

Light of the Living Dead: The Current Market for T12 Lamps in the Post-EPACT World

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ABSTRACT

The U.S. federal Energy Policy Act (EPACT) of 2005 was designed to encourage more energy efficient lighting by phasing out older lighting technologies. Key provisions of the act included: 1) banning the manufacture and importation of T12 magnetic ballasts starting in 2010; and 2) requiring that almost all linear fluorescents manufactured or imported for sale in the U.S. meet more stringent efficacy standards starting in July 2012. The conventional wisdom was that this legislation would result in a “T12 phase-out” due to T12 fluorescent lamps being unable to meet the more stringent efficacy standards.

Yet in July 2014, two years after the “T12 phase-out” went into effect, a survey of 46 managers of hardware and home improvement stores in Massachusetts found that 68 percent of them reported still selling T12 lamps. This raises a number of important questions about the effectiveness of the EPACT legislation and the current nature of the T12 lighting market. How are these T12 lamps still being sold despite the more stringent efficacy standards? What types of T12 lamps are being sold? Who is buying these T12 lamps and why? What is the size of this T12 market? How long will T12 lamps continue to be sold?

This paper uses recent evaluation data from Massachusetts, California, and other parts of the country to answer these questions. This characterization of the T12 market is based on interviews with a wide variety of lighting market actors including: manufacturers, distributors, installation contractors, buyers of lighting products for large chain retailers, and managers of retail (“brick and mortar”) stores that sell lighting products. It also leverages information from recent phone and onsite surveys with commercial and industrial customers and a literature review.

Introduction

This paper summarizes a 2014-2015 study of the market for T12 lamps with special emphasis on the T12 market in Massachusetts. DNV GL led this study with sponsorship by the Massachusetts Energy Efficiency Advisory Council (EEAC) and the subset of the Massachusetts Program Administrators (PAs) who supply electricity.

The U.S. federal Energy Policy Act (EPACT) of 2005 was designed to encourage more energy efficient lighting by phasing out older lighting technologies. Key provisions of the act included: 1) banning the manufacture and importation of T12 magnetic ballasts starting in 2010; and 2) requiring that almost all linear fluorescents manufactured or imported for sale in the U.S. meet more stringent efficacy standards starting in July 2012. The conventional wisdom was that this legislation would result in a “T12 phase-out” due to T12 fluorescent lamps being unable to meet the more stringent efficacy standards.

However, there was anecdotal evidence that some home improvement stores in Massachusetts were still selling T12 lamps a couple of years after the phase-out. Based on these reports and a general

desire to assess the appropriateness of continuing to use T12 lamps as a baseline comparison for program-rebated lighting technologies, the EEAC and the PA chose to sponsor a study of the T12 market. The study would combine a very high-level exploration of the national T12 market with a more in-depth examination of the Massachusetts T12 market.

Evaluation Description

The evaluation team, the EEAC and the PAs developed an initial list of researchable questions for this T12 study and expanded this list as new information was uncovered during the course of the study. The final list of researchable questions included:

- Are lighting manufacturers still producing T12 lamps despite the phase-out initiated by the EPACT?
- If manufacturers are still producing T12s, how are they producing T12 lamps that meet the new efficacy requirements?
- How aware are lighting market actors of this T12 phase-out and how are they reacting to it?
- How aware are commercial and industrial (C&I) customers of this phase-out and how are they reacting to it?
- How big a market do these continuing T12 sales represent?
- What types of customers are purchasing these T12 lamps and why?
- What percentage of the linear fluorescent lamps installed in Massachusetts C&I facilities are T12 lamps?
- For how much longer is this T12 market expected to continue?

The T12 market research had four data collection stages:

- 1) *Literature review:* In February 2014 DNV GL completed a review of recent studies, trade journal articles, and lighting manufacturer information which focused on the T12 phase-out and the size of the remaining T12 market. In August 2014 the evaluation team updated this literature review to incorporate new research on the T12 market from the California Public Utilities Commission (CPUC) which had not been publicly available at the time of the initial literature review.
- 2) *In-depth interviews with lighting distributors:* In April 2014 DNV GL completed in-depth interviews with 10 lighting distributors who served the Massachusetts market. A battery of questions in the lighting distributor guide covered their awareness of the T12 phase-out, their reaction to this phase out, how the T12 lamps they were selling complied with the EPACT regulations, whether the T12 phase-out rules were accelerating lighting retrofits in Massachusetts and the proportion of their linear fluorescent sales which were T12 lamps.
- 3) *Lighting manufacturer/retail buyer interviews and retail store manager surveys:* In the June to July 2014 period DNV GL completed in-depth interviews with 17 lighting manufacturers and five retail buyers (purchasers of lighting products for large Massachusetts retail chains) who participated in the Massachusetts Energy Star residential lighting program.¹ In August

¹ Because the sample frame included lighting manufacturers and retail buyers who participated in the Massachusetts Energy Star residential lighting program, there were some manufacturer representatives and retailer buyers who only sold medium screw-based light bulbs or were only familiar with these technologies. The interview guide was designed to collect a wide range of information about the Massachusetts residential lighting markets and the questions about the T12 lamps represented just one battery. In cases where an interviewee said that their company sold linear fluorescents but they were personally unfamiliar with these technologies, we tried to obtain contact information for people in the company who were familiar and then we addressed the T12-relevant questions to them.

