

# **Major Appliance Recycling Roundtable 2015 Annual Report to the Director**

**Submitted to:** Director, Extended Producer Responsibility Programs  
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## 1. Executive Summary

<b>Products within plan</b>	<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&amp;I) applications that have the same essential design characteristics as major household appliances, as defined above, are also included.</p> <p><b>Major product types include:</b></p> <ul style="list-style-type: none"> <li>• Refrigerators, wine coolers and beverage centers</li> <li>• Freezers</li> <li>• Portable, room and window air conditioners</li> <li>• Portable Dehumidifiers</li> <li>• Clothes washers and dryers</li> <li>• Ranges, built-in ovens and surface cooking units</li> <li>• Built-in and over the range microwave ovens</li> <li>• Dishwashers</li> <li>• Food waste disposers and trash compactors</li> <li>• Electric water dispensers</li> </ul> <p>For a detailed list of included products and relevant definitions, please refer to the MARR website at <a href="http://www.marrbc.ca">www.marrbc.ca</a></p>
<b>Program website</b>	<a href="http://www.marrbc.ca">www.marrbc.ca</a>

Recycling Regulation Reference	Topic	Summary Report
Part 2, section 8(2)(a)	<a href="#">Public Education</a> <a href="#">Materials and Strategies</a>	<ul style="list-style-type: none"> <li>• Meeting of MARR-Local Government Advisory Committee</li> <li>• One newsletter emailed to participants</li> <li>• Completed collection site locator on <a href="http://Marrbc.ca">Marrbc.ca</a></li> <li>• Participated in the Recycling Council of BC Hotline and Recyclepedia</li> <li>• Rack cards available to retailers and collection sites</li> </ul>

Recycling Regulation Reference	Topic	Summary Report
Part 2, section 8(2)(b)	<a href="#">Collection System and Facilities</a>	<ul style="list-style-type: none"> <li>Existing comprehensive collection network available through market-driven system.</li> <li>Completed System Study Update for 2015 in early 2016.</li> <li>244 drop-off collection sites were found to accept all types of major appliances, above and beyond pick-up services offered by retailers, some municipalities and utility bounty programs.</li> <li>Based on the System Study, accessibility for BC residents to a drop off location for major appliances was estimated at 98.5% for all locations, and 93.6% for free drop-off locations.</li> </ul>
Part 2, section 8(2)(c)	<a href="#">Product Environmental Impact Reduction, Reusability and Recyclability</a>	<ul style="list-style-type: none"> <li>Support development of the Voluntary Processing Standard to support proper decommissioning and safe handling of substances of concern.</li> </ul>
Part 2, section 8(2)(d)	<a href="#">Pollution Prevention Hierarchy and Product / Component Management</a>	<ul style="list-style-type: none"> <li>Based on the original System Study, 74% of the total weight of end-of-life major appliances are ultimately recycled.</li> </ul>
Part 2, section 8(2)(e)	<a href="#">Product Sold and Collected and Recovery Rate</a>	<ul style="list-style-type: none"> <li>105 producers were registered with the MARR Program and reported sales as of 31 December 2015.</li> </ul>
Part 2, section 8(2)(e.1)		<ul style="list-style-type: none"> <li>The System Study Update estimated the quantity of products collected to be 38,269 tonnes, with an estimated capture rate of 98.7 per cent.</li> </ul>
Part 2, section 8(2)(f)	<a href="#">Summary of Deposits, Refunds, Revenues and Expenses</a>	<ul style="list-style-type: none"> <li>Please see Appendix D for independently audited financial statements.</li> </ul>

Comparison of Key Performance Targets*			
Part 2 section 8(2)(g); See full list of targets in <a href="#">Plan Performance</a>			
Performance Measure	Target	2015 Results	Remediation Strategies
Capture rate	90% target established for years 3-5.	Target exceeded: 98.7%	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 (EoL) 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](#) (“Regulation”). The [BC Major Appliance Stewardship Plan](#) (“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 Stewardship 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:

- 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.

Product Care Association (PCA) was contracted in early 2013 by MARR to provide program management services and to assist in implementing the MARR Stewardship Plan in BC. Some of the highlights of 2015 for MARR included:

- Updating the *Study on the Operations and Effectiveness of the Major Appliance Collection and Recycling System in British Columbia* (“System Study”), initially completed in 2013, to validate the performance of the BC market driven system for major appliances;
- Continuing active recruitment of obligated parties as program participants;
- Participating in a First Nations summer program lead by the Automobile Recycler’s Environmental Association (AREA) to undertake end-of-life product inventory counts in First Nations communities along Highway 16 and create a recycling guide for BC First Nations communities;
- Initiating a study on the economics of the market system for major appliances in BC, including specifics on rural and remote areas (“Economic Study”); and
- Support development of a voluntary processing standard.

