

Major Appliance Recycling Roundtable Annual Report to the Director

2012 Calendar Year

(July 1 – December 31, 2012)

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1. Executive Summary

Products within plan	<p>The MARR plan includes major household appliances powered either by 120 volt or 240 volt input power that have been designed for use in residential homes, including those that use natural gas or propane for heating purposes. Appliances used in or sold for industrial, commercial and/or institutional (IC&I) applications that have the same essential design characteristics as major household appliances, as defined above, are also included.</p> <p>Major product types include:</p> <ul style="list-style-type: none">• Refrigerators, wine coolers and beverage centers• Freezers• Portable, room and window air conditioners• Portable Dehumidifiers• Clothes washers and dryers• Ranges, built-in ovens and surface cooking units• Built-in and over the range microwave ovens• Dishwashers• Food waste disposers and trash compactors• Electric water dispensers <p>For a detailed list of included products and relevant definitions, please refer to the MARR website at www.marrbc.ca</p>
Program website	www.marrbc.ca

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Recycling Regulation Reference	Topic	Summary Report
Part 2, section 8(2)(a)	Public Education Materials and Strategies	<ul style="list-style-type: none"> • Formation of MARR Communications Committee • MARR website launched in 2012 • MARR participated in SABC Task Group communications discussions • Key deliverables will be completed in subsequent years, including point of sale materials, participation in the Recycling Council of BC Hotline and Recyclepedia, promotional strategies and educational materials for processors/dismantlers
Part 2, section 8(2)(b)	Collection System and Facilities	<ul style="list-style-type: none"> • Existing comprehensive collection network available in market-driven system • Formation of MARR Technical Committee • MARR Technical Committee drafted study Terms of Reference in 2012 • System study to be completed to determine the collection and diversion performance of the system, including an assessment of appliances collected by collection channel • Results of study to be reported once available
Part 2, section 8(2)(c)	Product Environmental Impact Reduction, Reusability and Recyclability	<ul style="list-style-type: none"> • Processing standard to be implemented to ensure proper decommissioning and safe handling of substances of concern • Certification and audit system to be implemented to monitor adherence to the standard • MARR Technical Committee drafted standard and began stakeholder engagement in 2012 • MARR to report annually on number of collectors that have signed, number of processors that have agreed to be certified, number and results of audits etc. once available

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Recycling Regulation Reference	Topic	Summary Report
Part 2, section 8(2)(d)	Pollution Prevention Hierarchy and Product / Component Management	<ul style="list-style-type: none"> • System study to be completed to provide detailed information on how appliances collected under the market-driven system are handled, including: <ul style="list-style-type: none"> ○ Decommissioning practices; ○ Practices to extract and dispose of mercury switches and refrigerants; and ○ Breakdown of material types and typical end markets. • Results of study to be reported once available
Part 2, section 8(2)(e) Part 2, section 8(2)(e.1)	Product Sold and Collected and Recovery Rate	<ul style="list-style-type: none"> • Formation of MARR Finance Committee • MARR Finance Committee drafted budget and fee schedule in 2012 • Producers to register for MARR and begin reporting sales in 2013 • System study to be completed to estimate quantity of products collected and collection rate • Results of study to be reported once available • Collection rate currently estimated at over 90%
Part 2, section 8(2)(f)	Summary of Deposits, Refunds, Revenues and Expenses	n/a for 2012

Comparison of Key Performance Targets*			
Part 2 section 8(2)(g); See full list of targets in Plan Performance			
Performance Measure	Target	2012 Results	Remediation Strategies
Collection rate	75% interim target for first two years. Target to be established for years 3-5	To be reported once first system study completed	n/a

**Refer to Section 5 for additional information that MARR will be providing on an annual basis, once available.*

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2. Program Outline

The Major Appliance Recycling Roundtable (MARR) is a not-for-profit stewardship agency created to implement and operate a stewardship plan for end-of-life major household appliances in the province of British Columbia (BC) on behalf of the major appliance “producers” who are obligated under the BC Recycling Regulation. The MARR stewardship plan was developed jointly by the Association of Home Appliance Manufacturers Canada (AHAM Canada) and Retail Council of Canada (RCC) and received the approval of BC's Ministry of Environment on June 29, 2012.

The MARR stewardship plan is fundamentally unique compared to many other British Columbia product stewardship programs. The financial value of end-of-life major appliances has given rise to a highly effective market-driven collection and recycling system for EoL major appliances. As such, the MARR plan is focused on enhancing the performance and transparency of the existing market-based system of collecting and recycling major household appliances in BC, rather than supplanting or replacing this system with a traditional stewardship model.