2014, Tetra Tech, a member of the evaluation team, also completed Computer-Aided Telephone Interview (CATI) surveys with 54 managers of hardware and home improvement stores which had participated in this same program. These interview guides and CATI surveys contained questions covering their awareness of the T12 phase-out, whether they were still manufacturing or selling T12 lamps, how the T12 lamps they were making/selling complied with the EPACT regulations, what proportion of their linear fluorescent sales were T12 lamps, and what types of customers were buying these T12 lamps.

- 4) *C&I general population surveys:* In the September-November 2014 period the evaluation team completed onsite interviews and site inspections with 343 Massachusetts C&I customers. This was the first wave of a multi-wave Massachusetts Existing Building Market Characterization study that will eventually cover 800 C&I sites in the state. The onsite survey instrument and the onsite inspections covered awareness of the T12 phase-out, the percentage of installed linear fluorescent lamps which were T12 lamps, whether the customers recently had purchased T12 lamps, whether the customers had inventories of T12 lamps in inventory for replacement, and whether customers with T12 lamps had near-term plans to retrofit them and their motivations for doing so.

Evaluation Findings

This section contains the key findings from our T12 market study.

How Manufacturers Are Still Producing T12 Lamps

Two of the key researchable questions for this T12 market study were: 1) “Are lighting manufacturers still producing T12 lamps despite the phase-out initiated by the EPACT?” and 2) “If manufacturers are still producing T12s, how are they producing T12 lamps that meet the new efficacy requirements?” Our interviews with lighting manufacturers confirmed what we had earlier found in the literature review: that some lighting manufacturers are continuing to produce T12 lamps despite the phase-out. Of the seventeen lighting manufacturers we interviewed, only three said that they were continuing to produce T12s and a fourth said that he sells T12 lamps produced by other manufacturers. However, these three manufacturers were among the world’s largest manufacturers of lighting products in general.

We also asked the three manufacturers who said they continue to manufacture T12 lamps how they are complying with the new legislation. The literature review memorandum had indicated that most manufacturers were complying with the legislation by increasing the Color Rendering Index (CRI) of their lamps. The EPACT legislation allows the continued production of T12 lamps with CRIs of 87 or higher.² Our interviews supported this theory since all three manufacturers cited the higher CRI as the way they achieved compliance. They mentioned that this higher CRI was achieved by using more rare earth elements like tri-phosphors. Two of the three lighting distributors who said that they were selling

² . In addition to allowing the continued production of T12 lamps with CRIs of 87 or greater, the EPACT regulations also allow the continued production of the “800” series of eight-foot long 60W T12 lamps and linear fluorescents that are used to promote plant growth, or for cold temperature applications, or for other specialized applications. In addition to these T12 lamp production exemptions, there are also other exemptions that have helped keep a supply of T12 lamps and magnetic ballasts in the lighting market including: 1) Existing T12 lamps that are in inventory or purchased from factory stock prior to the July 14, 2012 can continue to be sold; and 2) Magnetic replacement ballasts can continue to be purchased from dealer stock for up to five years from the July 2010 ballast phase-out date or until inventory is exhausted. There was also a delay in the phase-out of some of the less efficient linear fluorescent lamps due to shortages in rare earth minerals used in the production of the more efficient products which occurred during the 2011-2012 period.

T12 lamps that complied with the new standard also said that their T12 lamps had a higher CRI. This reliance on higher CRIs to achieve compliance is of concern from an energy efficiency perspective because while a higher CRI produces a better quality of light, it does not improve the energy efficiency of the lamps and can even make these lamps less energy-efficient than previous generations of T12s.

Awareness of the T12 Phase-out among Lighting Market Actors

We asked lighting manufacturers and retail buyers whose companies sold linear fluorescents and who claimed familiarity with these linear fluorescent sales if they were aware of federal laws that phased out the production of most types of T12 lamps starting in July 2012. We asked a similar question to all managers of hardware and home improvement stores who said that their stores sold linear fluorescents. All the manufacturer representatives and retail buyers who claimed familiarity with their company's sales of linear fluorescents (n=8) also reported awareness of the T12 phase-out. In addition, 76 percent of the store managers who said that they sold linear fluorescent lamps (n=46) claimed awareness of the phase-out.

Our 2014 onsite survey asked the general population of Massachusetts C&I customers: "Are you aware of federal laws that phased out the production of most types of T12 linear fluorescents starting in July 2012." Slightly over half (56%) of the respondents said that they were aware of this legislation. The awareness of the federal legislation among the Massachusetts C&I customers varied a lot depending on the building type which the onsite respondent represented. Nearly all of the respondents who worked in Campus buildings claimed to be aware of the legislation, while only a very few who worked in the Warehouse, Lodging, and Food Service building types claimed such awareness. It is reasonable to assume that this greater awareness is due to many campuses having dedicated energy managers because of their large and complex energy consumption.