The MARR-Local Government Advisory Council (MARR-LGAC) was created in 2013 to provide a forum for local governments to deliver their unique perspective and advice to MARR, and for MARR to better understand municipal and regional needs, capabilities and capacities. MARR-LGAC met in 2015 to discuss a number of topics, including the Economic Study and the Processing Standard.

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### 3. Public Education Materials and Strategies

MARR continued to engage in a number of initiatives to raise consumer awareness about the Program.

In 2015, informational point of sale rack cards for existing retailers and wholesalers were replenished upon request free of charge. See **Appendix A** for an example.

MARR remained a member of the Recycling Council of BC (RCBC) and continued its participation in a joint service agreement with other stewardship programs through Stewardship Association of BC (SABC) to provide the public with information about MARR through RCBC's Hotline and Recyclepedia. RCBC is a trusted public information resource used by consumers to learn about the recycling options available in their community. In 2015, RCBC Hotline and Recyclepedia received more than 135,000 inquiries about recycling from residents across B.C., including over 20,000 web searches and phone calls for MARR Program materials. PCA staff also responded to numerous consumer phone calls and email inquiries on behalf of MARR. All consumer concerns and questions were dealt within a timely manner.

An estimated 11,964 unique visitors utilized MARR's website during the 2015 calendar year.

In 2015, MARR participated in a program lead by the Automobile Recycler's Environmental Association (AREA) to, in part, develop a recycling guide for First Nations communities. The AREA First Nations Program also included a high level inventory assessment of end-of-life major appliances in First Nations communities along Highway 16, which was completed in the summer of 2015. It is anticipated that the recycling guide will be released in 2016 and will contain a section on how community members should manage major appliances at end-of-life.

#### **Processing Standard and Certification Program:**

As outlined in the MARR stewardship plan, MARR continued to explore avenues in 2015 for implementing a 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. At the onset, the intention was to have the collectors of major appliances to (retailers, municipalities etc.) 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. Part of this framework includes a certification and audit program to ensure that applicable processors are processing appliances in accordance with the Standard. MARR initially approached collectors to obtain agreement with such a standard, but received little response. As a result, MARR introduced a Voluntary Processing Standard in 2015 and will meet with industry players in 2016 to encourage them to sign on to the Standard and to determine the willingness of collectors and processors to allow audits of their facilities.

#### 4. Collection System and Facilities

As described in the MARR Program Plan, there is an existing recycling system for major appliances that has been in place in British Columbia for decades, driven by the positive financial value of these products at end-of-life. This system is comprised of a variety of collectors, including retailers, local governments, utilities and private companies, which accept major appliances and then channel those products to scrap metal consolidators and processors. As part of the much larger commodities market, these scrap metal companies process the products to recover metal components, which are sold to end markets such as steel mills for recycling.

In 2013, waste consultant, Ecoinspire Planning Services, undertook a study of the BC market driven system for major appliance recycling on MARR’s behalf. *The Study on the Operations and Effectiveness of the Major Appliance Collection and Recycling System in British Columbia, May 8, 2014* report (“System Study”) examined the operation and performance of the existing collection and recycling system, including identifying collection site locations. In early 2016, MARR, with the support of waste consultant Tetra Tech, undertook an update of the System Study to reflect operation and performance measures for 2015 (System Study Update). Collection information reported comes from the System Study Update.

##### Drop-Off Collection Sites

In addition to the numerous pick-up services for major appliances offered by retailers and some municipalities, as well as utility bounty programs, 318 locations were identified across BC that accepted some or all household major appliances for drop off. 244 of these locations accepted all major appliance products under the MARR program, a net reduction of 1 (0.4%) from 2014. This included the closure of one location, two locations stopping the collection of major appliances and two locations starting to collect major appliances in 2015 (see Appendix B, Tables 2 and 3).

Table 1 provides an estimate of the breakdown of the different types of locations that accepted major appliances across the Province.<sup>1</sup> Appendix B lists all collection sites active in the winter of 2015 that accepted all major appliances.<sup>2</sup> Appendix C lists the number of collection sites that accepted all major appliances by Regional District.

**Table 1: Estimate of Sites that Accepted All MARR Products (2015)**

Type of Collection Site	Number of Sites in 2015
Metal Recycling Facility (Private)	63
Local Government Facility	181
<b>Total</b>	<b>244</b>

##### Pick-up Services

Many retailers offer a delivery/take-back option when a consumer buys a new appliance. According to survey results of 8 major appliance retailers conducted as a part of the System Study Update, 88 per

<sup>1</sup> The list of collectors provided is based on reports of which sites were accepting major appliances and represents the best available information as of March 2016. This list is not exhaustive, nor guaranteed to be current, due to ongoing changes in business operations. The list only includes local government and private/non-profit collector drop off sites, and does not include the numerous collection options that may be offered through retailers, utility bounty programs or other possible pick up options.

