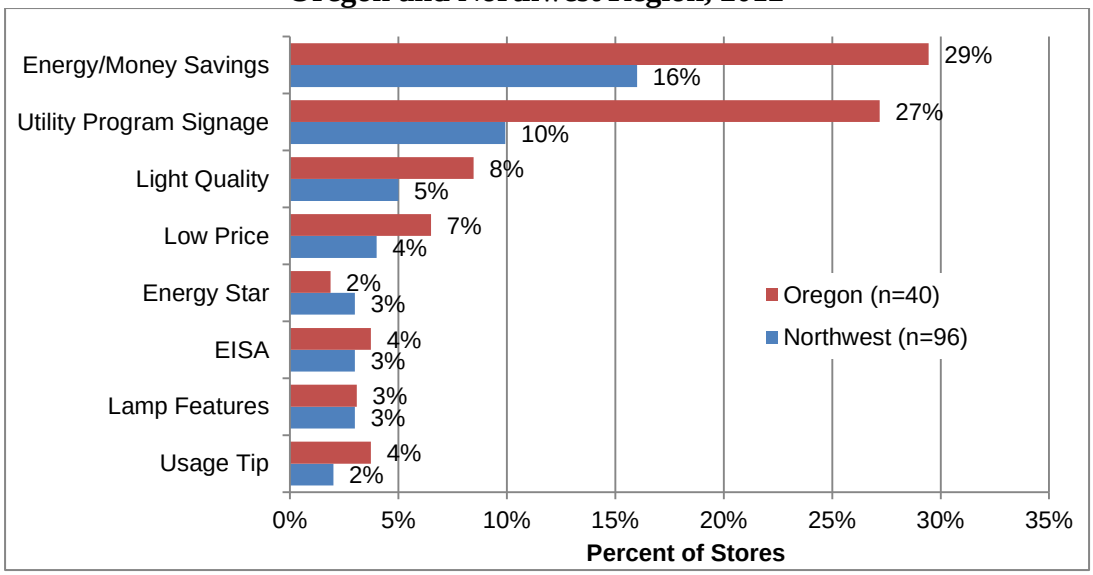
Figure 42
Percent of Stores with Lighting Promotional Materials by Lamp Technology Promoted and Store Category - Oregon and Northwest Region, 2012



3.6.3 Messages

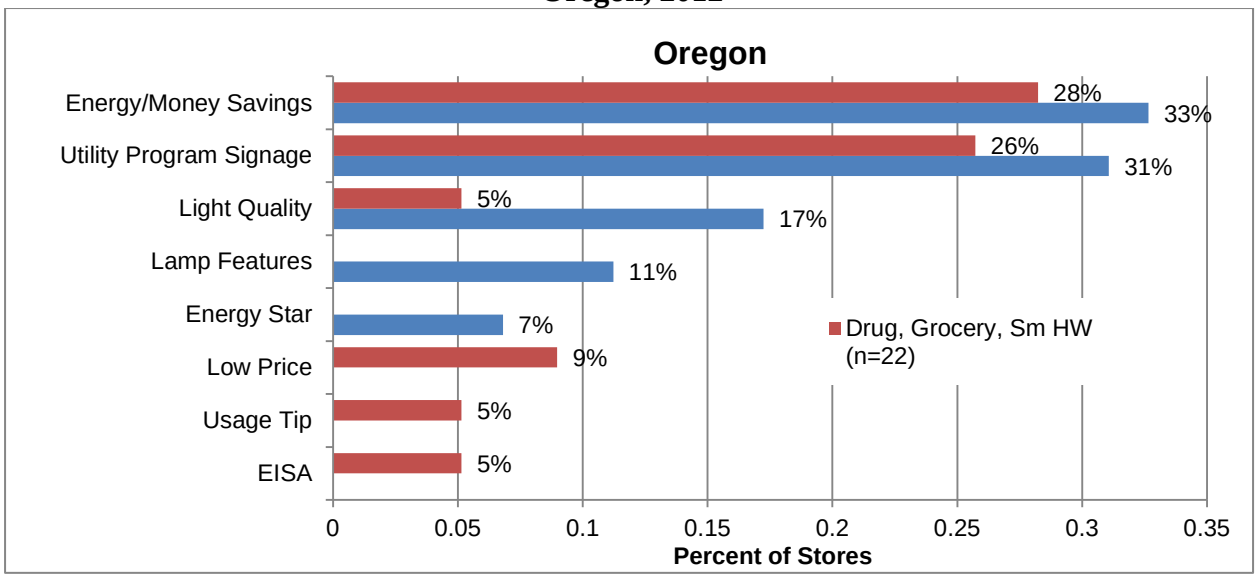
The most common messages conveyed in the lighting promotional materials shown in stores in Oregon and the Northwest promoted energy/money savings and utility promotions as shown in Figure 43 below. Again, stores in Oregon consistently displayed signage at higher rates than did the Northwest region for both topics. Stores in Oregon and the Northwest also displayed promotional materials regarding light quality, low pricing, Energy Star, and other messages.