The Nature of the Current T12 Market

We asked representatives of the participating lighting manufacturers whether or not they continued to sell T12 lamps themselves, to speculate on what types of customers or markets are still purchasing T12s. Some of them made distinctions between the four-foot T12 market, which they view mostly as a residential market, and the eight-foot T12 market, which they viewed as a C&I market, especially for ceiling lighting in retail and industrial buildings. Those who were willing to speculate mentioned the following:

- *Residential customers:* A number of manufacturer representatives claimed that the four-foot T12 market is primarily made up of residential customers who find it less costly to continue purchasing T12 lamps rather than paying an electrician to retrofit their fluorescent fixtures. These assumptions were echoed by the Massachusetts store managers and one retail buyer, as discussed below.
- *Commercial building maintenance staff:* "Most of them [customers still purchasing T12s] are the commercial users, you know, those schools, hospitals, offices," said one manufacturer representative. "Normally, the maintenance office would buy some stock just in case if some bulb burns out, they can replace it immediately. So for their convenience, they just keep buying the T12 because you have to use the same bulb in order to match the ballast."
- *Small commercial customers:* "It's the smaller commercial customers [who were still purchasing T12 lamps] so people that just had a pizza shop or a hairdresser or something that just had just a handful of fixtures," said one manufacturer representative. "So no distributor, no sales rep ever

wanted to call on them to convert 20 fixtures [to more efficient technologies] and so they were sitting there.”

- *Municipal customers:* “[The current T12 market] is also a lot of municipal stuff, like your police stations, fire stations, things like that, where those groups don't generally have a lot of money,” said one manufacturer representative. “So they're always looking to do stuff with the least possible amount of funding, and so they're just continuing to just buy the lowest [priced] thing. ... We go in and we make our pitch to say: ‘Hey, you're going to increase your profitability by reducing your energy costs,’ but that story is really hard to sell to municipal governments, who are just saying: ‘Hey, I could buy a cheap T12 lamp and that's what I've got in my budget so that's what I'm buying.’”
- *Retailers and some industrial customers who use eight-foot fluorescents for ceiling lighting:* Some manufacturer representatives reported that there is still a viable market for eight-foot T12 lamps because these T12 lamps are energy-efficient enough to comply with the EPACT regulations. “For the eight-footers it's retail [purchasers] primarily and some industrial,” said one representative. “Like your grocery stores and your drugstores, whenever you go in there you see a sea of [eight-foot] fluorescents in their ceilings ... There's some industrial use, but it's primarily a retailer ceiling lamp, that is the most common use for that lamp.” One manufacturer representative also reported that a contributory factor to the persistence of eight-foot T12 was the fact that some retailers do not stock eight-foot T8 lamps. “I don't know if they believe that an eight-foot T8 lamp is too skinny, too fragile, too long, they have trouble storing them, ... maybe they think they break too easy, I'm not sure what the reasons are,” he said, “but they just never have liked using them.”
- *Small niche commercial markets/applications:* Some manufacturer representatives cited small niche markets such as auto body shops and high-end clothing stores which use high CRI T12s for better color rendering.
- *Customers in southeastern states which do not have strong energy efficiency rebate programs:* “[The markets purchasing T12 lamps] are going to be markets that did not have strong rebate programs to push customers towards T8s and T5s,” said one manufacturer representative. “There's certain markets where the utility [energy efficiency rebate] programs didn't exist and that's where you're still going to find a lot of sales of T12s. I'm thinking about southeast states like Mississippi and Louisiana and even Georgia to a certain part.”
- *Late adopters:* A couple of manufacturer representatives said there will always be a segment of the market who will continue to purchase the T12 lamps because they are reluctant to adopt newer lighting technologies. “People don't want to change, even if it's for the better, they don't want to change. They're hoarders by nature,” said one representative. Another compared the customers who are still purchasing T12 lamps to those late adopters who are still purchasing incandescent lamps.

While the manufacturer representatives did identify a number of different customer groups that continue to purchase T12 lamps, their estimates of the size of the current T12 market (discussed later in this paper) indicated that these purchasers were relatively small in aggregate.

In the 2014 onsite survey we also asked Massachusetts C&I customers: “Have you recently purchased any T12 linear fluorescent bulbs for your building/facility?” If the respondents said “Yes” to this question, then the surveyors asked them the follow-up question: “Where did you purchase these T12 fluorescent light bulbs from?” Ten percent of the respondents said that they recently purchased T12 lighting.³ Onsite respondents at Hospital, Retail, and Food Service buildings were most likely to say

³ Some of the evidence we collected raised some doubts about the reliability of these self-reported recent purchases. For 2015 International Energy Program Evaluation Conference, Long Beach

that they recently purchased T12 lighting. The evaluation engineers asked the C&I customers who reported recently purchasing T12 lamps: “Where did you purchase these T12 linear fluorescent bulbs from?” over half (55%) of the respondents said that they purchased their T12 lamps from a retailer. This result was somewhat surprising since C&I customers have traditionally purchased most of their lighting products from distributors rather than retailers. However, convenience and cost factors likely explain this shift in C&I lighting purchase practices when it applies to T12s. As discussed in the next section, Massachusetts lighting retailers were more likely than Massachusetts lighting distributors to report selling T12 lamps. It may be more convenient for some C&I customers to pick up replacement T12 lamps at their local large home improvement store than place a special order with their lighting distributor, especially if the distributor requires an order to be of a certain threshold size.