<sup>2</sup> *Ibid.*

cent of respondents offered a take-back service to their customers for end-of-life appliances in 2015 and 81 per cent of products sold were delivered. 41 per cent of delivered major appliances included the pick-up of an old appliance. After pick-up, the appliances were generally delivered to a drop-off site, although some retailers reported that appliances might have also gone to a refurbisher.

### **Bounty Programs**

There are two electric utilities in BC, one servicing the majority of the Province (BC Hydro) and a smaller one (Fortis BC) servicing an area in the Okanagan. The objective of bounty programs is to save energy by reducing the number of secondary refrigerators in households, and to prevent the reuse of less energy-efficient models. Fortis discontinued its bounty program and BC Hydro reduced its Fridge Buy-Back program offering to 3 months in 2015. BC Hydro residential customers received a \$30 rebate if they retired an old full-size refrigerator with a limit of two refrigerators per property per account. In 2015, 6,000 units were collected and delivered to seven contracted dismantling facilities for removal of refrigerant and recycling.

### **Accessibility**

According to a Geographic Information System (GIS) analysis completed as a part of the System Study, 98.5% of British Columbians had convenient access to a drop-off location for major appliance products. Accessibility to free drop-off locations for BC residents was estimated at 93.6%.<sup>3</sup>

## **5. Product Environmental Impact Reduction, Reusability and Recyclability**

### **Design for the Environment**

Major appliance manufacturers continue to focus significant attention on incorporating Design for the Environment (DfE) principles into the manufacturing of home appliances, specifically:

- Reducing the amount of materials used in the manufacture of the products,
- Introducing new refrigerant technology, and
- Increasing energy efficiency

Manufacturers have eliminated the use of mercury switches and PCB containing capacitors, and continue to explore ways to reduce the amount and weight of material used in the manufacturing of appliances, as well as its packaging. These efforts must always be balanced against ensuring consumer safety and the overall protection and lifespan of the product.

Significant changes have and will continue to be made in the types of refrigerants and insulation used in refrigerators and freezers as manufacturers seek out refrigerants and insulation with lower GHG impacts. Manufacturers of home appliance refrigeration products have announced a goal to voluntarily phase out the use of hydrofluorocarbon (HFC) refrigerants used in household refrigerators and freezers after 2024. This effort builds on a history of environmental stewardship that includes significant gains in energy efficiency and the phasing out of ozone-depleting substances without losing efficiency gains.<sup>4</sup>

Likewise, industry is moving towards the use of foam blowing agents for the insulation of refrigerators due to the lower GHG potential. In 2015, home appliance manufacturers, working closely with the U.S. Environmental Protection Agency (EPA), set a path to phase out the use of HFC foam blowing agents in

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<sup>3</sup> The Stewardship Association of British Columbia defines accessibility as a 30-minute drive or less for those within urban areas, and a 45-minute drive or less for those in rural areas of the province.

<sup>4</sup> [Home Appliance Industry Sets Goal to Eliminate use of HFC Refrigerants](#) (February 9, 2016), available at [www.aham.org](http://www.aham.org).



refrigeration products by 2021. Environment and Climate Change Canada has recently indicated that it intends to include these measures in Canadian regulation as well.

In November 2015, all 197 parties to the Montreal Protocol agreed to work together to develop an HFC amendment in 2016. The agreement would seek to add HFCs to the Protocol and subject this class of substances to a worldwide use phase down. Every year since 2009, Canada, Mexico and the United States of America (U.S.) have put forward the North American Proposal to amend the Montreal Protocol to include controls on HFCs. The North American proposal would establish targets to reduce HFC consumption and production in both developing countries and developed countries.

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. 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.

Significant gains in energy efficiency 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. In May 2016, Natural Resources Canada published an amendment to the Energy Efficiency Regulations which will establish more stringent energy efficiency standards for all major appliances and will finally align Canada's energy efficiency regulations with the U.S. Department of Energy's more stringent standards. As a result of these Canadian regulatory changes, annual energy consumption is estimated to be reduced by 4.1 petajoules (PJ) per year by 2020 and further reduced by 10.2 PJ per year by 2030. It is also estimated these amendments will reduce GHG emissions by 0.8 Mt by 2030. The ENERGY STAR program continues to be an important influence on appliance efficiency with new product specifications for clothes dryers and washers in 2015, and dishwashers in 2016.