Figure 43
Percent of Stores with Lighting Promotional Materials by Message
Oregon and Northwest Region, 2012



When promotional messages in Oregon are further examined by store category (big box versus non- big box; Figure 44), results suggest that roughly one-quarter to one-third of stores in both categories displayed promotional materials regarding energy/money savings and utility programs. Less than one-fifth of stores in either category displayed materials bearing any other message. In addition to messages regarding energy/money savings and utility programs, the only other message displayed on materials in both store categories related to light quality (although these materials were present to a lesser extent in non- big box stores than in big box stores) – the other messages were split, with some appearing only in big box stores (lamp features, Energy Star) and others appearing only in non- big box stores (EISA, usage tips, low prices). Results were similar between Oregon and the Northwest as a whole.

Figure 44
Percent of Stores with Lighting Promotional Materials by Message and Store Category
Oregon, 2012



4 SUMMARY OF FINDINGS

Below, we summarize findings regarding the availability and diversity of incandescent lamps, general purpose CFLs, specialty CFLs, LED lamps, and four-foot T8 and T12 linear fluorescent lamps, pricing for general purpose and specialty CFLs, and promotional materials found in retail stores throughout Oregon and the Northwest during the 2011/2012 and 2012/2013 shelf surveys.

4.1 Availability

Percentage of Stores Stocking Lamps. The percentage of stores stocking LED lamps increased by similar increments in both Oregon and the Northwest region between 2011 and 2012. There were no noteworthy changes in the percentage of stores carrying other lamp technologies in the same timeframe. Among linear fluorescent lamps, more stores in Oregon stocked T12 and T8 lamps than stores in the Northwest region. However, a greater percentage of big box stores stocked T12 lamps in the Northwest (69%) than stores in Oregon (52%).

Share of Lamp Stock – Incandescent Lamps. Incandescent lamp stocking declined in the Northwest and in Oregon between 2011 both in terms of the percentage of total lamp stock comprised by incandescent lamps and the absolute quantity of lamps stocked. The quantity of incandescent lamps dropped by roughly half between 2011 and 2012, and wholesale clubs stocked no incandescent lamps in either year. The only lamp type to increase in stocking quantity within this timeframe was LED lamps.

Share of Lamp Stock – LED lamps. In Oregon, there were negligible increases in LED lamps as a percentage of total lamps stocked in retail stores with the exception of wholesale clubs, in which LED lamps doubled their share of lamp stock between 2011 and 2012 (from 8% to 16% of total lamp stock). The majority of this change is attributed to an increase in stocking of LED A-lamps and reflector lamps. Despite these gains, LED lamps still represent only a fraction of the total lamps stocked, far outweighed by CFLs and incandescent lamps.

Share of Linear Fluorescent Lamp Stock. In Oregon and in the Northwest during 2012, the share of total four-foot linear fluorescent lamp stock comprised by T12 and T8 lamps was roughly split between the two. In the Northwest, T8 lamps represented a slightly higher proportion of linear fluorescent lamp stock than T12s, and the opposite was true in Oregon.

Energy Star Qualifying Lamps. Energy Star qualifying general purpose and specialty CFLs as a share of total CFLs declined between 2011 and 2012 both in Oregon and the Northwest in big box stores. The share of Energy Star qualifying general purpose CFLs also declined in non- big box stores, but the share of specialty CFLs with the Energy Star logo was relatively constant between years at approximately one-third of specialty lamps stocked in these store types in Oregon and just over 40 percent in the Northwest. The largest drop in share of Energy Star qualifying lamps was among specialty lamps in big box stores, both in Oregon and in the Northwest, between 2011 and 2012. This change was largely driven by declines in DIY and mass merchandise stores; all of the CFLs stocked in wholesale clubs qualified for Energy Star.

EISA Qualifying Lamps. The proportion of MSB incandescent A-lamps that met the EISA standards at the time of the 2012 shelf survey visits was significantly greater in both Oregon and the Northwest region than in 2011. EISA standard took effect for lamps in the high brightness bin (roughly equivalent to traditional 100 watt incandescent A-lamps) on January 1, 2012, and the percentage of lamps that met the standard in this lumen bin was somewhat higher in Oregon than in the Northwest in 2012 (72% qualifying in Oregon versus 66% in the Northwest). Only a small fraction of lamps met the relevant EISA standards in the other lumen bins, but twice the proportion of lamps met the standard in the Northwest than in Oregon during the 2012 shelf surveys.