Finally we asked the 31 Massachusetts store managers who said they sold T12 lamps: “Can you make any generalizations about the types of customers who are purchasing most of these T12 lamps?” **Error! Reference source not found.** shows that a majority (61%) of the store managers speculated that the T12 purchasers were mostly residential customers with small business customers being a distant second (16%).

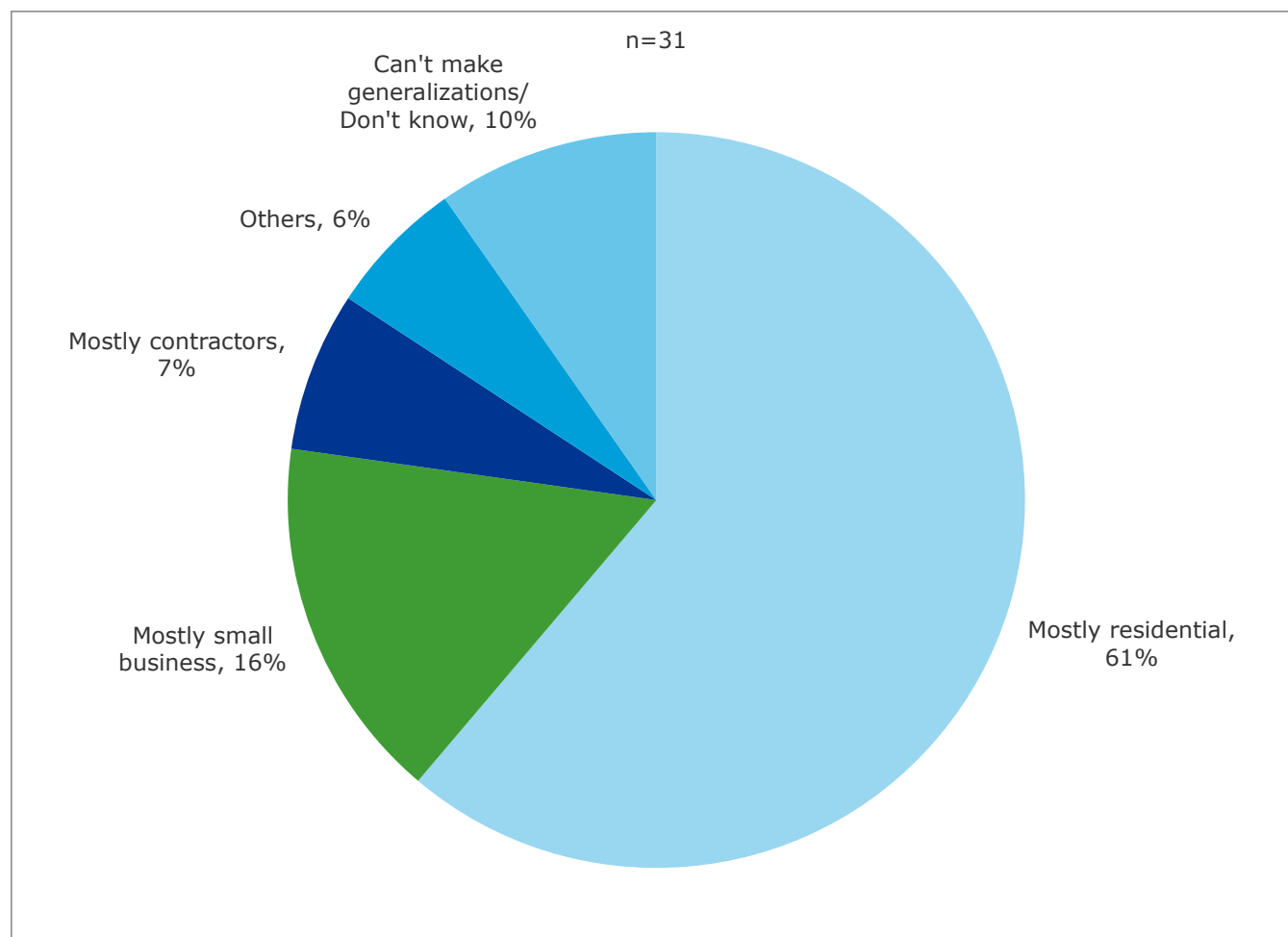


Figure 1: Store Manager Generalizations about T12 Purchasers, from 2014 Store Manager Survey

example, of the 33 sites we visited where onsite respondents had reported a recent purchase of T12 lamps, engineers were only able to find T12 lighting on 22 of these sites. However, it is possible that some of the facility managers we interviewed manage buildings in multiple locations for their organizations and their reported T12 purchases were for buildings which we did not visit. Some of the respondents might also have a broad interpretation of the word “recently.”

One manufacturer representative claimed that this mostly residential- and small commercial-driven retail market for T12 lamps will likely continue for some time. He said that this was not only because it is less expensive for these small customers to purchase a T12 lamp than to pay an electrician to replace the fixture, but also because it would be difficult to design a cost-effective energy efficiency program to get rid of these T12 fixtures. He noted that while the utilities could pay electricians to retrofit these residential T12 fixtures, it would likely not be cost effective. This is because most residential linear fluorescent fixtures use ballasts with very low ballast factors which means that the energy savings from a retrofit will be small.