In particular, the MARR stewardship plan includes commitments to:

- Implement a recycling and processing standard as well as a processor certification and audit program to address the proper decommissioning of substances of concern in end-of-life major appliances;
- Work with collectors and recyclers to research and promote best practices to ensure on-going system performance and improvement;
- Create a branding and communications program to encourage market participation in the MARR processing standard; and
- Conduct operational system studies on the operation and performance of the market-driven recycling system.

Given the fact that the MARR plan was only formally approved by the BC Ministry of Environment on June 29, 2012, the remainder of the 2012 calendar year (July to December) was spent by MARR building the foundation for MARR's initiatives in BC, as outlined below.

MARR was incorporated as a federal non-profit corporation on July 24, 2012, a process that included the finalization of MARR's Bylaws. MARR is governed by a Board of Directors of major appliance manufacturers and retailers, which includes representatives from Whirlpool Canada, Mabe Canada, Samsung Electronics Canada, the Association of Home Appliance Manufacturers (Canada), The Home Depot Canada, Sears Canada and the Retail Council of Canada.

Four Board committees were formed and active over the 2012 calendar year, including the Finance Committee, the Communications Committee, the Governance Committee and the Technical Committee. The Governance Committee developed additional documents related to incorporation, the Request for Proposal described below and drafted an Agency Appointment Agreement. Please refer to the sections below for information on the additional work completed by these committees over the 2012 calendar year.

In 2012, MARR distributed a Request for Proposals (RFP) for program management services and evaluated the submissions received. Product Care Association (PCA) was subsequently contracted and is currently providing program management services to MARR to assist in implementing the MARR stewardship plan in BC.

3. Public Education Materials and Strategies

In 2012, the MARR Communications Committee began developing appropriate communications materials and strategies. For example, a program website was launched that provided an overview of the MARR stewardship plan and approach to stakeholders. MARR representatives also participated in meetings of the Stewardship Agencies of BC (SABC), which included discussions on joint communications efforts.

Key deliverables that will be completed in subsequent years, pursuant to the commitments in the MARR stewardship plan, include a more detailed program website, point of sale materials, participation in the Recycling Council of BC Hotline and Recyclepedia, promotional strategies and educational materials for processors/dismantlers.

4. Collection System and Facilities

A comprehensive network is currently available to individuals with end-of-life major appliances to recycle in BC, which is described in detail in the MARR stewardship plan.

A key deliverable outlined in the MARR stewardship plan is the completion of studies on the operations, performance and effectiveness of the market-driven collection and recycling system for major appliances in BC. The results of the first of these studies will provide detailed information on the collection methods and channels utilized to collect major appliances in BC.

In 2012, the MARR Technical Committee drafted the initial Terms of Reference for this study. MARR is now working to complete the study and the final report will be submitted to the MoE once available. Detailed information on the collection network will be included in annual reports once the first system study has been completed.

5. Product Environmental Impact Reduction, Reusability and Recyclability

Processing Standard and Certification Program:

As outlined in the MARR stewardship plan, MARR will be implementing the Major Appliance Processing Standard to ensure the proper decommissioning of end-of-life appliances and the safe handling of substances of concern, including mercury switches and refrigerants. It is intended that the collectors of major appliances (retailers, municipalities etc.) will either agree to decommission the appliances they collect in accordance with the standard, or require their processors to whom they sell or provide their appliances to be certified against the standard. MARR will also be implementing a certification and audit program to ensure that applicable processors are processing appliances in accordance with the standard.

In 2012, the MARR Technical Committee developed a draft of the processing standard and began consulting with system stakeholders on the draft. MARR is now working to finalize the standard, in collaboration with system stakeholders. Once the processing standard has been finalized and implemented, MARR will report annually on:

- The number of collectors that have signed the standard;
- The number of processors that have agreed to be certified against the standard;

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- The number and results of the processor audits completed;
- Data on the collection of mercury switches removed pursuant to the standard; and
- Data on the collection of refrigerants pursuant to the standard.

Design for the Environment:

The environmental impact of major appliances can be reduced in three principal ways:

- Reducing toxic components;
- Reducing the materials used in manufacture and use of the products; and
- Increased energy efficiency, which is by far the most significant environmental impact of these products when considering their long life cycles.

All of these areas of environmental impact reduction have and will continue to receive significant attention from major appliance manufacturers.

