

Preliminary Draft Plan for Consultation

BC FLUORESCENT LAMPS STEWARDSHIP PLAN
for the period July 1, 2010-June 30, 2015

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Executive Summary

This draft stewardship plan for **residential use fluorescent lamps** has been prepared pursuant to the requirements of the BC Recycling Regulation. This preliminary program plan will be used in consulting with stakeholders. The plan will be revised following the consultation process. Consultation and meeting information is available at ProductCare.org/Consultations.

A stewardship agency will be created to implement and manage the plan. The program will be funded by eco-fees remitted to the proposed stewardship agency by its members.

The stewardship agency will establish and operate a collection system across BC to collect the end-of-life program products. Collected program products will be consolidated and transported to facilities for recycling and other management options. The program will include measures for environmental risk reduction.

The program plan includes a communication and education program to ensure public awareness of the program and to inform consumers how to properly handle fluorescent lamps.

This is a five-year plan covering the period July 1, 2010 to June 30, 2015, and includes performance targets and measures.

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1. Introduction – Background and Consultation Process

This draft stewardship plan for **residential use fluorescent lamps** has been developed by Electrical Equipment Manufacturers Association of Canada (EEMAC), an industry council of Electro Federation of Canada. EEMAC has appointed Product Care Association as the program manager.

The program plan has been developed pursuant to the requirements of Recycling Regulation B.C. Reg. 449/2004 (the “Regulation”).

This plan will cover the 5-year period **July 1, 2010 to June 30, 2015**. Consultation on the plan will be conducted in September 2009 and the plan submitted to the BC Ministry of Environment for approval before January 1, 2010.

This preliminary program plan will be used in consulting with stakeholders. The plan will be revised following the consultation process. Consultation and meeting information is available at ProductCare.org/Consultations.

Following submission of the program plan to the BC Ministry of the Environment, program plan implementation will begin, including:

- identification and qualification of collection sites, transporters and processors
- creation of the communication strategy
- registration of Producers
- budget development, cost analysis and fee setting

2. Program Products

This program covers fluorescent lamps marketed to residential users that are designed to be removed by the user.

Fluorescent lamps are a low-pressure mercury electric-discharge source in which a phosphor powder transforms ultraviolet energy generated by the mercury discharge into visible light.

There are two categories of fluorescent lamps generally used for residential lighting:

- **Compact fluorescent lights** (CFLs), which fit into standard lighting sockets. CFLs are manufactured in a number of different shapes and a range of light output values.
- **Fluorescent tubes**, (such as T12 Fluorescent Lamps, T8s, T5s, shaped or curved tubes) which require dedicated pin-type sockets. Fluorescent tubes come in different lengths, diameters, and light output. Most are straight but some are curved or shaped.

3. The Fluorescent Lamps Stewardship Agency

EEMAC will establish a non-profit corporation for the purpose of operating the program on behalf of the program members. Members of the proposed stewardship agency will be Producers¹ of the Program Products.² The program members may include manufacturers, distributors and retailers.

The founding members of the proposed stewardship agency are listed in Appendix A. Program membership will be open to all obligated Producers. Each of the members will appoint the proposed stewardship agency as authorized agent pursuant to s. 2(2) of the Regulation.³

4. Current Market and End of Life Management

4.1 Sales & Market

Fluorescent lamps are produced by a number of manufacturers in the world, designed for the North American market and technical requirements (voltages and fixture types). The majority of the supply is distributed by manufacturers to distributors and then to the residential market through retailers. Lamps are also imported directly by distributors and some large retailers.

Fluorescent tubes are a mature technology and sales are expected to continue to be relatively constant.

There has been tremendous growth of the CFL market in recent years. In British Columbia, the use of CFLs for residential lighting has been extensively promoted by electrical utilities for energy efficiency. After a period of rapid growth, CFL sales declined in 2008, indicating that the market for residential CFLs is stabilizing. However, it is difficult to forecast the rate of replacement of fluorescent lamps because of the increasing lifespan of the CFLs. See Table 4.1 below.

¹ Producers is defined in Appendix G

² Program Products as defined in Section 2

³ British Columbia Ministry of Environment (2006). *BC Recycling Regulation*. Accessed at http://www.bclaws.ca/Recon/document/freeside/-- E --/Environmental Management Act_SBC 2003_c. 53/05_Regulations/43_449_2004_Recycling_Regulation/449_2004.xml.

Table 4.1 BC Residential Market Sales Data for Fluorescent Lamps 2003 -2008 in units (000's)⁴

	2003	2004	2005	2006	2007	2008	Forecast
CFL	1253	760	1610	1626	3713	3110	stable
Fluorescent Tubes	1249	1339	1245	1214	1166	1128	stable

4.2 Available for Collection

The estimate of the number of lamps available for collection in a future year requires data on both the number and lifespan of lamps sold in prior years.

For the purpose of estimating the number of fluorescent lamps available for collection by the program each year, it is assumed that substantially all fluorescent lamps sold will be available for collection after the end of the life of the product and that after removal, the used lamps will not be stored or reused.

The number of years of lifespan of a fluorescent bulb depends on a number of factors including bulb quality and technology, the usage location (e.g. lamps used in recessed fixtures may have a shorter lifespan) and hours of use.