4.2 Diversity

Average Number of Lamp Models Stocked per Store – CFLs, LED Lamps, and Incandescent Lamps. By this metric, diversity was greatest among incandescent lamps across all store types in Oregon and in the Northwest both in 2011 and 2012. The average number of models per store decreased between years for all lamp technologies in both geographies, with the largest decline among incandescent lamps (which dropped by roughly 30 to 40 models per store between 2011 and 2012). In Oregon, the average number of LED lamp models stocked in wholesale clubs increased by one lamp per store, on average, between 2011 and 2012, while the average number stocked in small hardware stores increased by two lamp models per store – but these increases are lost at the store category level (big box versus non- big box stores) as a result of the declines in other store types.

Average Number of Linear Fluorescent Lamps per Store. In 2012, Oregon and Northwest stores both stocked an average of roughly 3 T12 lamp models per store and only 1.5 T8 lamp models per store. Big box stores stocked a slightly greater number of linear fluorescent lamp models per store, on average, compared to non- big box stores in both Oregon and the Northwest, and Oregon stores carried a very slightly higher number of linear fluorescent lamp models per store, on average, than stores in the Northwest as a whole.

Lamp Stock by Wattage -- CFLs. The majority of CFLs stocked in Oregon and the Northwest as a whole are in the category of 13 to less than 19 watts (roughly half of all CFLs stocked in 2012). The share of CFLs comprised by lamps in the 19 to less than 30 watts category declined between 2011 and 2012 in Oregon (from 34% to 29% of total CFL stock) but remained constant in the Northwest (at 28-29%). Conversely, the share of CFLs of less than 13 watts remained constant in Oregon between 2011 and 2012 (at 16-17%) while the share of CFLs in this wattage range declined slightly in the Northwest as a whole (from 17% to 14% of CFL stock). CFLs greater than or equal to 30 watts comprised 3 percent or less of all lamps stocked by store category and region.

Lamp Stock by Wattage – LED Lamps. LED lamp stock was dominated by lamps in the lower wattages (less than 3 watts) in 2011, with roughly half of LED lamp stock in this wattage category both in Oregon and the Northwest region. In 2012, this proportion dropped dramatically, but LED lamp stock is still dominated by lamps under 9 watts—roughly two thirds of all lamps

stocked in Oregon and a slightly smaller proportion in the Northwest. Results in big box stores more closely resemble the overall average distribution across both store categories both in Oregon and the Northwest.

Lamp Stock by Wattage – Incandescent Lamps. In terms of their share of total incandescent lamps stocked, lamps greater than or equal to 100 watts dropped by about half between 2011 and 2012 in Oregon (from 17% to 6%) and the Northwest (from 15% to 6%). In both cases, the majority of that share was taken over by lamps in the 60 to less than 75 watt range. In 2012, lamps in this wattage category represented more than a third of lamp stock in both Oregon and the Northwest as a whole, followed by lamps between 40 and less than 60 watts. In 2012, incandescent lamps of less than 40 watts comprised a smaller share of total incandescent lamp stock in Oregon than in the Northwest (15% versus 21%, respectively).

Lamp Stock by Lumens – CFLs, Incandescent Lamps, and LED Lamps. The distribution of CFLs across lumen bins remained fairly static between 2011 and 2012 in both Oregon and the Northwest region, but the distribution of incandescent and LED lamps changed dramatically across lumen bins in this timeframe. The percentage of low-lumen incandescent lamps nearly doubled both Oregon and the Northwest region (lamps in the 310-749 lumen range), offset by a drop in the higher lumen bins. Conversely, between 2011 and 2012, the percentage of LED lamps in the 310-749 lumen bin decreased, countered with increases in the 750-1049 and 1050-1489 lumen bins.

4.3 CFL Pricing

Average Price Paid. In 2012, the average price paid for a CFL in Oregon was $3.96, ten cents higher per lamp, on average, than in the Northwest ($3.86). The average price paid for a CFL in Oregon and in the Northwest as a whole increased slightly between 2011 and 2012. Prices for specialty CFLs were higher in Oregon than in the Northwest, and prices for general purpose CFLs were lower in Oregon than in the Northwest in both 2011 and 2012. In both years throughout the region and in Oregon, the average price paid was much higher in non- big box stores than in big box stores.