The manufacturers who were producing or selling these T12 lamps also indicated that they had no intentions to stop selling them as long as consumers were still buying them. “It’s simply the consumer market demand, we don’t really decide what types of lamps we want to make, our consumers decide what lamps we want to make,” said one manufacturer representative. “So if our big retailers say their customers are looking for a certain lamp type, then they ask us to produce it. ... We’re in business to make our consumers happy. So our customers basically tell us when we’re going to make something, and how long we’re going to make it, and how many we’re going to make.”

The Size of the Current T12 Market

We collected information about the sizes of both the national T12 market and of the Massachusetts T12 market in particular. In terms of the national market, we asked the three major manufacturers who continued to produce T12 lamps: 1) what percentage of their current linear fluorescent production were T12 lamps; and 2) what would this percentage have been four years ago before the new legislation. One major manufacturer reported that at the time of the interview (June 2014) T12s accounted for 15 percent of their linear fluorescents compared to 35 percent four years previous. A second manufacturer said that their current T12 production was “tiny” (they were the ones that sold niche T12 products to auto body shops), but that T12s accounted for 50 percent of their linear fluorescent sales four years ago. The third manufacturer said the legislation reduced their T12 lamp sales by 40 percent overall.

The most recent National Electrical Manufacturers Association (NEMA) sales data showed that at the end of the third quarter of 2014, T12 lamps accounted for 22 percent of national linear fluorescent lamp sales. This is down from 26 percent in 2010 although it represents a slight increase from the 17 percent at the end of 2013. It is possible that this recent small increase may be due to distributors or retailers discounting their stocks of “grandfathered” non-compliant T12 lamps to move them out of their inventories.

In terms of estimating the size of the Massachusetts T12 market, only one of the three manufacturers we interviewed who were still producing T12 lamps was willing to estimate what percentage of their current sales of linear fluorescents in Massachusetts were T12 lamps. This manufacturer – a major supplier – estimated that currently only two percent of their Massachusetts linear fluorescent sales were T12 lamps, compared to 15 percent of their current national sales. He attributed this lower T12 market share in Massachusetts to energy efficiency programs and higher electric rates in the northeast. “From a commercial standpoint, Massachusetts and the northeast corridor, converted faster to T8 lamps than ... say the middle of the country and that has to do primarily with energy rates and the availability of utility rebate funding,” he said. “So I would doubt there are very many T12s being sold into commercial customers at all in Massachusetts at this time.”

All ten Massachusetts lighting distributors we interviewed estimated what percentage of their Massachusetts linear fluorescent lamp sales were composed of T12 lamp sales. The sales-weighted share

of the T12s across all the distributors was five percent for 2014.

We asked the 46 Massachusetts home improvement and hardware store managers who said they sold linear fluorescents whether they sold T12 lamps. Over two-thirds (68%) of them said that they did. We then asked the 31 store managers who reported selling T12 lamps to estimate:

- What percentage of the linear fluorescent lamps that they currently sell are T12 lamps; and
- What this percentage was four years ago before the new legislation.

Twenty-six of the 31 store managers were willing to provide sales share estimates. On average, they estimated the current T12 share of total linear fluorescent sales to be less than a third (32%). This contrasted with an average estimated sales share for T12 lamps in the pre-legislation period (2010) of 69 percent.

We did not ask the retailers to estimate their annual volumes of linear fluorescent sales. Yet if one makes the simplifying assumption that all of these hardware and home improvement stores had the same volume of sales, then the T12s would have a linear fluorescent market share at the retail level of 21 percent (the product of the 68% of the stores who reported selling T12 lamps and the 32% average reported T12 share for those stores selling T12 lamps).

We also asked the 31 store managers who reported selling T12 lamps the following question: “Are most of your T12 customers making low-volume purchases such as four bulbs or fewer per sale?” The vast majority (90%) said that most of their T12 customers were low-volume purchasers.

As noted in the previous section, 10 percent of the Massachusetts C&I customers said that they had recently purchased T12 linear fluorescent bulbs for their buildings or facilities. The onsite survey team also developed estimates of the types of linear fluorescent lamps that were installed in the C&I buildings which they visited. Across all building types, T12 lamps accounted for eight percent of linear fluorescent lamp installations. There was some variation in the percentage of installed linear fluorescents that were T12 lamps depending on the building type. **Error! Reference source not found.** shows that buildings in the Food Service, Healthcare, and Retail sectors were most likely to have T12 linear fluorescents installed.⁴

⁴ Many of the Food Service buildings in our sample were restaurants, pizza places, taverns, ice cream stores, etc. As this paper discusses, these smaller businesses typically face many barriers to lighting retrofits. The paper also discusses the reasons why T12s persist in the Retail sector including the persistent popularity of the eight-foot fluorescents in this sector for light quality reasons, the reluctance of some lighting vendors to sell eight-foot T8 lamps, and the fact that eight-foot T12 lamps can comply with EPACT efficacy requirements.