Lamp lifespan projections were based on the findings of a Stewardship Ontario working group on fluorescent lamps to determine lifespan projections, see Appendix B.⁵

Using the sales data from Table 4.1 and the lifespan estimates from Table B-1, the number of lamps available for collection in British Columbia has been calculated and is presented in Table 4.2. After the program begins, improved sales data will be available, and further research will be undertaken to improve the method of estimating the amounts available for collection.

⁴ Data provided by EEMAC. BC data estimated as 70% of EEMAC member Western Canada sales assuming residential sales to be 100% of CFL and 50% of fluorescent tube consumer channel sales and 5% of the fluorescent tube commercial channel sales. Sales data for non-EEMAC producers is not known. Actual program member sales will be reported to the program after the program begins.

⁵ Stewardship Ontario (2009). *Draft Consolidated Preliminary Municipal Hazardous and Special Waste Program Plan Volumes I & II*. Accessed at <http://www.stewardshipontario.ca/mhsw/index.html>

Table 4.2 Fluorescent Lamps Available for Collection From Residential Sources

Year	Residential	
	CFLs (units)	Fluorescent Tubes (units)
2010*	637,300	585,250
2011	483,000	373,500
2012	487,800	364,200
2013	632,950	308,800
2014	477,500	305,400
2015 *	643,300	420,600
Total	3,254,000	2,357,750

*Note: the program plan only covers 6 months in 2010 and 2015, but full year data is shown for ease of comparison

4.3 Collection

Program Products are currently collected from consumers by some retailers and local government depots without charge. Certain recycling businesses will also accept Program Products for a fee.

Retailers

Many British Columbia retailers, including:

- Home Depot (29 locations),
- IKEA (2 locations),
- RONA (corporate stores) and
- London Drugs (45 locations)

have set up voluntary in-store take back programs within BC, enabling consumers to drop off used CFLs.

In addition, BC Hydro is financing a pilot program where 23 selected retailers (generally hardware stores participating in the Power Smart events) accepted CFLs from their customers.⁶

Local Government

Used lamps are accepted from residents without charge at five municipally sponsored depot locations⁷:

- Abbotsford Community Services,
- City of Richmond Recycling Depot,
- District of Mission,
- Mission Recycling Depot,
- Nanaimo Recycling Exchange

and three regional districts

- (Cowichan Valley Regional District –three sites,

⁶ Personal conversation with Pattie Fromyhr, BC Hydro Powersmart Program

⁷ (Information obtained from Recycling Council of BC Recyclepedia available at <http://www.rcbc.bc.ca/recyclepedia>)

- Capital Regional District –one site and
- North Okanagan Regional District –six sites)

Recycling businesses

Several recycling businesses (Edmonds Recycling, Ellice Recycle, Happy Stan's Recycling Services, Newalta Corporation, Nu-Life Industries, Steel Pacific Recycling and The Battery Doctors) accept fluorescent lamps (usually for a fee).⁸

4.4 Processing

Currently, there are three primary processors in BC and five others across the country. The method of processing employed is usually that the lamps are broken under negative air pressure, then the glass, phosphor-mercury powder and other metals are separated, cleaned and forwarded to downstream recycling outlets.

4.5 Public Awareness

Retailers that offer take back programs have been advertising this service. Two of British Columbia's electrical utilities, BC Hydro and Fortis Energy encourage the recycling of CFLs and include information on local recycling options in their communications (website, pamphlets, public events). There has been significant media coverage of the trend towards the use of CFLs in the home, sometimes including information about the importance of proper disposal of mercury-containing lamps. The Recycling Council of BC also lets consumers know where to dispose of items through its hotline and website.

5. Planned Program Operations

5.1 Collection and Transportation

Collection Locations

The Program will establish a system of permanent year-round collection locations in British Columbia for the collection of used intact lamps from consumers. There will be no charge to drop off program products. The Program will not directly own or manage collection depots, but intends to contract with existing sites. Collection sites may be located at facilities such as retailers, recycling organizations (both non-profit and for profit), local government recycling centres or transfer stations or at other associations or businesses.

Actual depot locations will be determined through the implementation process based on facilities available, ability to meet standards including environmental and safety ones, proximity to population, ease of access and cost effectiveness, with the intent

⁸ Ibid.

of establishing a province-wide network of sites that provides reasonable access to consumers. Where necessary, the Program will supplement the depot collection system with a number of one-day events in areas where there are no collection sites, possibly in participation with a retailer, or municipality or regional district.

Collection Containers and Transportation

It is the intention of the program to contract out for the services of transportation from collection sites to processors (possibly employing consolidation points). Program products will be collected and transported using collection containers that fulfill environmental, safety and transportation requirements. Collection container options will be reviewed in consultation with potential collection sites and transporters.

Collection and Transportation Standards

Standards for collection sites and transportation services will be developed (see Appendix D for details) and adherence to the standards will be required of all collection sites. The applicability of the BC Hazardous Waste Regulation to the collection and transportation of Program Products is being reviewed.

5.2 Processing and Tracking

The Program intends to negotiate contracts for the processing of used lamps and will consider available service providers based on a number of factors including location, capacity, processing methods, downstream vendors and conformity with processor standards (see Appendix D for details). A tracking system will be developed to track the used lamps from the point of collection to final destination. Audits will be performed to ensure compliance by processors with processor standards.

5.3 Product Life Cycle and the Pollution Prevention Hierarchy

Reduce

Fluorescent lamps are recognized as an energy efficient lighting technology, and significant advances have been made in increasing product lifespans. This has reduced the environmental impact of the lamps, as fewer are required to provide the same service.