Average Shelf Price. In 2012, the average shelf price for a CFL in Oregon was $5.53, 61 cents lower per lamp, on average, than in the Northwest ($6.14). The average shelf price for specialty lamps declined between 2011 and 2012 across all store types in both Oregon and in the Northwest, while the average shelf price for general purpose lamps increased across all store types during and in both geographies during the same timeframe. Average shelf prices remain higher in non- big box stores in both Oregon and the Northwest than in big box stores.

4.4 Promotional Materials

Nearly three-quarters of Oregon stores displayed one or more promotional materials related to replacement lamps in 2012 compared to just over half of Northwest stores.

Types of Promotional Materials. The vast majority of stores displaying promotional materials in the Northwest displayed wall or shelf signs; only a small fraction used brochures or ceiling signs. All of the Oregon stores with promotional materials used only signage. In both geographic areas, the vast majority of stores positioned their promotional materials in the lighting aisle, with only a handful displaying materials on end-cap displays or near the cash registers.

Technologies Promoted. Throughout the region, materials focused on primarily on CFLs. Nearly two-thirds of Oregon stores displayed CFL promotional materials and just under half of Oregon stores did so. Less than half as many stores displayed materials regarding energy-efficient incandescent lamps or traditional incandescent lamps, followed by LED lamps. In most stores that had any promotional materials, the materials focused on more than one type of lamp.

Promotional Messages. The most common messages conveyed in the lighting promotional materials shown in stores in Oregon and the Northwest related to energy/money savings and utility promotions. Again, stores in Oregon consistently displayed signage at higher rates than did the Northwest region for both topics. Other messages related to light quality, low pricing, and Energy Star, although these appeared in different store types in Oregon (materials related to lamp features and Energy Star in big box stores, and to EISA, usage tips, and low prices in non- big box stores).

APPENDIX A - REFERENCES

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APPENDIX B - LIGHTING RETAIL STORE SHELF SURVEY INSTRUMENT

APPENDIX C - NUMBER OF SAMPLE POINTS FOR KEY FIGURES

C.1 Lamp Availability

Table 9
Number of Lamps Stocked by Lamp Technology and Base Type
Oregon and Northwest Region, 2011 and 2012

Geography	Store Category	Lamp Technology	Year	
			2011	2012
Oregon	Big Box	CFL	55,583	39,764
		Incandescent	110,728	47,834
		LED	4,782	5,875
	Non- Big Box	CFL	9,214	7,045
		Incandescent	47,196	25,230
		LED	288	467
Northwest	Big Box	CFL	89,581	65,892
		Incandescent	196,796	91,694
		LED	8,065	9,188
	Non- Big Box	CFL	19,915	16,856
		Incandescent	100,979	56,468
		LED	439	916

Table 10
Number of CFLs Stocked by Lamp Style
Oregon and Northwest Region, 2011 and 2012

Geography	Lamp Technology	Year	
		2011	2012
Oregon	General Purpose CFLs	48,086	38,606
	Specialty CFLs	16,709	8,203
	All CFLs	64,795	46,809
Northwest	General Purpose CFLs	81,637	68,044
	Specialty CFLs	27,857	14,704
	All CFLs	109,494	82,748

Table 11
Number of CFLs Stocked by Lamp Style and Store Category
Oregon and Northwest Region, 2011 and 2012

Geography	Store Category	Lamp Technology	Year	
			2011	2012
Oregon	Big Box	General Purpose CFLs	40,907	32,903
		Specialty CFLs	14,676	6,861
		All CFLs	55,583	39,764
	Non- Big Box	General Purpose CFLs	7,179	5,703
		Specialty CFLs	2,033	1,342
		All CFLs	9,212	7,045
Northwest	Big Box	General Purpose CFLs	65,347	54,257
		Specialty CFLs	24,234	11,635
		All CFLs	89,581	65,892
	Non- Big Box	General Purpose CFLs	16,290	13,787
		Specialty CFLs	3,623	3,069
		All CFLs	19,913	16,856

Table 12
Number of CFLs Stocked by Detailed Lamp Style
Oregon, 2011 and 2012

Style	Year	n
Twister	2011	45,600
	2012	36,439
A-lamp	2011	1,971
	2012	1,965
Globe	2011	4,625
	2012	880
Reflector	2011	9,228
	2012	4,906
Tube	2011	52
	2012	38
Circline	2011	8
	2012	5
Pin based	2011	1,681
	2012	1,111
3-Way	2011	499
	2012	202
Other	2011	1,131
	2012	1,263

Table 13
Number of CFLs Stocked by Lamp Style and Store Type
Oregon, 2011 and 2012