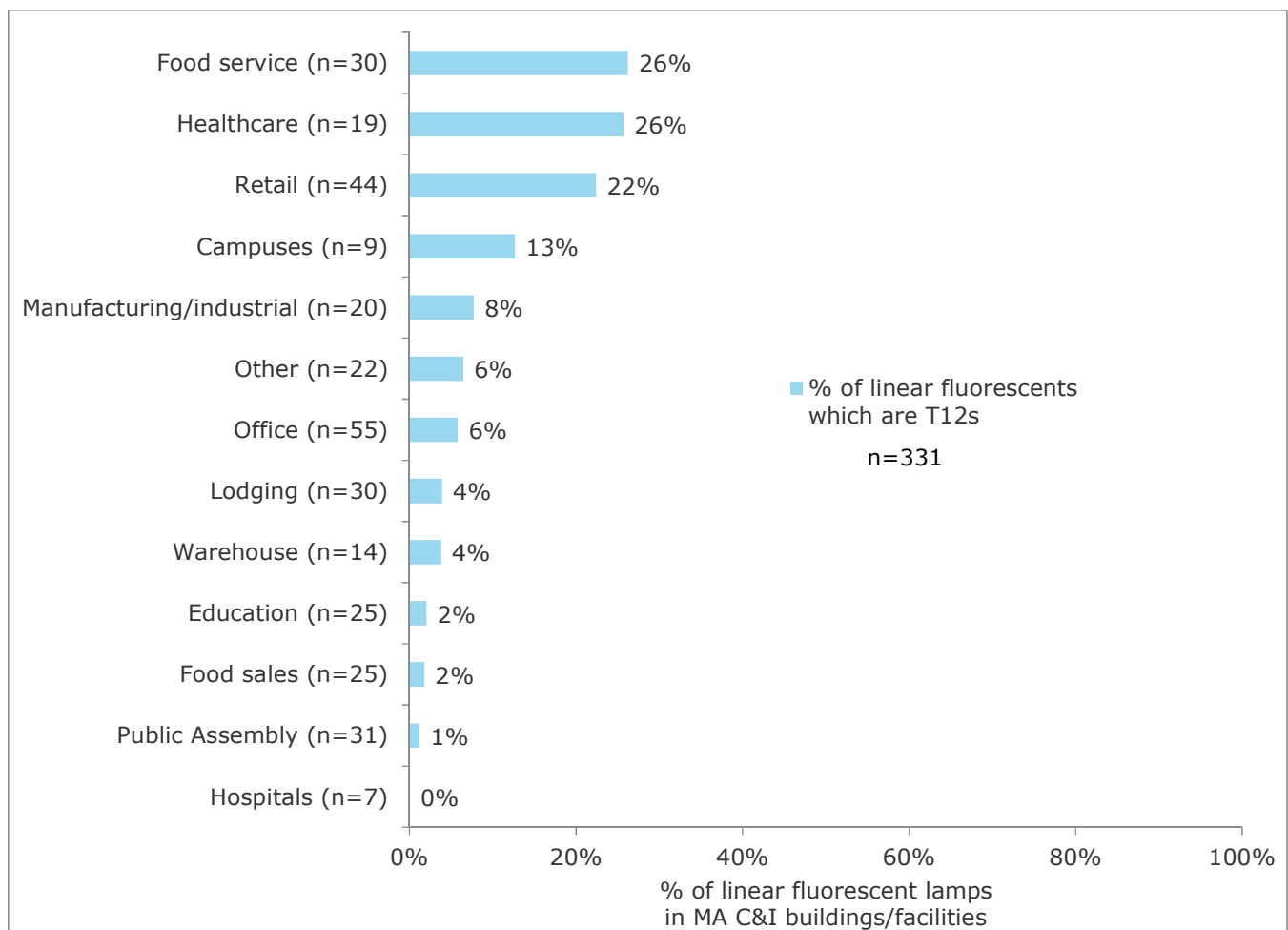


Figure 2: The % of Linear Fluorescents Which Are T12s, by Building Type, from 2014 C&I Customer Onsite Survey

When we looked at these shares of T12 lamps by the annual electricity consumption of the building or facility, it became clear that the proportions of T12 lighting decreased as the size of the building/facility increased (Figure 3). This is likely due to the greater market barriers faced by smaller establishments such as lack of capital and lacking the economies of scale to attract lighting contractors. T12 lighting retrofits have long been the focus of the Massachusetts Small Business Direct Install (SBDI) program and the 2014 Massachusetts general population site data indicates that this is an appropriate focus.