Most CFLs sold in 2003 lasted an average of 3 years but Energy Star™ rated lamps now can last up to 12 years.⁹ Fluorescent tubes are now available in a longer life version that provides 30,000 hours of light compared to the 24,000 hours of other lamps. In addition, fluorescent tubes are now available that are smaller in diameter (T8 or T5), providing the same or more light with about 50% less material resources by weight.¹⁰

⁹ Stewardship Ontario (2009). *Draft Consolidated Preliminary Municipal Hazardous and Special Waste Program Plan Volumes I & II*. Accessed at <http://www.stewardshipontario.ca/mhsw/index.html>

¹⁰ European Lamp Companies Federation. *Climate, environment & health*. Accessed at http://www.elcfed.org/2_health_environment.html-materials.

The main environmental concern with fluorescent lamps is the mercury content. Mercury is a necessary part of fluorescent lamp technology, but manufacturers have been able to reduce the amount of mercury in the lamps. The average Canadian compact fluorescent lamp contains 3.7 mg of mercury (roughly the size of the tip of a ball point pen).¹¹

The Canadian Council of Ministers of the Environment (CCME) set Canada-wide standards for the amount of mercury in lamps with targets of a 70% reduction by 2005 and an 80% reduction by 2010 against the 1990 baseline of an average of 43 mg. By 2006, members of Electro-Federation Canada had exceeded the target with an 81.6% reduction in mercury content for an average of 7.9 mg per lamp (includes all fluorescent and HID lamps sold in Canada by Electro-Federation members).¹²

Manufacturers continue to research ways to improve lighting performance and reduce environmental impacts. Advances are expected in other lighting technologies such as LEDs (light emitting diodes).

Redesign/Eliminate

Presently, close to 100% of the materials in fluorescent tubes can be recycled so redesign for this reason is not warranted.¹³ The process for CFL recycling is similar to that of the tubes however the additional component of a plastic or ceramic base is more difficult to recycle.

Reuse

The program is designed for fluorescent lamps that no longer work and cannot be reused. Options for managing unused lamps include the BCIMEX or the Reuses networks run by the Recycling Council of British Columbia.

Recycle/Recover

Processed lamps will be broken down into their component parts so that the glass, mercury and other metals can be recovered and sold back into the market. Almost 100% of the materials can be recycled in this system. Plastic bases of the CFLs would be incinerated in the thermal metal recovery process where they would contribute to the energy used to heat the system. Table 5.3 shows the possible destinations of the materials and table 5.4 shows the relative amounts of the materials.

¹¹ Ibid.

¹² Personal communication with Wayne Edwards, EEMAC

¹³ Kelleher, M. (2007). *Fluorescent Lighting in Ontario –Lifespan Model and Research Report to Waste Diversion Ontario*. Accessed at <http://www.wdo.ca/files/domain4116/Final%20Review%20of%20Fluorescent%20Capacity%20Report%20Sept%2025%2007.pdf>

Table 5.3 Components of Lamps and Potential End Use

Material	Possible Destination
Glass	Fibreglass, reflective paint
Aluminum	Smelter and resale
Mercury	Retorted and resold
Phosphor powder	Separated from mercury and remains as phosphor powder, may be waste
Other metals	Smelter and resale
Plastic	Incinerated in resmelt process
Ceramics	Waste

Table 5.4 Compositions of Compact Fluorescent Lamps and Fluorescent Tubes¹⁴

Material	Composition of a CFL	Composition of Fluorescent Tube
Glass	75-90%	75-95%
Mercury	<0.015%	<0.01-<0.05%
Lead Oxide	0.2-2%	0.2-2%
Aluminum Oxide	0-2%	0-2%
Phosphor Powder	0.5-3%	0.5-3%
Miscellaneous Compounds (fluoride, manganese dust, tin dust etc.)	0-0.1%	0-0.1% per compound

5.4 Consumer Awareness

The Regulation requires that the plan makes adequate provision for informing consumers of the product stewardship program, the location of collection facilities, how to manage products in a safe manner as well as the environmental and economic benefits of participating in the program. The Program will develop a communication strategy to educate consumers about the program.

Communication Methods

The Program will use a number of methods of creating consumer awareness of the program including the location of the collection sites, and information regarding product handling. Methods used will be selected based on feedback from market research, focus groups and surveys. The environmental impact of the methods will also be considered. Communication methods will include:

- **Website** – The Program website will include information on what items can be returned and where, using a map based depot finder. Product information on

¹⁴ Kelleher, M. (2007). *Fluorescent Lighting in Ontario –Lifespan Model and Research Report to Waste Diversion Ontario*. Accessed at <http://www.wdo.ca/files/domain4116/Final%20Review%20of%20Fluorescent%20Capacity%20Report%20Sept%2025%2007.pdf>

how to best use fluorescent lamps and what to do if one should break will be posted. Links to other organizations such as utilities and recycling organizations will be provided for users looking for energy efficiency or recycling information. Brand owners and other agencies with an interest in recycling may wish to link to the Program website. The program will also investigate opportunities to promote the program on the lamprecycle.org website, which is printed by some manufacturers on the Program products.

