2023 Prince Edward Island Lamps Recycling Program Annual Report

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Submitted to:

Prince Edward Island Department of Environment, Energy and Climate Action

Submitted by:

Product Care Association of Canada



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1. About Product Care Association

Product Care Association of Canada ("Product Care") is a federally incorporated, not-for-profit product stewardship association formed in response to stewardship regulations and is governed by a multi-sector industry board of directors. Product Care manages paint, household hazardous waste, smoke and carbon monoxide alarms and other lamp industry stewardship programs in various provinces in Canada.

Product Care has an approved lamp product stewardship plan with the Prince Edward Island Department of Department of Department of Environment, Energy and Climate Action under the *Materials Recycling Regulations* ("Regulation") of the *Environmental Protection Act*. The PEI Lamp Recycling Program ("Program") was approved in April 2015 and was subsequently renewed for another 5-year period on November 18, 2019. The plan is scheduled for renewal in 2024.

Product Care's members are the "brand owners" (manufacturers, distributors, first sellers and retailers) obligated by the Regulation. The Program is open to any brand owner to join.

Product Care currently operates lamp product stewardship programs in four other provinces: British Columbia (BC), Manitoba (MB), Ontario and Quebec. Product Care will also be implementing a lamp stewardship program in Nova Scotia in August 2024.

Product Care also operates the Paint Recycling Stewardship Program in Prince Edward Island.

1.1. Report Period

This report covers the reporting period from January 1, 2023, to December 31, 2023.

1.2. Program Summary

The Program offers collection sites, free of charge, throughout the province where consumers and businesses can bring unwanted/burned out lamps. Most collection sites are operated by Island Waste Management Corporation (IWMC) under contract to Product Care. In addition to the IWMC collection sites, a retailer, Home Hardware, in Charlottetown, is also a collection site under the Program. Residents and businesses can return any type of whole lamps to any of the six IWMC collection sites. The Home Hardware store only accepts lamps from the residential sector.

Product Care supplies collection sites with standard collection boxes for the collection of lamps. A hauler contracted by the Program collects the filled boxes from the collection sites and delivers collection supplies to the collection sites. The full collection containers are shipped to a processor for recycling. Additional elements of the Program managed by Product Care include revenue management, communications, and administration.

The Program is funded by Environmental Handling Fees (EHF) remitted to Product Care, by its' members for each regulated lamp product sold into or in the province (see Appendix 1). There were no changes to EHF rates in 2023.

1.3. Accepted Products

The Program is designed to collect and manage end-of-life intact (whole) lamps. The Program includes the following common categories of lamps, whether they are marketed for residential, industrial, or commercial purposes. This list is subject to change by Product Care.

- Fluorescent Tubes Fluorescent tubes come in different lengths (4 feet, 8 feet, etc.), diameters (T5, T8 and T12) and light output. Most tubes are straight, but some may be curved or shaped.
- Compact Fluorescent Lamps (CFLs) Fluorescent bulbs that are typically similar in size and are intended to replace an incandescent (traditional) light bulb, including pin-type sockets.
- High Intensity Discharge Lamps (HID), non-mercury and mercury containing lamps Includes mercury vapor, metal halide, high- or low-pressure sodium and UV lamps.
- Incandescent and Halogen lamps Filament lamps of all shapes, sizes, and wattages.
- Light Emitting Diode (LED) lamps Solid-state lamps used for specialty purposes and conventional lighting applications.
- Miniature Bulb Package Miniature bulbs are small or very small bulbs. They can be LED, incandescent, halogen or neon and are typically designed and sold as replacement bulbs.

Lamp products can be sold as replacement lamps or integrated into a product intended to illuminate an area (such as a fixture, a flashlight, etc.). When sold integrated into such a product, the lamp portion of the product must be designed to be able to be removed from that product by the end user to be recycled. Lamps that are sold integrated into products that meet this requirement are included in the Program.

The Program is designed to collect and manage whole lamps and not crushed lamps. A limited amount of incidental breakage of lamps is accepted by the Program, provided the broken lamps are packaged in accordance with the requirements of the Program.

The Program includes lamp products manufactured by existing brand owners as well as orphan products (those that are no longer in production or which the manufacturer is no longer producing) if their function was the same as products accepted in the Program.