In addition to the above DfE activities, the Association of Home Appliance Manufacturers (AHAM) is currently engaged in the development of Sustainability Standards for household appliances. In conjunction with CSA and UL, sustainability standards for household refrigeration, cooking, and clothes washers have already been published, with other appliance standards currently under development. In January 2015, AHAM 7001-2014/CSA SPE-7001-14/UL 7001, *Sustainability Standard for Household Refrigeration Appliances*, and in February 2016, AHAM 7003/CSA R7003-16/UL 7003, *Sustainability Standard for Household Clothes Washers* received national accreditation under the American National Standard Institute (ANSI) and Standards Council of Canada (SCC) as approved National Standards for the U.S. and Canada. The Standard is based on a lifecycle approach for identifying the environmental impacts of refrigeration products in five key areas: energy, materials, end-of-life, performance, and manufacturing. These and other standards use a broad multi-attribute approach utilizing life cycle assessment and hot button analysis and other key factors that influence product environmental performance. These sustainability standards are published jointly by Canadian Standards Association (CSA), Underwriters Laboratories (UL), and AHAM.

## **6. Pollution Prevention Hierarchy and Product / Component Management**

The following information is based on the understanding of the free market system, as well as findings from the System Study completed by MARR in 2014 reflecting the 2013 fiscal year. The System Study

involved surveying industry participants with regard to collection volumes and product management practices. No further due diligence was performed on the information in terms of site visits or other investigations and therefore there is some degree of uncertainty surrounding the end fate of the products.

MARR strives to promote the principles of the pollution prevention hierarchy as much as possible, including design considerations and environmental impact initiatives outlined above in Section 5. According to research conducted for the System Study, 99.9 per cent of major appliances have a lifespan of between 10 and 20 years.<sup>5</sup> This long life often results a product having many different owners over its lifetime, usually facilitated by a used appliance retailer or refurbisher. Refurbishers are organizations involved in appliance reuse or the reuse of parts. They generally receive used major appliances from commercial generators or through retailers. The main goal of the refurbisher is to resell the unit into the second hand market, or at least use some of the parts for appliance repair.

Once an appliance is retired, or reaches end-of-life, it enters the collection system described above in Section 4. Major appliances are primarily manufactured with metal (both ferrous and non-ferrous) and plastics as well as small amounts of other materials like glass, rubber, foam, paper, electronics, refrigerants, oils, mercury and other substances where applicable.

Currently there are two mechanical processing facilities in BC that utilize shredders to break up scrap metal, including major appliances. The shredded material is then sorted; ferrous and non-ferrous metals are separated from other materials such as plastic and foam.

The material composition of major appliances is reportedly approximately 75 per cent metal. Processors report that 98 per cent of ferrous and non-ferrous metal that enters the shredder is recovered and recycled back into the commodities market.<sup>6</sup> On that basis, it is estimated that 74 per cent of materials recycled are ferrous and non-ferrous metal. The remaining 26 per cent, including plastic, glass, rubber and foam, does not undergo further processing, and is currently sent to landfill as part of the shredder residue to serve as landfill cover.<sup>7</sup> MARR continues to examine the management of shredder residue and identify opportunities for achieving higher end uses of residual materials. In 2015, MARR met with other stewardship organizations to discuss this issue and will continue to consider options for achieving higher end uses of residual materials.

Prior to shredding, products undergo decommissioning to remove refrigerant and to look for any other substances of concern. In general, the System Study identified that refrigerant was extracted responsibly, but that some gaps remained. The vast majority of retailers transferred major appliances with refrigerant to secondary collectors and most processors had onsite staff to perform refrigerant removal. At local government sites that accept appliances with refrigerants, most contracted out the removal of refrigerants as part of the scrap metal removal contract. Refrigerant removal generally occurred at the first location to receive the appliance. The refrigerant was removed by a Technician and subsequently sent for recycling or destruction. In 2015, MARR continued conversations with local

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<sup>5</sup> Based on findings from a 2005 report produced by R.W. Beck and Weston for the Association of Home Appliance Manufacturers titled “Recycling, Waste Stream Management and Material Composition of Major Home Appliances” referenced in MARR’s “Study on the Operations and Effectiveness of the Major Appliance Collection and Recycling System in British Columbia”. The study also included weighted average composition for new and old appliances.

<sup>6</sup> Based on survey responses from the two processors in BC currently operating shredders.

<sup>7</sup> *Ibid*

governments and other industry stakeholders to explore ways to increase the availability and accessibility to qualified technicians for the safe removal of refrigerants, with particular focus on rural and remote communities.

Very few appliances reaching end of life contain mercury switches or PCBs though some contain heavy metals (e.g., circuit boards), mercury (i.e., fluorescent lights), compressor oil and polyurethane foam (i.e., insulation).

Table 2 illustrates the downstream management process for each material stream (based on results from the System Study).