- **Recycling hotline** 1 800 667 4321 or 604 RECYCLE– the Program intends to participate in the RCBC recycling hotline service by which consumers can contact RCBC operators during business hours and obtain information about disposing of the proposed stewardship agency program products as well as any other products.
- **RCBC Recyclepedia** – the program will provide RCBC with updated lists of collection sites for inclusion in their online search system providing consumers with information on where to take back different products.
- **Point of sale** –These could include shelf talkers, counter cards, consumer brochures, program posters. These will be re-evaluated for design and offered routinely to participating retailers.
- **Point of return** – all participating collection depots will be provided with program signage and counter cards to display distribute to consumers.
- **Annual report** – the reports will be posted on the website. The reports will include details for consumers on the environmental and economic benefits from returning the lamps.
- **Earned media and advertising** – the Program will also consider the use of earned media (press releases etc) and paid advertising.
- **Local government partnerships** – the Program will seek partnership opportunities with local governments to inform householders of the availability of the program which may include:
 - advertising in municipal calendars
 - participation in community recycling events and promotions
 - links from local government websites to Program website
 - inclusion of program information with local government householder communications.
- **Utilities** – BC Hydro and Fortis Energy have extensively promoted to their residential customers the energy efficiency use of fluorescent lamps. The Program will investigate opportunities to work with the utilities to reach target consumers and to ensure consistent messaging.

- **Other** – other methods of communications may be identified through the market research study, focus groups and communication plan development

The communication strategy will be modified over time based on the results of the methods employed and ongoing studies.

5.5 Administration

Fees and Budgeting

The program will be managed and funded by members. The members will pay fees to the Program based on the number of units of Program Products sold in British Columbia after July 1, 2010. Quantities sold will be reported each reporting period (to be determined)(see Appendix C for sample form). The fees will be set through the Program budgeting process as program revenue and cost estimates are developed. Producers, distributors and retailers may or may not choose to recover the fees as a separate invoice item or charge. Fees will be subject to Harmonized Sales Tax (HST) which is being introduced to British Columbia on July 1, 2010. It is intended that cash flow advances and pre-program expenses relating to plan development and implementation will be reimbursed from future program revenues at a reasonable rate of interest.

Risk Management and Reserve Fund

As part its risk management system, the Program intends to obtain environmental insurance and to maintain a reserve fund. The reserve fund will serve a number of purposes including the funding of uninsured environmental claims including deductibles and to allow for stability of program funding in case of volume increases, fluctuations in operational costs or reduced revenue due to economic or other factors. The reserve fund will be limited to the amount which is two times annual program revenue.

Producer Compliance

In order to maintain a 'level playing field' for the program members and to ensure compliance with the Regulation, The proposed stewardship agency will actively search for, identify and recruit producers of program products. The list of Program members will be available on the website.

Techniques to identify potential producers will include internet searches, store visits, information obtained through producer compliance reviews conducted by the program, through audits of collected materials and by information received from existing members. Once a potential producer is identified, the following is the compliance process protocol to be followed by the stewardship agency in recruiting producers of such products:

1. Notification by telephone and/or email advising of the regulatory obligation and inviting the brand owner to join the Program within a 30 day period.

2. Two formal letters to the brand owner noting the prior contact, referring to the regulatory obligation and advising the brand owner of the Program’s intention to notify the ministry for enforcement purposes if compliance is not demonstrated within a second 30 day period (which may be accomplished by joining the stewardship agency).
3. The proposed stewardship agency will issue a letter to the Ministry of Environment advising of the circumstances including the name of the brand owner, the product and location of place of sale, with the request to the Ministry of Environment to investigate and if appropriate conduct enforcement proceedings.

Dispute Resolution Procedure

The proposed stewardship agency will contract with all suppliers and service providers to the program by the use of commercial agreements. Any disputes arising from collection or processing contracts would be resolved using normal commercial legal procedures.

6. Strategies and Actions

In this section the strategies and actions for implementing the program and improving program performance are set out. As this is a new program with few precedents, strategies and actions have been listed for the first two years with the expectation that future actions will be determined by the experience and needs identified during the actual operation of the program. The potential strategies and actions for later years are listed for information purposes only.

6.1 Collection

Vision	To continually increase collection of available products through a network of accessible, well-run collection sites
	<u>Actions</u>
year 1	<ul style="list-style-type: none"> • Establish collection network, analyse coverage, determine need for collection events
year 2	<ul style="list-style-type: none"> • Expand the number of permanent collection sites, conduct events as needed
Possible actions for later years	<ul style="list-style-type: none"> • Continue to improve collection system coverage and accessibility • Obtain feedback from local government and address issues • Support the imposition of landfill bans where adequate collection facilities exist • Analyse barriers and develop strategies to improve capture rate • Participate in municipal waste audits to determine leakage from program

6.2 Awareness

Vision	To have all consumers of the products aware of the program, where to find depot location information and how to safely handle the product
	<u>Actions</u>
year 1	<ul style="list-style-type: none"> • Develop a communication strategy based on market research and focus groups • Design the communications elements • Establish the program with launch-specific communication • Implement the communications strategy
Year 2	<ul style="list-style-type: none"> • Conduct consumer awareness study • Modify communication strategy as needed • Work with potential partners • Conduct community based social marketing pilot projects
Possible actions for later years	<ul style="list-style-type: none"> • Conduct consumer awareness studies and focus groups • Use results to modify communication strategy • Roll out successful pilot programs to the broader community and continue testing new ones