Store Category	Lamp Technology	Year	
		2011	2012
Wholesale Club	General Purpose CFLs	17,578	15,156
	Specialty CFLs	7,548	1,760
	All CFLs	25,126	16,916
Do-It-Yourself (DIY)	General Purpose CFLs	19,238	14,186
	Specialty CFLs	5,290	3,985
	All CFLs	24,528	18,171
Mass Merchandise	General Purpose CFLs	4,091	3,561
	Specialty CFLs	1,838	1,116
	All CFLs	5,929	4,677
Drug, Grocery	General Purpose CFLs	4,492	3,290
	Specialty CFLs	1,238	745
	All CFLs	5,730	4,035
Small Hardware	General Purpose CFLs	2,687	2,413
	Specialty CFLs	795	597
	All CFLs	3,482	3,010

C.2 Lamp Diversity

Table 14
Number of CFLs by Store Category
Oregon and Northwest Region, 2011 and 2012

Geography	Store Category	Year 2011	Year 2012
Oregon	Big Box	63,311	45,517
	Non- Big Box	8,849	6,647
	Overall	54,462	38,870
Northwest	Big Box	106,940	80,140
	Non- Big Box	19,262	16,007
	Overall	87,678	64,133

Table 15
Number of LED Lamps by Store Category and Wattage Category
Oregon and Northwest Region, 2011 and 2012

Geography	Store Category	Year 2011	Year 2012
Oregon	Big Box	4,680	5,994
	Non- Big Box	212	347
	Overall	4,468	5,647
Northwest	Big Box	7,843	9,455
	Non- Big Box	331	684
	Overall	7,512	8,771

Table 16
Number of Incandescent Lamps by Store Category and Wattage Category
Oregon and Northwest Region, 2011 and 2012

Geography	Store Category	Year 2011	Year 2012
Oregon	Big Box	46,824	45,620
	Non- Big Box	110,313	45,620
	Overall	157,137	70,198
Northwest	Big Box	100,088	54,412
	Non- Big Box	195,929	87,224
	Overall	296,017	141,636

Table 17
Number of Lamps Stocked by Lamp Technology and Lumen Bin
Oregon and Northwest Region, 2011 and 2012

Geography	Lamp Technology	Year	Lumen Bin			
			1490-2600 lm	1050-1489 lm	750-1049 lm	310-749 lm
Oregon	CFL	2011	11,439	11,975	27,585	11,663
		2012	9,669	8,703	20,949	5,856
	Incandescent	2011	24,995	14,986	30,430	33,488
		2012	799	6,455	9,084	33,031
	LED	2011	0	113	465	1,495
		2012	0	470	1,870	1,175
Northwest	CFL	2011	19,189	19,816	46,443	19,741
		2012	16,682	15,390	36,252	10,698
	Incandescent	2011	41,681	28,418	56,091	64,621
		2012	1,472	10,628	18,150	60,773
	LED	2011	0	159	828	2,476
		2012	0	648	2,927	1,902

Table 18
Number of Lamps Stocked Lamp Technology, Store Category and Lumen Bin
Oregon and Northwest Region, 2011 and 2012

Geography	Store Category	Lamp Technology	Year	Lumen Bin			
				1490-2600lm	1050-1489lm	750-1049lm	310-749lm
Oregon	Big Box	CFL	2011	9,626	10,491	24,097	9,701
			2012	8,340	7,421	18,236	4,617
		LED	2011	0	113	465	1,492
			2012	0	470	1,802	1,098
		Incandescent	2011	21,065	8,627	21,912	22,946
			2012	466	2,917	4,746	24,371
	Non- Big Box	CFL	2011	1,813	1,484	3,488	1,962
			2012	1,329	1,282	2,713	1,239
		LED	2011	0	0	0	3
			2012	0	0	68	77
		Incandescent	2011	3,930	6,359	8,518	10,542
			2012	333	3,538	4,338	8,660
Northwest	Big Box	CFL	2011	15,899	16,577	37,897	16,087
			2012	13,769	12,180	29,949	7,532
		LED	2011	0	159	827	2,463
			2012	0	648	2,826	1,719
		Incandescent	2011	33,899	16,883	40,145	42,615
			2012	704	5,232	9,918	42,510
	Non- Big Box	CFL	2011	3,290	3,239	8,546	3,654
			2012	2,913	3,210	6,303	3,166
		LED	2011	0	0	1	13
			2012	0	0	101	183
		Incandescent	2011	7,782	11,535	15,946	22,006
			2012	768	5,396	8,232	18,263