**Table 2: Downstream Management Process of Materials Streams**

Material Commodity	Recycled	Landfilled	Safely Destroyed
Ferrous Metal	X		
Non Ferrous Metal	X		
Plastic		X	
Refrigerant	X		X
Other		X	

As major appliance recycling utilizes the existing market-driven system, MARR does not contract directly with collectors or processors, and is therefore not able to obtain information on percentages of materials processed. Volumes and percentages reported are based on estimates derived from survey responses obtained from collectors and processors as part of MARR’s System Study.

## 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) are required to report their sales and remit Administrative Program Fees (APFs) to MARR on a quarterly basis. Table 3 displays the number of major appliance units sold in BC by product category between January 1 and December 31, 2015, as reported by MARR participants.

**Table 3: Total Sales of Major Appliances in BC (2015)**

Product Category	Total Sales in Units
1. Full-Size Refrigerators & Wine Coolers/Beverage Centres	146,144
2. Compact Refrigerators & Wine Coolers/Beverage Centres	59,398
3. Freezers	43,181
4. Room Air Conditioners	38,229
5. Portable Air Conditioners	58,396

Product Category	Total Sales in Units
6. Dehumidifiers	13,726
7. Clothes Washer	114,518
8. Clothes Dryers	84,513
9. Ranges	103,366
10. Range Hoods & Downdrafts	69,205
11. Built-In Ovens	20,781
12. Built-In & Over the range Microwave Ovens	36,887
13. Surface Cooking Units	18,634
14. Dishwashers	106,588
15. Food Waste Disposers	31,869
16. Trash Compactors	374
17. Electric Water Dispensers	3,258
<b>Total</b>	<b>949,067</b>

### Products Collected

The results of the System Study Update were used to estimate the volume of end-of-life major appliances collected under the market-driven system. The volume of major appliances available to collect in BC was developed by using a lifespan model to produce theoretical estimates of the quantity entering life annually. The lifespan model combines historical unit sales data for MARR’s 17 product categories with lifespan data and unit weight data by product category to estimate the number of units and the total tonnage of MARR products at end-of-life each year.

The System Study Update estimated that approximately 38,269 tonnes of major appliances were collected in 2015. Table 4 below shows the estimated quantity of large appliances collected by regional district and for the province overall. The quantities listed by regional district reflect the combined tonnes of major appliances collected by local government, non-profit and private sector collectors. Quantities collected by bounty programs, retailers, scavengers and refurbishers are presented separately, with tonnes reported on a provincial basis.

**Table 4: Estimated Tonnes of Collected Major Appliances by Region (2015)**

Region and Collector Type	Estimated Tonnes Collected
Alberni Clayoquot	81
Bulkley-Nechako	298
Capital	1,571

Region and Collector Type	Estimated Tonnes Collected
Cariboo	207
Central Coast	22
Central Kootenay	279
Central Okanagan	1,065
Columbia Shuswap	209
Comox Valley/Strathcona	623
Cowichan Valley	327
East Kootenay	337
Fraser Valley	1,524
Fraser-Fort George	489
Kitimat Stikine	166
Kootenay-Boundary	193
Metro Vancouver	11,525
Mount Waddington	66
Nanaimo	625
North Okanagan	339
Northern Rockies	24
Okanagan Similkameen	347
Peace River	315
Powell River	128
Skeena Queen Charlotte	73
Squamish-Lillooet	350
Sunshine Coast	175
Thompson-Nicola	674
<b>Subtotal</b>	<b>22,032</b>
<b>Other Collectors</b>	<b>Estimated Tonnes Collected</b>
<i>Bounty programs</i>	774
<i>Retailers</i>	13,057
<i>Refurbishers</i>	1,203
<i>Scavengers</i>	1,203
<b>TOTAL</b>	<b>38,269</b>

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**Collection Rate:**

The collection rate of the BC market-driven collection and recycling system can be estimated using a “capture rate” calculation, which compares the estimated weight of products “available to collect” with the estimated weight of products collected. Using the lifespan model described above, it was estimated that 38,752 tonnes reached end-of-life in BC in 2015 and were “available to collect”. The System Study Update provided estimates of the weight of products collected (see above).

The 2015 collection rate was estimated at 98.7 per cent of all discarded appliances, exceeding the program target of 90 per cent. This result is consistent with research completed in other jurisdictions, where it was estimated that the market-driven collection and recycling system for end-of-life appliances achieved a collection rate of over 90%.<sup>8</sup> The findings of the 2015 MARR non-financial audit can be found in **Appendix D**.

**8. Summary of Deposits, Refunds, Revenues and Expenditures**

MARR is funded by administrative program fees (APFs), which are remitted to MARR by its participants based on the volume of sales of new major appliances sold in British Columbia. The APF fee rates were set by MARR in consultation with industry and retailers. Retailers have the option to recover the fees from consumers as a separate visible environmental handling fee or to include it in the product’s price. Program revenues are applied to the management of the program, including education, outreach and administration. Table 5 sets out the administrative program fee rates for program products effective since August 1, 2013.