6.3 Environmental Aspects

Vision	To decrease the environmental impact of the products through product design, collection and recycling of the product, and program efficiency
	<u>Actions</u>
year 1	<ul style="list-style-type: none"> • Develop metrics and baseline data for impacts of program
year 2	<ul style="list-style-type: none"> • Analyse end markets of materials and look for options to close the loop on them or move them higher in environmental efficiency (ex. closer markets, upcycling)
Possible actions for later years	<ul style="list-style-type: none"> • Look for more efficiencies in the collection, transport and processing operations • Implement an environmental management system • Audit collectors, transporters and processors to ensure standards are being met • Conduct Life Cycle Analysis of the program and identify areas to improve

6.4 Research & Development

Vision	To continually improve the program and conduct research and development to achieve this
	<u>Actions</u>
year 1	<ul style="list-style-type: none"> • Collection container audits to determine composition by product type and brand owner

	<ul style="list-style-type: none"> • Research and evaluate best practices for determining and measuring units available for collection and other methods to determine collection rate (such as surveys, waste audits, etc)
year 2	<ul style="list-style-type: none"> • Conduct research and demonstration projects for new or improved technologies and reusable transportation container systems
Possible actions for later years	<ul style="list-style-type: none"> • Research to identify program areas that need improvement and identify actions to address them • Identify and strengthen existing markets and develop new markets for recycled materials

7. Program Performance & Targets

The proposed stewardship agency will assess the performance of the program with the quantitative measures noted below, which will be presented in the program annual reports (Appendix E)¹⁵ and available to the public on the Program website.

7.1 Capture Rate

Setting meaningful collection targets is a challenge for fluorescent lamps. This will be one of the first fluorescent lamp collection programs in Canada so there is no meaningful historical data on which to base targets. The program will be established and run for 2-3 years to establish some baseline data. The goal is to increase collection rates each year with the intent to set more realistic targets once this baseline data is collected and knowledge of program opportunities and challenges gained. For background, in another jurisdiction intending to have a stewardship program, the current collection rate is 6%.¹⁶

Because of the durable nature of the Program products, each product unit sold should eventually be available for collection. The determination of the number units available for collection in a given year is subject to the availability of historic sales data, consumer use patterns and generally increasing product longevity, as discussed in section 4.2. Therefore the quantity of Program products available for collection will vary from year to year until the market and lifespans stabilize.

Due to the long lifespan of the products, the *capture rate* (quantity collected compared to quantity believed to be available for collection in that year) will be measured as opposed to the *recovery rate* (quantity collected compared to quantity sold in a given year).

¹⁵ Kelleher, M. (2008). *Extended Producer Responsibility (EPR) Program Measurement and Tracking*. Prepared for Canadian Council of Ministers of the Environment.

¹⁶ Stewardship Ontario (2009). *Draft Consolidated Preliminary Municipal Hazardous and Special Waste Program Plan Volumes I & II*. Accessed at <http://www.stewardshipontario.ca/mhsw/index.html>

The data in Table 4.2 will be used initially in determining the amount available for collection, subject to refinement after the Program begins. Annual sales quantities will continue to be recorded and that data will be used to calculate the future capture rates.

Measures by Product Type

- Capture rate (% based on amount of product collected over amount available for collection in that year per Table 4.2)

Capture Rate Targets

Provisional targets are:

Year	2010* (6 months)	2011	2012	2013	2014	2015* (6 months)
Target Capture %	10%	16%	22%	28%	34%	40%
CFL Units	31,865	77,280	107,316	177,226	162,350	128,660
CFL Weights (kg)	3,182	7,721	10,724	17,707	16,219	12,856
Fluorescent Tubes Units	29,263	59,760	80,124	86,464	103,836	128,660
Fluorescent Tubes Weight (kg)	7,688	15,642	20,722	22,489	27,057	21,719

* percents are annual, but units and weights have been calculated for 6 months.

7.2 Consumer Awareness

The plan for creating consumer awareness is discussed in section 5.4. The Program will conduct the market research study that, among other things, will establish a baseline of awareness among consumers. To measure the performance of the communication strategy the Program proposes to conduct a consumer awareness survey regularly to track consumer awareness of the program and product handling.

Measures

- Percentage of population aware of the program

Targets

The Program will establish consumer awareness targets after baseline data is available. Targets for the increase in awareness can be set and then revised as further surveys are completed.

7.3 Accessibility

Measures

- Number of collection sites and collection events
- Population within a certain proximity of the drop-off depot
- Average travel distance to drop-off depot

Targets

Once the initial collection site network is established, the accessibility of collection sites for the BC population will be assessed. Future targets will be considered at that time.

7.4 Other Performance Measures

Other performance measures will be tracked, without setting targets, and new performance measures may be developed as the Program progresses. They will be included in the annual reports (Appendix E).

8. Stakeholder Consultation

The proposed stewardship agency is conducting a stakeholder consultation process in September 2009 as a prerequisite to the finalization and filing of this plan with the BC Ministry of the Environment.

The consultation includes:

- Web based consultation using the Electro-Federation Canada and Product Care websites
- Email communication to stakeholders and through a RCBC member advisory
- Regional consultations offered in 4 regions: Lower Mainland, Vancouver Island, Southern Interior and Northern BC
- A conference call
- Written submissions provided by stakeholders

Consultation and meeting information is available at ProductCare.org/Consultations.

See consultation plan in Appendix F. Results of consultation meetings will be written up and included in the final version of the plan.

Appendix A. The Proposed Stewardship Agency Member List

This is a list of the founding members. Program membership will be open to all obligated Producers.