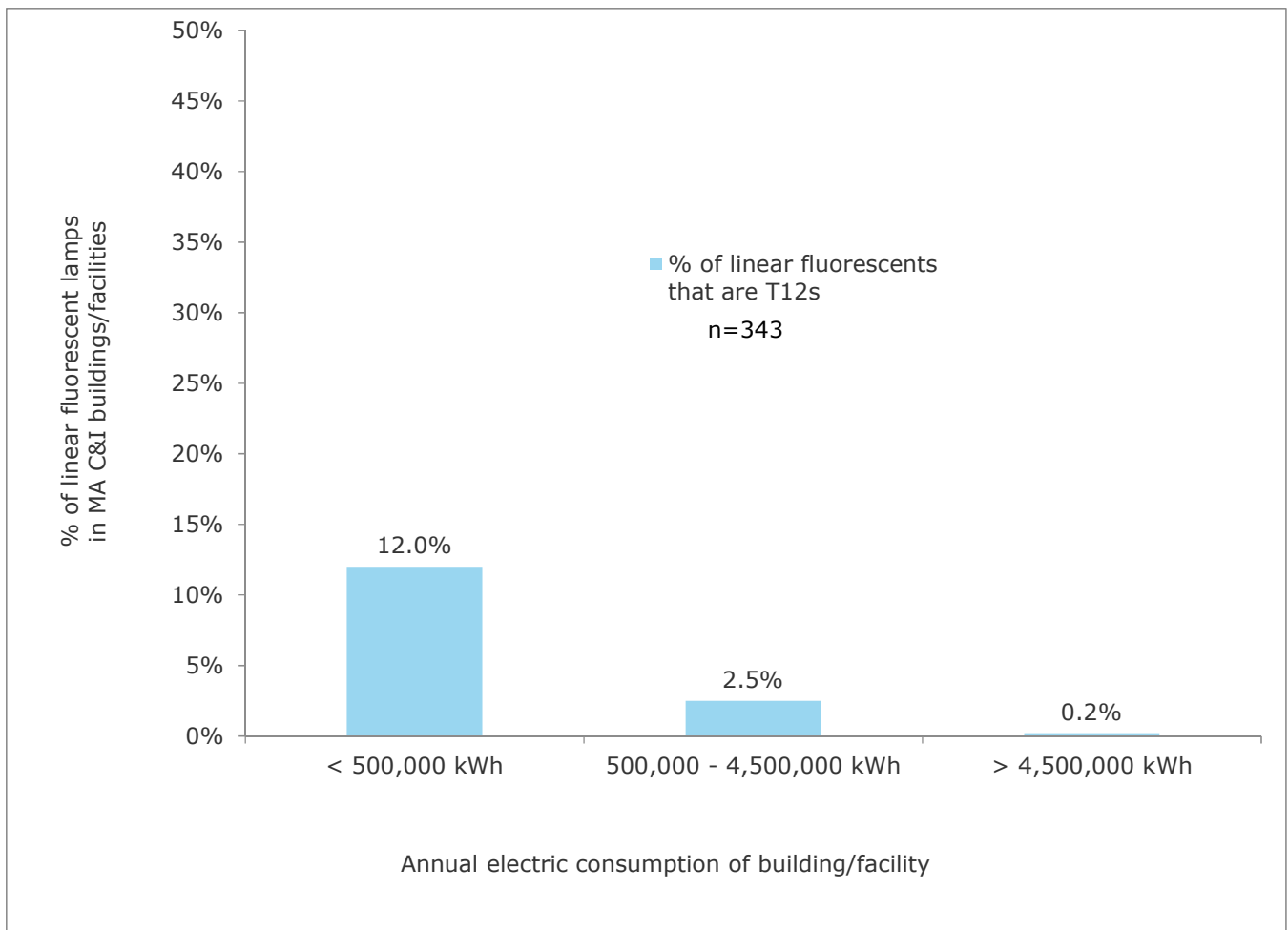


Figure 3: T12 Installation Shares by Facility/Building Size, from 2014 C&I Customer Onsite Survey

The site visit surveys confirmed reports by lighting market actors that T12s are dominating the eight foot linear fluorescent market. The site visits also confirmed the claims from these market actors that the eight-foot T12 lamps were particularly popular in the Retail sector. Seventy-four percent of the T12 lamps that the site engineers found in the Retail sector buildings were eight-foot T12s, the second highest percentage of all the sectors.

Yet the site visits also showed that while the T12s dominated the eight-foot linear fluorescent market, this market accounted for only a small percentage of the overall linear fluorescent market. Figure 4 shows that while T12 lamps accounted for over eighty percent of the eight-foot linear fluorescent lamps found in the site visits, these eight-foot lamps accounted for only four percent of the total linear fluorescent lamps.