A copy of MARR’s audited financial statement can be found in **Appendix E**.

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<sup>8</sup> Studies include “*Generation and Diversion of White Goods from Residential Sources in Canada*” (2005) by Canadian Appliance Manufacturers Association, Hansen Research and Communication and Hikene International Policy, “*Recycling, Waste Stream Management and Material Composition of Major Home Appliances*” (2005) by RW Beck and Weston Solutions and “*White Goods Assessment – Ontario*” (2009) by SBR International Inc.

**Table 5: Administrative Program Fees for Major Appliances by Product Category**

Product Category	APF Per Unit
<b>Refrigerant Appliances</b>	
1. Full-Size Refrigerators & Wine Coolers/Beverage Centres	\$1.25
2. Compact Refrigerators & Wine Coolers/Beverage Centres	\$1.25
3. Freezers	\$1.25
4. Room Air Conditioners	\$1.25
5. Portable Air Conditioners	\$1.25
6. Dehumidifiers	\$1.25
<b>Non-Refrigerant Appliances</b>	
7. Clothes Washer	\$1.10
8. Clothes Dryers	\$1.10
9. Ranges	\$1.10
10. Range Hoods & Downdrafts	\$1.10
11. Built-In Ovens	\$1.10
12. Built-In & Over the range Microwave Ovens	\$1.10
13. Surface Cooking Units	\$1.10
14. Dishwashers	\$1.10
15. Food Waste Disposers	\$1.10
16. Trash Compactors	\$1.10
17. Electric Water Dispensers	\$1.10

## 9. Plan Performance

Table 6 details the targets and program performance results for the MARR program.

**Table 6: Plan Performance Measures and Results**

Performance Measure	Target	Results	Remediation Strategies
Capture rate	90%	Target exceeded. 98.7% capture rate.	n/a

## APPENDIX A: Educational Materials

# Major Appliance Recycling Roundtable







Building upon BC's recycling system for major appliances.



Visit [marrbc.ca](http://marrbc.ca) or call 1.800.667.4321 (604.732.9253 in the Lower Mainland) for more information.

### The Major Appliance Recycling Roundtable (MARR)

MARR is a not-for-profit industry association developed in response to the requirements of the BC Recycling Regulation. MARR is focused on improving the performance and transparency of the existing collection and recycling system for major appliances in BC.

### MARR Funding

The MARR initiatives are funded by Administrative Program Fees (APFs) applied to the sale of new major appliances in BC. APFs may be included in a product's price or displayed as a separate charge.

The APFs cover all costs associated with MARR's initiatives, including public education efforts and the implementation of a processing standard and certification system to ensure end-of-life appliances are responsibly recycled.

### Recycling Options

A number of options are typically available to individuals with major appliances to recycle in BC. Many retailers, municipalities and private companies offer collection services, which may include drop-off and/or pick-up options. To find the most convenient recycling option, please call the Recycling Hotline at 1.800.667.4321 (604.732.9253 in the Lower Mainland).

### Products and APF Rates

<b>Refrigerant Appliances</b>	<b>APF Rate: \$1.25</b>
<ul style="list-style-type: none"> <li>• Refrigerators</li> <li>• Wine Coolers &amp; Beverage Centres</li> <li>• Freezers &amp; Ice Makers</li> </ul>	<ul style="list-style-type: none"> <li>› Room &amp; Portable Air Conditioners</li> <li>› Dehumidifiers</li> </ul>
<b>Non-Refrigerant Appliances</b>	<b>APF Rate: \$1.10</b>
<ul style="list-style-type: none"> <li>• Built-in &amp; Over-the-Range Microwave Ovens</li> <li>• Ranges, Built-in Ovens &amp; Surface Cooking Units</li> <li>• Range Hoods &amp; Downdrafts</li> </ul>	<ul style="list-style-type: none"> <li>• Dishwashers</li> <li>• Clothes Washers &amp; Dryers</li> <li>• Food Waste Disposers</li> <li>• Electric Water Dispensers</li> <li>• Trash Compactors</li> </ul>

Visit [marrbc.ca](http://marrbc.ca) or call 1.800.667.4321 (604.732.9253 in the Lower Mainland) for more information.