Table 19
Number of Lamps Stocked by Lamp Technology, Store Type and Lumen Bin
Oregon, 2011 and 2012

Year	Store Type	Lamp Technology	Lumen Bin			
			1490-2600lm	1050-1489lm	750-1049lm	310-749lm
2011	Wholesale Club	CFL	5,056	7,154	8,876	4,040
		Incandescent	0	0	0	0
		LED	0	0	115	602
	Do-It-Yourself (DIY)	CFL	3,648	1,973	13,298	4,324
		Incandescent	19,295	5,428	17,364	18,345
		LED	0	110	347	853
	Mass Merchandise	CFL	922	1,364	1,923	1,337
		Incandescent	1,770	3,199	4,548	4,601
		LED	0	3	3	37
	Drug, Grocery	CFL	1,336	947	2,124	1,026
		Incandescent	3,301	4,636	6,442	6,990
		LED	0	0	0	0
	Small Hardware	CFL	477	537	1,364	936
		Incandescent	629	1,723	2,076	3,552
		LED	0	0	0	3
2012	Wholesale Club	CFL	4,672	4,824	7,420	0
		Incandescent	0	0	0	0
		LED	0	215	1,164	4
	Do-It-Yourself (DIY)	CFL	2,852	1,771	9,264	3,331
		Incandescent	445	1,452	3,733	19,691
		LED	0	255	626	1,055
	Mass Merchandise	CFL	816	826	1,552	1,286
		Incandescent	21	1,465	1,013	4,680
		LED	0	0	12	39
	Drug, Grocery	CFL	826	733	1,402	769
		Incandescent	121	2,806	3,645	5,939
		LED	0	0	1	45
	Small Hardware	CFL	503	549	1,311	470
		Incandescent	212	732	693	2,721
		LED	0	0	67	32

C.3 Linear Fluorescent Lamps

Table 20
Number of Stores Carrying Linear Fluorescent Lamps by Store Category
Oregon and Northwest Region, 2012

Store Category	Geography	
	Oregon	Northwest
Big Box	18	41
Non- Big Box	22	55
Overall	40	96

Table 21
Distribution of Linear Fluorescent T12 Lamps by Wattage and Lumens – Oregon, 2012

Watts	Lumens	T12 Lamps	
		n	%
15	785	3	<1%
20	.	5	<1%
	1025	7	<1%
	1275	3	<1%
25	.	43	1%
	1860	32	1%
30	2400	14	<1%
32	2800	48	1%
34	.	133	2%
	200	60	1%
	1925	940	15%
	2650	60	1%
40	.	216	3%
	1900	40	1%
	2100	124	2%
	2180	10	<1%
	2200	38	1%
	2250	46	1%
	2325	836	13%
	2500	556	9%
	2550	184	3%
	2600	1,986	31%
	2900	474	8%
	3050	27	<1%
	3150	112	2%
	3200	206	3%
	3300	4	<1%
	3400	61	1%
60	.	46	1%
120	.	5	<1%
Total		**6,319**	**100%**

Table 22
Distribution of Linear Fluorescent T8 Lamps by Wattage and Lumens – Oregon, 2012

		T8 Lamps	
Watts	Lumens	n	%
25	2400	60	1%
32	.	501	9%
	2300	19	<1%
	2475	12	<1%
	2500	148	3%
	2600	888	16%
	2700	498	9%
	2750	842	15%
	2800	1,568	28%
	2850	742	13%
	2950	304	5%
Total		**5,582**	**100%**

Table 23
Number of Linear Fluorescent Lamps Stocked by Lamp Type and Store Category
Oregon and Northwest Region, 2012

		Geography	
Store Category	Lamp Type	Oregon	Northwest
Big Box	T12	61	90
	T8	45	60
Non- Big Box	T12	34	54
	T8	17	34
Overall	T12	87	132
	T8	58	88