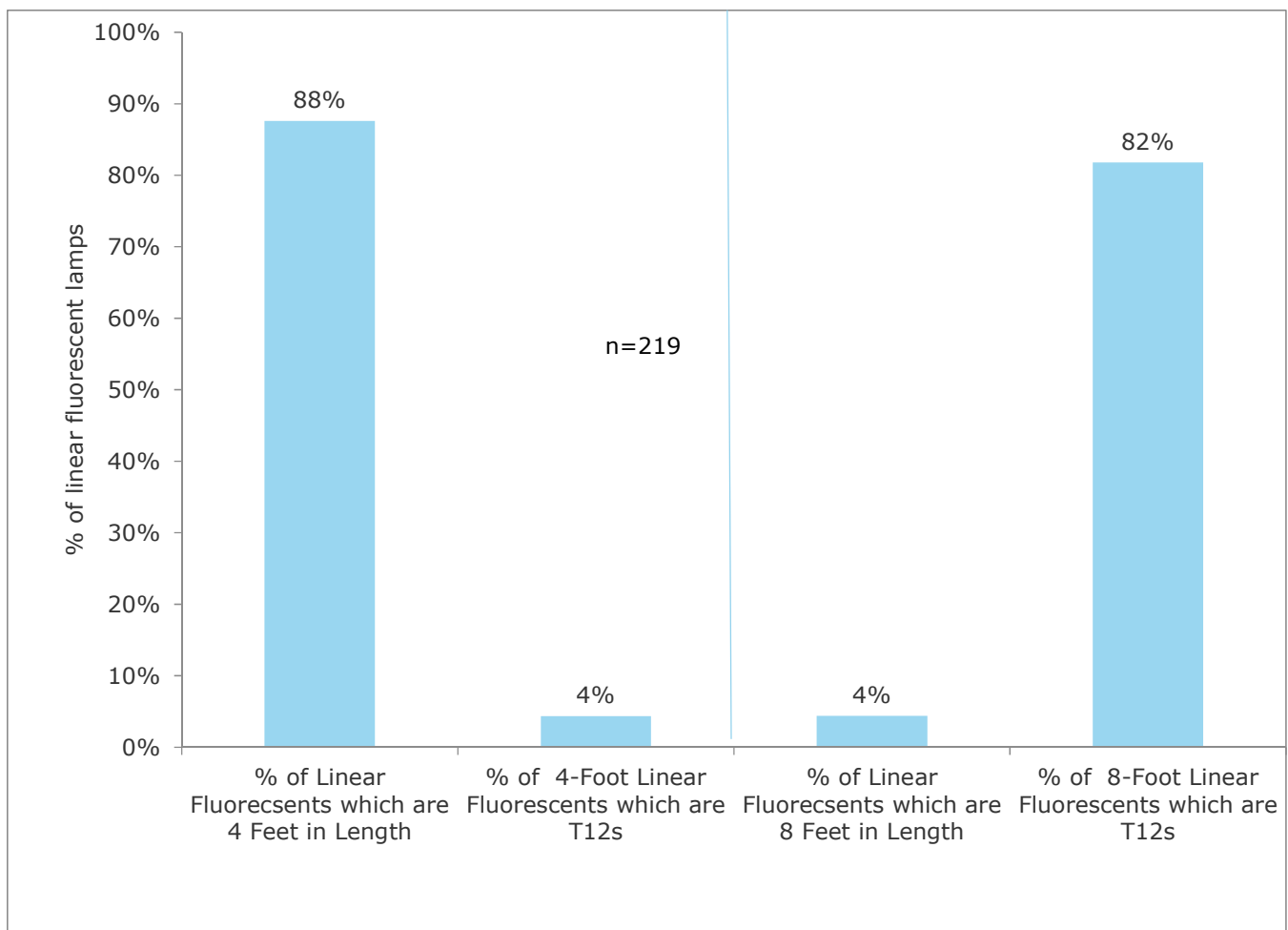


Figure 4: % of Linear Fluorescents Which Are T12s, by Lamp Length

Summary

Our study found that there is still a market for T12 lamps in the post-EPACT world, but in states like Massachusetts where energy efficiency programs have been providing incentives for high-efficiency linear fluorescents for many years, the market for T12 is a very small one. Our research found that T12s account for about 5 percent of the Massachusetts wholesale linear fluorescent market (sales from lighting distributors) and about 20 percent of the state's retail linear fluorescent market. On a national level, the data from lighting manufacturers shows T12 lamps accounting for 22 percent of overall linear fluorescent lamps sales in the third quarter of 2014 based on NEMA estimates.

Our interviews with lighting manufacturers and distributors and our literature review found that suppliers were mostly complying with the EPACT legislation in 2014 by selling T12 bulbs with a higher CRI. This reliance on higher CRIs to achieve compliance is of concern from an energy efficiency perspective because while a higher CRI produces a better quality of light, it does not improve the energy efficiency of the lamps and can even make these lamps less energy-efficient than previous generations of T12s.

Lighting market actors characterized C&I purchasers of T12 lamps as of 2014 as including small commercial customers, commercial building maintenance staff, retail and industrial customers who use eight-foot fluorescents for ceiling lighting. Customer types also included small niche customers such as auto body shops and high-end clothing stores which use high CRI T12s for better color rendering,

customers in southeastern states which do not have strong energy efficiency rebate programs, and late adopters.

These lighting market actors also identified an active residential T12 market with 61 percent of the hardware and home improvement store managers saying that the purchasers of their T12 lamps were mostly residential customers in 2014. They indicated that this residential T12 lamp market would likely continue for a while since despite higher T12 costs, it was still less expensive for homeowners to purchase T12 replacement bulbs than to pay an electrician to retrofit their linear fluorescent fixtures. Some lighting manufacturers also reported that they had no plans to stop producing T12 lamps as long as there was some consumer demand for these lamps.

Levels of reported awareness of the T12 phase-out legislation among market actors varied a lot depending on market actor type. In 2014, all of the manufacturer representatives and retail buyers who claimed familiarity with their company's sales of linear fluorescents also reported awareness of the T12 phase-out. In addition, 76 percent of the store managers who said that they sold linear fluorescent lamps claimed awareness of the phase-out. Yet less than half (42%) of the 2014 Massachusetts C&I customers we surveyed said that they were aware of this legislation.

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