## APPENDIX B: Collection Sites that Accept All MARR Program Products

**Table 1: Collection Sites that Accept All MARR Program Products**

Collection Site	City	Regional District	Type
ACRD Recycling Depot	Port Alberni	Alberni-Clayoquot	Municipal
Alberni Foundry Ltd	Port Alberni	Alberni-Clayoquot	Municipal
Alberni Valley Landfill	Port Alberni	Alberni-Clayoquot	Municipal
Sherwood Auto Parts	Port Alberni	Alberni-Clayoquot	Private
West Coast Landfill	Ucluelet	Alberni-Clayoquot	Municipal
Area 'D' Transfer Station	Fraser Lake	Bulkley-Nechako	Municipal
Burns Lake Transfer Station	Burns Lake	Bulkley-Nechako	Municipal
Fort St. James Transfer Station	Fort St James	Bulkley-Nechako	Municipal
Granisle Transfer Station	Granisle	Bulkley-Nechako	Municipal
Knockholt Sub-Regional Landfill	Houston	Bulkley-Nechako	Municipal
Smithers-Telkwa Transfer Station	Smithers	Bulkley-Nechako	Municipal
Southside Transfer Station	Grassy Plains	Bulkley-Nechako	Municipal
Vanderhoof Transfer Station	Vanderhoof	Bulkley-Nechako	Municipal
Brentwood Auto and Metal Recyclers	Saanichton	Capital	Private
Ellice Recycle Ltd	Victoria	Capital	Private
Galiano Recycling	Galiano Island	Capital	Municipal
Hartland Landfill	Saanich, BC	Capital	Municipal
Pender Island Recycling	Pender Island	Capital	Municipal
Port Renfrew Recycling Depot	Port Renfrew	Capital	Municipal
Salt Spring Island Recycling Depot	Saltspring Island	Capital	Municipal
Westshore Auto Recycling /AMP Disposal	Sooke	Capital	Private
Williams Scrap Metal Recycling	Victoria	Capital	Private
100 Mile House Refuse Site	100 Mile House	Cariboo	Municipal
150 Mile House Transfer Station	150 Mile House	Cariboo	Municipal
Alexis Creek Transfer Station	Alexis Creek	Cariboo	Municipal
Baker Creek Transfer Station	Baker Creek	Cariboo	Municipal
Big Lake Refuse Site	Big Lake	Cariboo	Municipal
Cochin Refuse Site	Cochin Lake	Cariboo	Municipal
Forest Grove Transfer Station	Forest Grove	Cariboo	Municipal
Frost Creek	Williams Lake	Cariboo	Municipal
Horsefly Transfer Station	150 Mile House	Cariboo	Municipal
Kleena Kleene Refuse Site	Kleena Kleene	Cariboo	Municipal
Lac La Hache Transfer Station	Lac La Hache	Cariboo	Municipal
Likely Refuse Site	Likely	Cariboo	Municipal
Mcleese Lake Transfer Station	Mcleese Lake	Cariboo	Municipal
Nazko Refuse Site	Nazko	Cariboo	Municipal

Collection Site	City	Regional District	Type
Nemaiah Valley Refuse Site	Nemaiah	Cariboo	Municipal
Puntzi Lake Refuse Site	Puntzi	Cariboo	Municipal
Quesnel Landfill	Quesnel	Cariboo	Municipal
Riske Creek Transfer Station	Riske Creek	Cariboo	Municipal
Sheridan Lake Refuse Site	Canim Lake	Cariboo	Municipal
Tatla Lake Refuse Site	Tatla Lake	Cariboo	Municipal
Watch Lake Refuse Site	Lone Butte	Cariboo	Municipal
Wells Refuse Site	Wells	Cariboo	Municipal
West Chilcotin Refuse Site	West Chilcotin	Cariboo	Municipal
Wildwood Transfer Station	Williams Lake	Cariboo	Municipal
Williams Lake Scrap Metal	Williams Lake	Cariboo	Private
Thorsen Creek Waste and Recycling Center	Bella Coola	Central Coast	Municipal
Balfour Towing and Salvage	Balfour	Central Kootenay	Private
Balfour Transfer Station	Balfour	Central Kootenay	Municipal
Boswell Transfer Station	Boswell	Central Kootenay	Municipal
Burton Transfer Station	Burton	Central Kootenay	Municipal
Central Landfill	Salmo	Central Kootenay	Municipal
Crawford Bay Transfer Station	Crawford Bay	Central Kootenay	Municipal
Creston Landfill	Creston	Central Kootenay	Municipal
Earls Towing	Creston	Central Kootenay	Private
Edgewood Landfill	Edgewood	Central Kootenay	Municipal
Grohman Narrows Transfer Station	Nelson	Central Kootenay	Municipal
Kaslo Transfer Station	Kaslo	Central Kootenay	Municipal
Marblehead Transfer Station	Meadow Creek	Central Kootenay	Municipal
Nakusp Landfill	Nakusp	Central Kootenay	Municipal
Ootischenia Landfill	Castlegar	Central Kootenay	Municipal
Rosebery Transfer Station	New Denver	Central Kootenay	Municipal
Scrap King Auto Wrecking & Towing Ltd	Salmo	Central Kootenay	Private
Slocan Transfer Station	Slocan	Central Kootenay	Municipal
Smokey Creek Salvage Ltd.	Nelson	Central Kootenay	Private
ABC Metals Recycling	Kelowna	Central Okanagan	Private
Glenmore Landfill	Kelowna	Central Okanagan	Municipal
Knox Mountain Metals	Kelowna	Central Okanagan	Private
Planet Earth Recycling	West Kelowna	Central Okanagan	Private
Westside Residential Disposal & Recycling Centre	West Kelowna	Central Okanagan	Private
Falkland Transfer Station	Falkland	Columbia-Shuswap	Municipal
Glenemma Transfer Station	Salmon Arm	Columbia-Shuswap	Municipal
Golden Landfill	Golden	Columbia-Shuswap	Municipal
Malakwa Transfer Station	Malakwa	Columbia-Shuswap	Municipal
MC Metal Recycling	Revelstoke	Columbia-Shuswap	Private