1.4. Non-Program Material

Non-program materials are products other than the lamp products listed above. Minimization of non-program material is achieved through a comprehensive program of public education, signage, and collection facility staff training. Non-program material includes, but is not limited to, the following:

- All types of fixtures
- Ballasts
- Any other lighting products (Products containing lights with a primary purpose that is not to illuminate or assist in the illumination of space (e.g., germicidal lamps).
- Lamps integrated into products that are not intended for removal/replacement by end users.

2. Brand Owner Sales Information

Program members reported total sales of 356,746 units of program products in PEI from January 1 to December 31, 2023, as shown below in Table 1.

Table 1: Total Units Sold by Category

	Fluorescent tubes	Compact Fluorescent Lights (CFL)	LED	HID and Other	Incandescent/ Halogen	Mini bulbs package	Total
Units	40,426	10,053	198,263	1,600	70,237	36,167	356,746

3. Collection

The following section provides the total amount of lamps collected in PEI, as well as the location of collection sites.

3.1. Total Amount of Lamps Collected

Table 2 shows the total number of lamp units by category collected by the Program in 2023.

Table 2: Total Units of Lamps Collected in 2023

	Fluorescent tubes	Compact Fluorescent Lights (CFL)	LED	HID and Other	Incandescent/ Halogen	Mini bulbs package	Total
Units	47,332	11,722	7,031	2,391	20,159	160	88,795

3.2. Collection Sites

As of December 31, 2023, seven collection sites participated in the Program: six collection sites operated and managed by IWMC and one retail location. Table 3 lists all collection sites. <u>Appendix 2</u> illustrates the Program's recycling location finder: www.productcare.org/recycling-locator/.

Table 3: 2023 PEI Lamp Collection Sites

Collection Sites	Address	City	
GreenIsle	8 Superior Crescent	Charlottetown	
Brockton	2202 Dock Road Route # 150	Brockton	
New London	10142 Route #6	New London	
Murray River	378 Cape Bear Road Route #18	Murray River	

Collection Sites	Address	City
Dingwells Mills	100 Selkirk Road Route #309	Dingwells Mills
EPWMF	29786 Route #2	Wellington Center
Home Hardware	115 St Peters Rd.	Charlottetown

4. Processing

4.1. Lamps Processed

In 2023, a total of 88,795 whole lamps were recycled by a contracted processor. The Program's processor is required to conform to Product Care's Processor Standards.

4.2. Disposal Method Descriptions

The following sections describe each method the Program used to reuse, recycle, or otherwise treat or dispose of lamp products.

Reuse

The Program is designed to manage end-of-life lamp products that no longer work and cannot be reused. Consequently, no lamps collected through the Program were reused.

Recycling

Collected Program Products were broken down into their component parts in a controlled environment. The resulting glass, ceramic and metal components were recovered as commodities. The metal components were sent to smelters. Glass and ceramics were sent to a glass recycler to be used for sand blasting.

Secure Landfill

During the separation of the components, the mercury and the phosphor powder were collected in drums. The contents of the drums are sent to a waste management company in Quebec where they are encapsulated into a concrete-like material and securely landfilled. Although the mercury can be removed from the phosphor powder by retort, the market for recycled mercury has been greatly reduced in the last few years due to regulatory restrictions. These restrictions include a US ban on mercury exports, which has limited the availability of recycling options for mercury.

5. Environmental Sustainability: Producer Efforts to Reduce Waste in Product Lifecycle

Lighting producers are actively reducing environmental impact through innovative design and technology, emphasizing durability, reusability, and recyclability across the product lifecycle. Adoption of energy-efficient technologies like LEDs has revolutionized the industry, slashing energy use and fostering sustainability.

Here are some trends reflecting environmental sustainability within the lighting industry:

Shift in Industry Trend towards More Durable Products

In recent years, the lighting industry has shifted its focus from traditional lighting technologies to the development and adoption of energy-efficient and long-lasting lamp technology. As an example, the advancement of LED lighting technology is having a significant impact on the lighting market.

Manufacturers are now focusing most of their efforts on this type of product and are no longer spending research energy on expanding any of the traditional product lines, such as fluorescent, HID, incandescent or halogen.

Minimize Energy Consumption During the In- Use Phase

1. Market-Driven Transition to New Lighting Technologies:

The adoption of new lighting technologies brings forth numerous benefits, as evidenced by various life cycle assessment studies. A pivotal advantage lies in recognizing that energy consumption during the use phase significantly impacts the overall environmental footprint of lighting products throughout their life cycle. Specifically, this energy use constitutes 80-90% of the total impact. By embracing these advanced technologies, the lighting industry effectively reduces electricity consumption and mitigates pollution associated with energy generation.