APPENDIX D - DETAILED TABLES BY LAMP STYLE AND TECHNOLOGY

D.1 Medium Screw Base (MSB) A-Lamps

Table 24
MSB A-Lamp Characteristics by Lumen Bin
Oregon, 2012

Lumen Bin / Lamp Technology	Total # Lamps (across all stores)	Total # Unique Models (across all stores)	Average # Unique Models per Store	Wattage			Lumens			Shelf Prices		
				Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
1490-2600 lumens												
CFL	0	0	0.0	0	0	0	0	0	0	-	-	-
LED	0	0	0.0	0	0	0	0	0	0	-	-	-
Incandescent	784	14	1.7	132	75	200	1,799	1,500	2,395	$2.45	$2.16	$2.84
Halogen	1,346	17	2.4	76	72	150	1,521	1,490	2,430	$2.11	$1.82	$2.37
1050-1489 lumens												
CFL	165	6	2.2	20	18	20	1,088	1,050	1,300	$6.49	$6.48	$6.50
LED	15	3	1.0	17	16	17	1,100	1,100	1,100	$34.97	$34.97	$34.97
Incandescent	6,377	36	3.7	84	71	100	1,150	1,050	1,470	$1.05	$0.74	$1.53
Halogen	503	17	2.0	61	53	100	1,089	1,050	1,400	$2.69	$2.35	$3.05
750-1049 lumens												
CFL	1,002	28	3.5	15	14	19	809	750	1,000	$5.36	$4.80	$5.79
LED	735	17	2.2	12	11	14	825	800	950	$19.04	$15.93	$21.41
Incandescent	8,854	42	5.6	65	45	100	837	750	1,018	$1.11	$0.67	$1.65
Halogen	1,469	25	2.4	48	43	75	789	750	1,000	$2.51	$1.79	$3.40
310-749 lumens												
CFL	527	20	2.3	11	7	15	519	400	740	$5.92	$5.44	$6.40
LED	288	18	1.6	7	6	9	448	330	510	$19.00	$16.47	$22.74
Incandescent	12,183	96	8.6	50	38	75	502	310	740	$1.36	$0.52	$2.75
Halogen	1,390	19	3.1	33	28	43	459	325	680	$2.71	$1.95	$3.29

D.2 MSB Globe Lamps

Table 25
MSB Globe Lamp Characteristics by Lumen Bin
Oregon, 2012

Lumen Bin / Lamp Technology	Total # Lamps (across all stores)	Total # Unique Models (across all stores)	Average # Unique Models per Store	Wattage			Lumens			Shelf Prices		
				Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
1490-2600 lumens												
CFL	3	1	1.0	23	23	23	1,560	1,560	1,560	$24.95	$24.95	$24.95
LED	0	0	0.0	0	0	0	0	0	0	-	-	-
Incandescent	0	0	0.0	0	0	0	0	0	0	-	-	-
Halogen	0	0	0.0	0	0	0	0	0	0	-	-	-
1050-1489 lumens												
CFL	0	0	0.0	0	0	0	0	0	0	-	-	-
LED	0	0	0.0	0	0	0	0	0	0	-	-	-
Incandescent	45	1	1.0	100	100	100	1,141	1,050	1,357	$4.37	$4.37	$4.37
Halogen	0	0	0.0	0	0	0	0	0	0	-	-	-
750-1049 lumens												
CFL	391	11	1.7	15	14	16	812	800	980	$4.92	$4.23	$5.62
LED	0	0	0.0	0	0	0	0	0	0	-	-	-
Incandescent	46	3	1.1	70	60	100	821	750	985	$5.40	$5.13	$5.68
Halogen	26	1	1.0	60	60	60	960	960	960	$4.92	$4.92	$4.92
310-749 lumens												
CFL	486	20	1.8	10	9	12	496	340	600	$4.57	$4.08	$5.08
LED	34	1	1.0	8	8	10	444	420	450	$24.74	$24.74	$24.74
Incandescent	4,257	55	7.6	52	40	60	498	310	720	$2.43	$1.40	$4.08
Halogen	30	1	1.0	40	40	40	500	500	500	$4.01	$4.01	$4.01

Table 25 (continued)

Lumen Bin / Lamp Technology	Total # Lamps (across all stores)	Total # Unique Models (across all stores)	Average # Unique Models per Store	Wattage			Lumens			Shelf Prices		
				Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
0-310 lumens												
CFL	0	0	0.0	0	0	0	0	0	0	-	-	-
LED	1,176	9	1.1	3	1	5	138	60	240	$10.58	$10.44	$10.71
Incandescent	1,426	25	4.7	31	25	40	213	130	300	$2.35	$1.62	$3.11
Halogen	0	0	0.0	0	0	0	0	0	0	-	-	-