EiKO Canada Ltd.
GE Consumer & Industrial
Liteline Corporation
OSRAM SYLVANIA LTD.
Panasonic Lighting
Philips Lighting
Standard Products
USHIO America, Inc.

Appendix B. Details on Lifespans & Collections

Information in italics is the Stewardship Ontario discussion of the product lifespan: *Lifespans of CFLs have been increasing over time as the design has improved and more have become Energy Star compliant. For this reason, a slowly increasing lifespan has been assumed, as shown in the table below.*

Table B-1 Assumptions on Fluorescent Lamp Lifespan Distribution

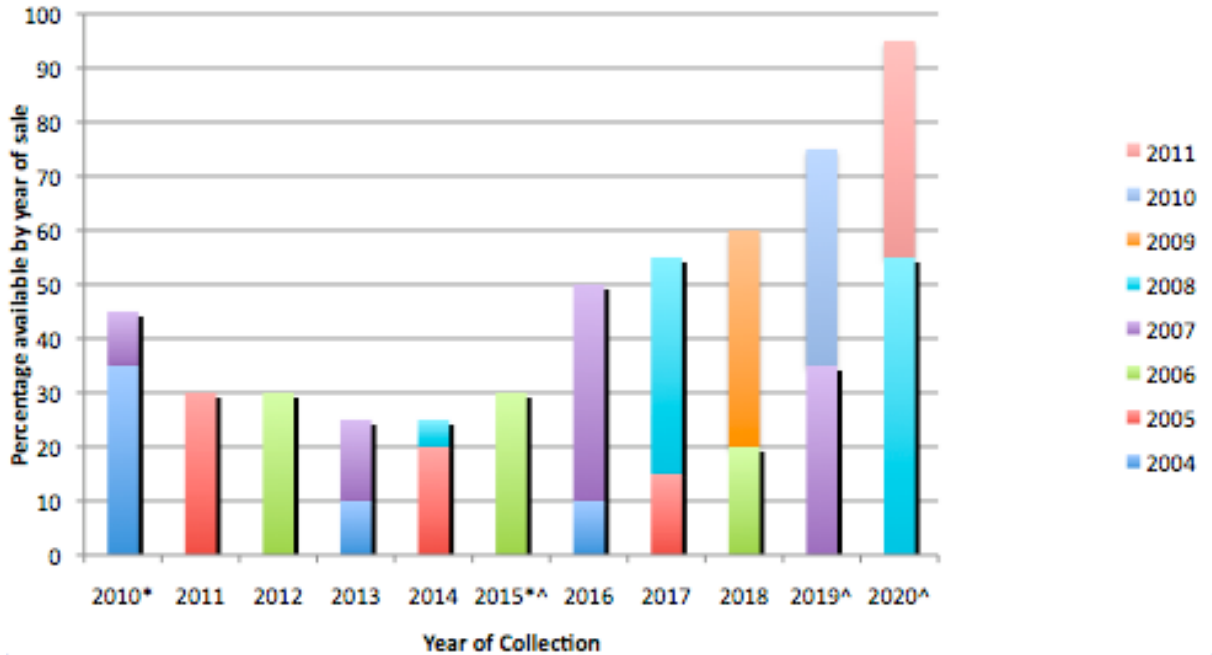
By Year of Product Sale Year Sold	Percentage Lasting 12 years	Percentage Lasting 9 years	Percentage Lasting 6 years	Percentage Lasting 3 years	Average Lifespan (years)
2002	0%	0%	43%	57%	4.3
2003	0%	0%	43%	57%	4.3
2004	10%	10%	35%	45%	5.6
2005	15%	20%	30%	35%	6.5
2006	20%	30%	30%	20%	7.5
2007	35%	40%	15%	10%	9.0
2008	55%	40%	5%	0%	10.5

*The Working Group believes that virtually all CFLs now meet Energy Star requirements. While the average lifespan is assumed to be 4.3 years for a product sold in 2003, based on Ontario Energy Board figures, it has been assumed that by 2006 the great majority of the market met Energy Star standards. The following data was provided by the Stewardship Ontario Working Group on current CFL lifespan: 44% of CFLs last 10,000 hours
30% of CFLs last 8,000 hours
20% last 6,000 hours
It was assumed the final 6% last 4,000 hours.*

Assuming that CFLs are turned on an average of 3 hours per day, the weighted average of the lifespan data outlined above is 7.5 years. Energy Star ratings above refer to the point at which 50% of the CFLs burn out, therefore we increased from a lifespan of 4.3 years for products sold in 2003 to 7.5 years by 2006, when most of the market was reportedly transformed to Energy Star CFLs and increasing to a lifespan of 10.5 years after that point. The distribution of lifespans required to meet the average is presented in Table B-1. The Fluorescent Product Flow Model distributes the lifespans among products sold in a given year by assuming some last longer and some last a shorter length than the average lifespan as shown Table B-1.

While the Fluorescent Working Group felt that the lifespan of fluorescent tubes is an order of magnitude longer than that of CFLs, probably more like 20,000 hours per unit, the same lifespan was used as the tubes were considered to be in a residential-like setting.

Percentages Available for Collection by Year of Sale and Lifespan



The chart above shows the percentage of each year's sales available for collection in each year using the Stewardship Ontario model. Columns marked with an ^ show where the market percentage for some lifespans of lamps has been estimated (holding steady at a 40% 9 year lifespan and a 60% 12 year lifespan split). * indicates that the program plan only covers 6 months in these years so the amounts would be halved.