2. LEDs: Durability and Environmental Favorability:

- LEDs (Light Emitting Diodes) stand out due to their durability and positive environmental impact.
 Consider the following:
 - Lifespan: LEDs boast an impressive lifespan of approximately 15,000-25,000 hours, far surpassing CFLs, incandescent bulbs, and halogen lamps (with average lifespans of 8,000 hours, 1,000 hours, and 3,000 hours, respectively).
 - Reduced Replacement Frequency: The extended lifespan of LEDs translates to fewer replacements, minimizing the need for new bulbs and lamps. Consequently, this reduces the associated environmental impact related to manufacturing and end-of-life management.
 - Mercury-Free and Energy Efficiency: LEDs are mercury-free and highly energy-efficient, making them an attractive choice. The industry is actively pushing for further integration of LEDs into fixtures.

3. Lighting as a Service (LaaS):

Beyond LED efficiency, the lighting industry embraces the "Lighting as a Service" (LaaS) model to optimize energy consumption. LaaS involves integrating and managing lighting systems as part of facility management. Intelligent controls collect data, enabling efficient lighting control based on occupancy, activity patterns, and daylight levels. This strategic approach contributes to improved energy and carbon management performance.

Developing a Circular Economy in the Lighting Industry

The lighting industry is actively implementing product design strategies rooted in circular economy principles, thereby promoting a more sustainable and environmentally friendly approach. Here are the key initiatives:

1. Enhancing Reusability:

- Lighting product manufacturers prioritize increasing the reusability of their products. By creating items that can be upgraded for different purposes, they reduce the need for consumers to purchase new products. This shift contributes significantly to minimizing the environmental impact associated with frequent replacements.
- Additionally, producers focus on designing products with easily replaceable parts, such as drivers, controls, and LED boards. These improvements not only enhance product durability but also facilitate disassembly, repair, and recycling.

2. Packaging Waste Reduction:

- Lighting companies are actively redesigning their packaging to minimize waste. Innovative packaging
 design and technology allow them to achieve this goal while maintaining the necessary protection for
 their products.
- Sustainable materials, including those with recycled content or bamboo, are increasingly used in packaging. These choices further reduce the environmental footprint associated with packaging materials.

In summary, the lighting industry is transitioning to more sustainable practices by embracing energy-efficient technology, phasing out traditional lighting technologies, adopting low impact service models, and focusing on reducing product impact and improving reusability and recyclability. These efforts are not only promoting a more sustainable future, but also drive innovation in the industry.

6. Communication and Public Education

In 2023, in partnership with IWMC, the Program implemented various methods to raise consumer awareness of the Program. The following section provides details regarding communication and public education activities in 2023.

6.1. Website

The Product Care website includes the following content about the Program:

- "Find a Recycling Location" tool (a searchable map displaying collection site locations See (Appendix 2)
- Collection site hours of operations.
- Accepted and not accepted products.
- Consumer videos showing the product management approach for lights.
- Program member support section with news and updates.
- Other information (e.g., a description of the Program, annual reports).

In 2023, productcare.org received an estimated 547,411 sessions of which 2,167 were from PEI.

6.2. Program Hotline

Product Care and IWMC continued to operate a toll-free "hotline" for consumers to obtain information about the Program.

6.3. Partnerships

Product Care continued to contract with IWMC to promote the Program in the province throughout the year by implementing the following tactics:

- 1. Waste Watch News: Newsletters were distributed to Island residences (including seasonal dwellings and apartment units) in June and December through Canada Post. Residents and visitors could also pick up newsletters at the Access PEI locations, town halls and through IWMC offices. The newsletters were available in English and in French and contained a summarized sorting guide, including information on light products and recycling. A total of 72,500 newsletters were distributed per issue of the newsletter. The newsletter is available on the IWMC website under the resources section.
- 2. Interactive Sorting Guide: The IWMC website featured a What Goes Where tool providing customers easy access to sorting and disposal guidelines. The instructions on light bulbs included a direct link to the Program's website for a complete list of accepted and excluded products. Hard copies of the sorting guide, which included light bulbs disposal advice and a direct link Product Care's website in the special disposal section, were made available in English, French, Mandarin, and Arabic. They were also produced in poster size for display at businesses, community organizations and multi-family dwellings. The sorting guide was also made available to new residents.
- **3. Business Customers:** Business Guides helped the industry, commercial and institutional sectors manage waste. IWMC included Sorting Guides when distributing the Business Participant Guide. Sorting information for the business sector was also available on IWMC's website.
- **4. Customer Service Inquiries:** In addition to the Program hotline operated by Product Care, IWMC's Customer Service Centre operated a toll-free line where consumers could call in to request more information regarding the disposal of various recyclables, including lights. IWMC receives an average of 60,000 calls every year and also answers queries through e-mail and IWMC's Facebook page.
- **5. Corporate Annual Report:** Information on light bulbs recycling was highlighted in IWMC's Annual Report. The latest version of the annual report tabled in the Legislature is made available on the IWMC website.
- **6. Recycle Coach:** IWMC also offers What Goes Where interactive sorting guide as a part of mobile app Recycle Coach. In addition to the interactive sorting guide, the app features quizzes and articles on proper sorting and disposal
- **7. Presentations & Tours:** Over 20 presentations were completed in 2023, which includes mention of the right way to dispose of lightbulbs. These presentations take place at early learning childhood centers, schools, community groups and neighborhoods.

See Appendix 3

6.4. Digital Advertising

All digital campaigns (see examples at Appendix 4) reached the entire province.

- **1. Google Search Advertising Campaign**: A search advertising campaign served lights ads to provincial residents based on an extensive list of keyword searches relevant to the Program. These ads work according to user's queries on the Google Search engine.
- **2. Blog and social media content Strategy:** Content focused on light recycling, special waste, and the recycling community in general was posted on Product Care's blog and shared through social media.

6.5. Point of Sale (PoS) and Point of Return (PoR) Materials

In 2023, Product Care distributed both PoS and PoR materials as requested by retailers and collection sites. General program awareness posters were made available for reorder through the online order form. See <u>Appendix 5</u>

7. Financial Information

The following is a summary of the Program's finances for the 2023 reporting year.

2022 Revenue and Expenses	(\$'000s)
Total Revenue	64
Total Operating Expenses	80
Program Operation	68
Program Administration	5
Education, Public Awareness	2
Regulatory	5
Surplus/Deficit from Operations	(16)
Cumulative Surplus (Reserve)	67

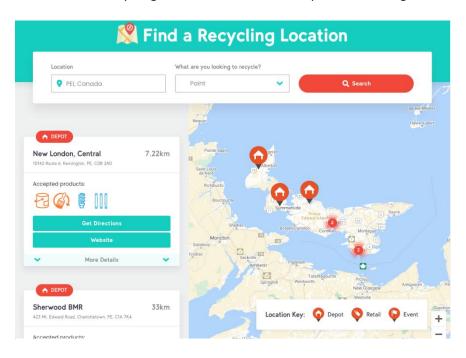
Appendix 1: PEI Lamps Environmental Handling Fee Rates

Accepted Lamp Products	Rates ¹
Fluorescent Tubes measuring ≤ 2 feet	\$0.30
Fluorescent Tubes measuring > 2 feet and ≤ 4 feet	\$0.50
Fluorescent Tubes measuring > 4 feet	\$1.00
Compact Fluorescent Lights (CFL)/Screw-in induction lamps	\$0.20
Light Emitting Diodes (LED)	\$0.15
High Intensity Discharge (HID), Special purpose and Other	\$1.10
Incandescent / Halogen	\$0.05
Miniature Bulb Package	\$0.10

¹ No EHFs program fee rate changes since 2015

Appendix 2: Recycling Locator Tools

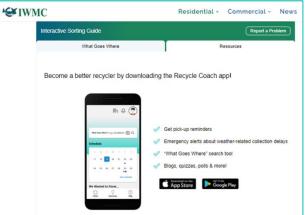
Below is a snapshot of the "Find a Recycling Location" tool located at productcare.org.