D.3 MSB Reflector Lamps

Table 26
MSB Reflector Lamp Characteristics by Lumen Bin
Oregon, 2012

Lumen Bin / Lamp Technology	Total # Lamps (across all stores)	Total # Unique Models (across all stores)	Average # Unique Models per Store	Wattage			Lumens			Shelf Prices		
				Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
1490-2600 lumens												
CFL	0	0	0.0	0	0	0	0	0	0	-	-	-
LED	0	0	0.0	0	0	0	0	0	0	-	-	-
Incandescent	15	2	1.0	185	120	250	1,775	1,550	2,000	$6.23	$6.23	$6.23
Halogen	625	20	2.0	90	70	120	1,613	1,500	1,900	$8.01	$7.33	$8.40
1050-1489 lumens												
CFL	841	32	2.2	24	23	26	1,244	1,070	1,300	$9.17	$8.03	$10.46
LED	455	15	3.3	20	15	24	1,197	1,050	1,400	$41.16	$35.39	$49.79
Incandescent	33	3	2.2	51	26	72	1,253	1,110	1,350	$7.70	$7.24	$8.17
Halogen	1,828	32	4.4	77	60	100	1,222	1,050	1,400	$6.15	$5.48	$6.90
750-1049 lumens												
CFL	1,914	19	1.4	16	15	20	804	750	950	$7.00	$5.95	$8.13
LED	1,133	37	3.3	16	12	20	861	750	1,035	$34.07	$27.65	$40.54
Incandescent	167	5	1.5	62	19	65	766	755	900	$7.78	$7.70	$7.83
Halogen	508	25	2.3	64	48	90	930	800	1,040	$9.64	$7.89	$10.99
310-749 lumens												
CFL	2,025	51	5.8	14	11	16	560	330	720	$8.47	$5.43	$15.44
LED	637	37	5.2	10	6	16	508	320	730	$28.48	$19.69	$36.40
Incandescent	9,238	80	8.1	60	14	250	534	310	725	$3.95	$1.92	$6.95
Halogen	1,753	69	6.5	47	35	65	549	310	740	$8.12	$5.79	$10.81

D.4 Small Screw Base (SSB) Candelabra/Bullet Lamps

Table 27
SSB Candelabra/Bullet Lamp Characteristics by Lumen Bin
Oregon, 2012*

Lumen Bin / Lamp Technology	Total # Lamps (across all stores)	Total # Unique Models (across all stores)	Average # Unique Models per Store	Wattage			Lumens			Shelf Prices		
				Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
310-749 lumens												
CFL	445	9	1.8	10	7	14	467	340	720	$2.68	$2.63	$2.73
LED	0	0	0.0	0	0	0	0	0	0	-	-	-
Incandescent	2,854	31	3.8	52	40	60	475	320	660	$1.07	$0.79	$1.81
Halogen	106	2	1.1	40	40	40	524	485	540	$3.17	$3.17	$3.17
0-309 lumens												
CFL	258	6	1.3	6	3	7	254	120	300	$4.39	$3.90	$4.94
LED	802	12	1.4	3	1	5	130	7	300	$12.65	$12.28	$13.32
Incandescent	2,394	34	2.7	28	8	40	186	39	300	$1.22	$0.83	$2.04
Halogen	10	1	1.0	25	25	25	300	300	300	$5.97	$5.97	$5.97

* Note: No SSB Candelabra/Bullet Lamps in the sample in higher lumen bins.

D.5 MR Lamps

During the 2012 shelf survey visits in Oregon, DNV KEMA field staff recorded details on just over 2,800 MR lamps across CFL, LED, incandescent, and halogen technologies. Of these, roughly half were MR16 lamps (shown in the table below). Across all MR lamps in the inventory, 87 percent were incandescent or halogen lamps, 12 percent were LED lamps, and 1 percent were CFLs. More than 98 percent of the MR lamps in the inventory were pin-based lamps with a handful of screw-base MR lamps.

Table 28
MR16 Lamp Characteristics by Lumen Bin
Oregon, 2012*

Lumen Bin / Lamp Technology	Total # Lamps (across all stores)	Total # Unique Models (across all stores)	Average # Unique Models per Store	Wattage			Lumens			Shelf Prices		
				Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
750-1049 lumens												
LED	0	0	0.0	0	0	0	0	0	0	-	-	-
Incandescent	0	0	0.0	0	0	0	0	0	0	-	-	-
Halogen	135	5	2.3	50	50	50	811	750	850	$6.02	$5.89	$6.15
310-749 lumens												
LED	132	3	1.1	7	6	10	357	320	435	$20.90	$20.75	$21.04
Incandescent	96	3	1.1	50	50	50	418	400	460	$3.22	$3.00	$3.45
Halogen	760	9	2.7	49	35	50	459	360	650	$4.53	$3.62	$5.53
0-309 lumens												
LED	140	13	2.1	5	1	8	222	35	300	$21.71	$19.45	$23.77
Incandescent	5	1	1.0	20	20	20	240	240	240	$6.47	$6.47	$6.47
Halogen	190	11	2.8	26	20	35	218	80	275	$4.68	$3.68	$5.55

* Note: No MR16 Lamps in the sample in higher lumen bins.