Appendix D. Vendor Standards

The BC Fluorescent Lamps Stewardship Program will include standards to ensure that program materials are collected, stored, transported and processed in a safe and environmentally sound manner in accordance with local, provincial and national regulations and international standards, as they may apply. Guidelines or manuals will be developed for vendors based on these standards.

Vendor Standards – General

The following elements may be included in the vendor standards:

1. Collection, transportation and processing services will only be provided by selected vendors in good standing.
2. All vendors will be subject to audit at the discretion of the program.
3. Vendors will be required to have a satisfactory tracking and reporting system.
4. Vendors will need to demonstrate and verify organizational compliance with, but not limited to, the following:
 - BC Environmental Management Act (as applicable)
 - BC Hazardous Waste Regulation (as applicable)
 - BC Employment Standards Act
 - BC Occupational Health and Safety Regulation
 - Transportation of Dangerous Goods Act (as applicable)
 - Canadian Environmental Protection Act
 - Labour Code of Canada
 - Municipal zoning by-laws or other by-laws such as fire codes, parking and hours of operation
 - Regulations of other jurisdictions (as applicable)
5. Vendors will be required to provide a statement of compliance as well as provide notification of any non-compliance.

Collection Standard

Collection Sites will have standards for matters such as:

- setting up the site,
- acceptable/not acceptable program products,
- staff training,
- records collection and retention,
- provision of program information for consumers,
- emergency reporting,
- planning and
- health and safety.

Transportation Standard

Transporters will be assessed for:

- conformity to applicable legislation and regulations,
- record keeping system,
- insurance coverage,
- licensing,

- emergency response plan, and
- staff training.

Processing Standard

A processing standard will be developed to cover the following elements:

- Insurance requirements based on processing activity
- Workers' compensation coverage
- Processing in accordance with approved operating procedures
- Security of facilities
- Processing time specifications to prevent stockpiling
- Evidence of an Environment, Health and Safety management system
- Mapping of materials flow to downstream markets and processors which in turn must be subject to audit and meet all program standards which may include product management restrictions
- Residual and product management method declarations as requested e.g. certificate of recycling, landfill or destruction
- Reporting of processing activities including amount and type of waste, quantities of processed material sent for further processing or to downstream end-markets, corresponding destination by waste and product, and the recycling and disposal rates of products and waste
- Processing of waste must be done in an economic and environmentally acceptable manner
- Emergency response plans and a contingency plan
- Maintain emissions controls (if applicable)
- Notify Program manager of any non-compliance events, fines, regulatory orders, or environmental incidents
- Maintain a closure plan

Appendix E. Annual Report Data

This following is a representation of the information may be included in annual reports.

Collection

- Absolute collection (units and weight of product collected)
- Capture rate (% based on amount of product collected over amount available for collection in that year per Table 4.2)
- Absolute collection per capita (could be units and by weight)
- Absolute collection by Regional District

Awareness

- Percentage of population aware of the program
- Participation rate (number of visitors returning program products)
- Website visits
- RCBC Recyclepedia website hits for program specific data
- RCBC Hotline calls about program

Accessibility

- Number of collection sites and collection events
- Population within a certain proximity of the drop-off depot
- Average travel distance to drop-off depot

Other

- Progress against stewardship plan targets and strategies
- Amount of each type of material collected (mercury, glass, aluminum, etc) - weights
- Post-collection destination of material
- Expenses (program specific)
- Cost per unit of collected material
- Total cost per kg diverted

The above measures will be shown with previous years data (where applicable) to show the historical context and demonstrate any trends.

Appendix F. Consultation Plan and Report

Consultation meetings have been scheduled for the week of Sept 14, 2009. The following is the invitation letter which has been issued.

Save the date!

Notice of Public Consultation for BC Fluorescent Lamps Stewardship Plan

Dear Sir or Madam,

You are invited to attend consultation meetings scheduled for the review of the draft BC Fluorescent Lamps Stewardship program plan at the following locations and dates:

1:30 pm-3:30 pm, Monday, September 14th, 2009
Travel Lodge Hotel Richmond
3071 St. Edwards Dr, Richmond, BC

1 pm-3 pm, Tuesday, September 15th, 2009
The Coast Bastion Inn
11 Bastion St., Nanaimo, BC

10 am-12 pm, Wednesday, September 16th, 2009
Days Inn Kelowna
2649 Hwy 97 North, Kelowna, BC

1 pm- 3 pm, Thursday, September 17th, 2009
Ramada Hotel Downtown Prince George
444 George St., Prince George, BC

9 am- 11 am Friday, September 18th, 2009
A **conference call** meeting. Call-in details will be sent to those who RSVP for this date.

Please RSVP by August 31st to let us know which meeting you plan to attend. Please note that if it appears that there is insufficient attendance for any of the meetings, participants will be contacted to make alternative arrangements.

The draft program plan will be available prior to the meetings and will be posted on the www.electrofed.com and www.productcare.org websites.

Notification of posting will be emailed to invitees and to those who RSVP.

You are also invited to submit written comments to the program plan on or before September 30, 2009. Please send comments:

by email to: erin@productcare.org

or by mail to:
Fluorescent Lamp Stewardship
c/o Product Care Association
12337 82A Ave., Surrey, BC V3W 0L5

or by fax to 604 592 2982

For further information and to RSVP, please contact Erin Webster at erin@productcare.org
Telephone: 604 592 2972 x 208
Toll free: 1 888 772 9772 x 208
Fax: 604 592 2982

We look forward to meeting with you to discuss the BC Fluorescent Lamps Stewardship program plan.