Most importantly, in the area of energy efficiency significant gains have been made over the past 20 years. The average energy consumption of the typical set of major household appliances has declined by 50.2% since 1990. These gains are the result of a combination of factors including lower minimum energy efficiency standards, major research and development investments by manufacturers, and through promotion, resulting in increased market penetration of Energy Star rated and utility rebate and promoted appliances.

In terms of the reduction in toxic components manufacturers have eliminated the use of mercury switches and PCB containing capacitors. Significant changes have and will continue to be made in the types of refrigerants used in refrigerators and freezers as manufacturers seek out refrigerants with lower GHG having already eliminated ozone depleting potential (ODP) refrigerants from their products. Likewise, in terms of refrigerator insulation foam, the development of foam blowing agents which have significantly lower GHG potential and no ODP are being researched and used. Major appliance manufacturers have also been working to discontinue the use of brominated flame retardants in plastics.

In terms of material reduction, manufacturers have been working to reduce the amount of material used in the manufacture of many major appliances and in the packaging used to transport them. These efforts must, however, be balanced against ensuring consumer safety and the overall protection and lifespan of the product.

On the issue of water consumption, manufacturers have been able to reduce water consumption through design changes to dishwashers and innovations such as front-load and high efficiency top-load washers. For example water consumption in dishwashers has been reduced by 37.3% (litres/cycle) between 1990 and 2009. Water usage in washers has also been reduced by 43.4% between 2005 and 2010. These reductions in water consumption also significantly reduce energy demand as there is less water to heat to perform the same cleaning task.

In addition to the above activities the Association of Home Appliance Manufacturers (AHAM) is currently engaged in the development of a North American Sustainability Standard for major appliances. The sustainability standards for refrigeration products and clothes washers are complete. These standards use a broad multi-attribute approach utilizing life cycle assessment and hot button analysis and other

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key factors that influence product environmental performance. These sustainability standards are published jointly by CSA, UL, and AHAM.

6. Pollution Prevention Hierarchy and Product / Component Management

As outlined above, MARR will be completing studies on the operations, performance and effectiveness of the market-driven collection and recycling system for major appliances in BC. The first of these studies will provide detailed information on how appliances collected under the market-driven system are handled, including:

- Decommissioning practices;
- Practices to extract and dispose of mercury switches and refrigerants; and
- Breakdown of material types and typical end markets.

This information will be provided in annual reports once the first system study has been completed.

7. Product Sold and Collected and Recovery Rate

Products Sold:

Registered participants of MARR (i.e. producers that have appointed MARR as their “agent” under the Regulation) will begin reporting their sales and remitting Administrative Program Fees (APFs) to MARR in 2013. As such, subsequent annual reports will include detailed information on the quantity of major appliances sold by registered MARR participants in BC.

In 2012, the MARR Finance Committee drafted a preliminary budget and fee schedule and the MARR Governance Committee drafted a preliminary Agency Appointment Agreement to further these objectives.

Products Collected:

As outlined in the MARR stewardship plan, the results of the system studies described above will be used to estimate the volume of end-of-life major appliances collected under the market-driven system. This information will be provided in annual reports once the first system study has been completed.

Collection Rate:

The system studies described above will also be used to estimate the collection rate of the BC market-driven collection and recycling system. MARR will use a “capture rate” calculation, which will compare the estimated weight of products “available to collect” with the estimated weight of products collected. The collection rate, as determined by the system studies, will be provided in annual reports once the first system study has been completed.

Based on research that has been completed in other jurisdictions, it is estimated that the market-driven collection and recycling system for end-of-life appliances is already achieving a collection rate of over 90% in BC.

8. Summary of Deposits, Refunds, Revenues and Expenditures

MARR did not levy fees to producers in the calendar year 2012. As registered MARR participants will begin reporting and remitting Administrative Program Fees (APFs) to MARR in the calendar year 2013, the 2013 annual report will include an independently audited financial statement.

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9. Plan Performance

Performance Measure*	Target	2012 Results	Remediation Strategies
Collection rate	75% interim target for first two years. Target to be established for years 3-5.	To be reported once first system study completed	n/a

**Refer to Section 5 for additional information that MARR will be providing on an annual basis, once available.*

Appendices / Additional Information

The information required to complete the Third Party Assurance process for the 2012 calendar is not available, given the unique nature of the MARR stewardship plan and the timeline of MARR's incorporation and development. MARR will complete this process for the 2013 calendar year, where possible and applicable