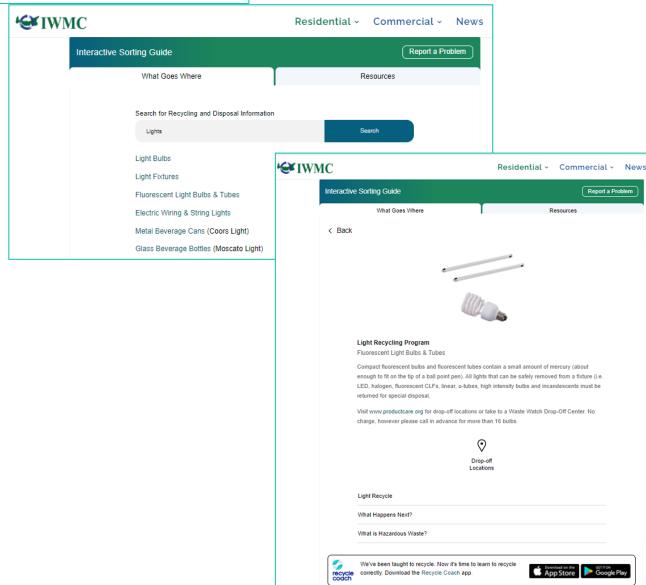


IMMC Sorting Guide



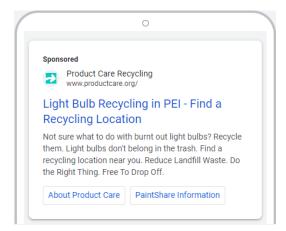
IWMC Recycle Coach App

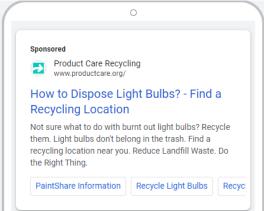




Appendix 4: Digital Advertising Activities

Google Search Ads

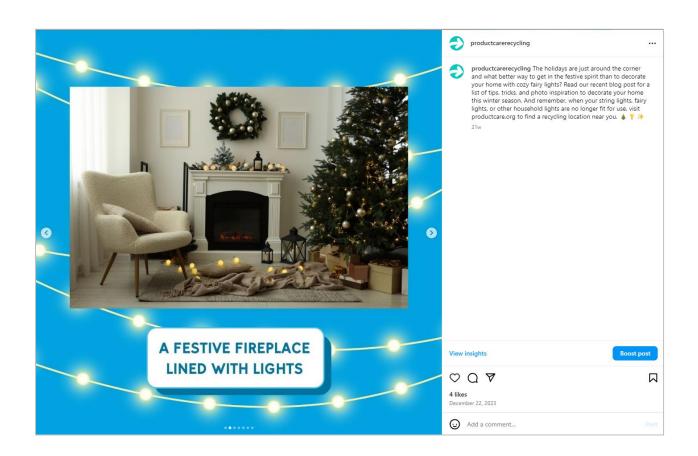


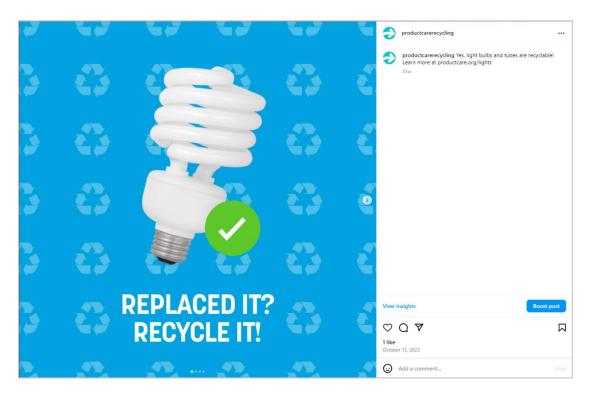


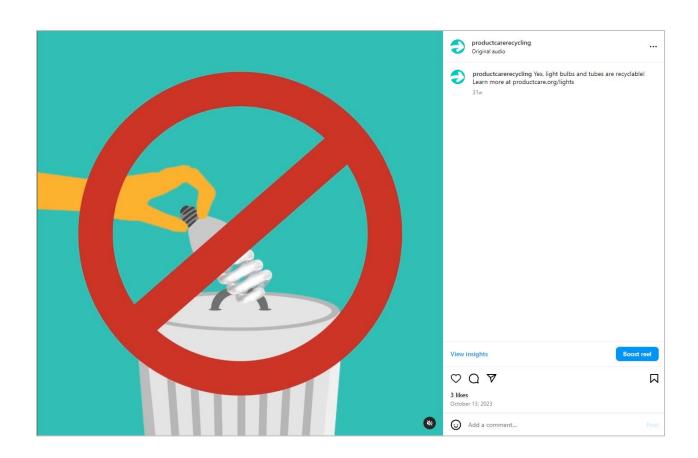
Blog post



Social media posts







Appendix 5: PoS and PoR Materials

General program awareness posters



Lights rack card