Wayne J. Edwards
Vice President, EEMAC
Electro-Federation Canada

Communications about the consultation on this draft plan have been sent out to reach stakeholders who may be interested in fluorescent lamp stewardship in BC. Key groups that have been notified include:

- Local Government including BC Product Stewardship Council and the Union of BC Municipalities
- Senior Governments including BC Ministry of Environment
- Lamp & Energy Industry including EEMAC members and utilities
- Recycling organizations including RCBC, Solid Waste Association of North America and Coast Waste Management Association
- Retailers including the Retail Council of Canada
- Processors & Transporters
- Environmental and public interest groups
- Other stewardship programs in BC (new and developing)

Feedback received from stakeholders will be recorded in the final plan submitted to the BC Ministry of Environment.

Appendix G. Definitions & Abbreviations

Capture Rate -the amount of material collected by an EPR program divided by the amount of product discarded in the same year

Lamps –the term “lamp” in the manufacturing sector refers to the replaceable part that fits in a light socket and provides the light. This may commonly be referred to as a “light bulb”.

Producer - The product producer is principally the first-seller of the product in the province. In practice the producer is typically the product manufacturer, distributor or brand-owner. The producer could also be an importer, broker or retailer who sells the product directly to a consumer. (BC Recycling Regulation Guide)

Recovery Rate -comparing present year collections to present year sales

CCME	Canadian Council of Ministers of the Environment
CFL	Compact Fluorescent Lamps
EEMAC	Electrical Equipment Manufacturers Association of Canada
HID	High-Intensity Discharge –a type of lamp
LED	Light-emitting Diode
RCBC	Recycling Council of British Columbia

Appendix H. BC Recycling Regulation Requirements

Recycling Regulation Requirement section 5	Plan sections
1.(a) the plan will achieve, or is capable of achieving within a reasonable time,	---
(i) a 75% recovery rate or a higher recovery rate established by the director,	---
(A) for each subcategory listed in section 4 of Schedule 1 for the beverage container product category, and	NA
(B) for each product category covered by the plan, other than the beverage container product category, if required by the director,	7
(ii) any performance requirements or targets established by the director, and	7
(iii) any performance requirements or targets in the plan,	7
(b) the producer has undertaken satisfactory consultation with stakeholders prior to submitting the plan for approval and will provide opportunity for stakeholder input in the implementation and operation of the product stewardship program, and	8
(c) the plan adequately provides for	---
(i) the producer collecting and paying the costs of collecting and managing products within the product category covered by the plan, whether the products are currently or previously sold, offered for sale or distributed in British Columbia,	5.5
(ii) with respect to the solvent and flammable liquids, pesticide, gasoline and pharmaceutical product categories,	NA
(iii) reasonable and free consumer access to collection facilities,	5.1
(iv) making consumers aware of	---
(A) the producer's product stewardship program,	5.4
(B) the location of collection facilities, and	5.4
(C) how to manage products in a safe manner,	5.4
(v) assessing the performance of the producer's product stewardship program, the management of costs incurred by the program and the management of environmental impacts of the program,	6, 7
(vi) a dispute resolution procedure for disputes that arise between a producer and person providing services related to the collection and management of the product during implementation of the plan or operation of the product stewardship program,	5.5
(vii) eliminating or reducing the environmental impacts of a product throughout the product's life cycle, and	5.3
(viii) the management of the product in adherence to the order of preference in the pollution prevention hierarchy.	5.3
(2) In deciding whether to approve the plan, the director may consider any of the following:	---
(a) the advice of a committee of up to 12 persons the director appoints for the purpose of giving advice on the plan;	NA
(b) the timelines and effectiveness of the plan respecting the matters referred to in subsection (1);	2
(c) the population and geographical area of the markets in which the producer sells, offers for sale or distributes the product;	4.1
(d) the manner in which the product is marketed and retailed by the producer;	4.1
(e) the nature of the product;	3

(f) the amount of product the producer expects to sell or distribute each year;	4.1
(g) the amount of product the producer expects to collect each year;	4.2
(h) the size of the population intended to be served by each collection facility;	5.1
(i) the provision of convenient options for the collection of products in urban centres and small, isolated communities, and for persons with disabilities or who have no access to transportation;	5.1
(j) the manner, kind and amount of advertising and consumer education planned by the producer to inform consumers of the location and operation of collection facilities and the environmental and economic benefits of participating in the product stewardship program;	5.4
(k) the methods of product collection, storage, transportation and management;	5.1, 5.2
(l) the product stewardship programs of other producers for products in the same product category;	NA
(m) the structure of financial and operational co-operation with other producers.	NA
(3) For the purposes of subsection (1) (c) (viii), the pollution prevention hierarchy is as follows in descending order of preference, such that pollution prevention is not undertaken at one level unless or until all feasible opportunities for pollution prevention at a higher level have been taken:	---
(a) reduce the environmental impact of producing the product by eliminating toxic components and increasing energy and resource efficiency;	5.3
(b) redesign the product to improve reusability or recyclability;	5.3
(c) eliminate or reduce the generation of unused portions of a product that is consumable;	5.3
(d) reuse the product;	5.3
(e) recycle the product;	5.3
(f) recover material or energy from the product;	5.3
(g) otherwise dispose of the waste from the product in compliance with the Act.	5.3