Collection Site	City	Regional District	Type
Parson Transfer Station	Skookumchuck	Columbia-Shuswap	Municipal
Revelstoke Landfill	Revelstoke	Columbia-Shuswap	Municipal
Salmon Arm Landfill	Salmon Arm	Columbia-Shuswap	Municipal
Scotch Creek Transfer Station	Scotch Creek	Columbia-Shuswap	Municipal
Seymour Arm Transfer Station	Seymour Arm	Columbia-Shuswap	Municipal
Sicamous Landfill	Sicamous	Columbia-Shuswap	Municipal
Skimikin Transfer Station	Chase	Columbia-Shuswap	Municipal
Starlite Auto	Sorrento	Columbia-Shuswap	Private
Trout Lake Transfer Station	Trout Lake	Columbia-Shuswap	Municipal
Comox Valley Waste Management Centre	Cumberland	Comox Valley	Municipal
Hornby Island Recycling Depot	Hornby Island	Comox Valley	Municipal
Bings Creek SWM Complex	Duncan	Cowichan Valley	Private
Meade Creek Recycling Dropoff Depot	Lake Cowichan	Cowichan Valley	Municipal
Peerless Road Recycling Dropoff Depot	Ladysmith	Cowichan Valley	Municipal
Schnitzer Steel Pacific Recycling	Duncan	Cowichan Valley	Private
Canal Flats	Canal Flats	East Kootenay	Municipal
Columbia Recycle Ltd	Kimberly	East Kootenay	Private
Columbia Valley Landfill	Windermere	East Kootenay	Municipal
Cranbrook Transfer station	Cranbrook	East Kootenay	Municipal
Elkford Transfer Station	Elkford	East Kootenay	Municipal
Fernie Transfer Station	Fernie	East Kootenay	Municipal
Kimberley Transfer station	Kimberley	East Kootenay	Municipal
Kool Country Auto Parts	Invermere	East Kootenay	Private
Sparwood Transfer Station	Sparwood	East Kootenay	Municipal
Tie Lake Transfer Station	Jaffray	East Kootenay	Municipal
Wasa Transfer Station	Wasa	East Kootenay	Municipal
Bailey Landfill	Chilliwack	Fraser Valley	Municipal
Capt'n Crunch Auto Wrecking Ltd.	Abbotsford	Fraser Valley	Private
CCON Steel Inc.	Abbotsford	Fraser Valley	Private
Chaumox Landfill	Boston Bar	Fraser Valley	Municipal
Everclear Recycling	Mission	Fraser Valley	Municipal
Goodies Trading Ltd	Chilliwack	Fraser Valley	Private
Hope Landfill/Transfer Station	Hope	Fraser Valley	Municipal
Matsqui Transfer Station	Abbotsford	Fraser Valley	Municipal
McNeils DBA Ideal U Pick	Chilliwack	Fraser Valley	Private
Minnie's Pit/Mission Landfill	Mission	Fraser Valley	Municipal
Regional Recycling Abbotsford	Abbotsford	Fraser Valley	Private
Sunshine Valley Transfer Station	Cawston	Fraser Valley	Municipal
ABC Metals Recycling	Prince George	Fraser-Fort George	Private
A-Star Automotive Recyclers Ltd.	Prince George	Fraser-Fort George	Private
Foothills Boulevard Regional Landfill	Prince George	Fraser-Fort George	Municipal

Collection Site	City	Regional District	Type
Mackenzie Landfill	Mackenzie	Fraser-Fort George	Municipal
ABC Metals Recycling	Terrace	Kitimat-Stikine	Private
Hazelton Landfill	Hazelton	Kitimat-Stikine	Municipal
Kitimat Landfill	Kitimat	Kitimat-Stikine	Municipal
Stewart Landfill	Stewart	Kitimat-Stikine	Municipal
Terrace Landfill	Terrace	Kitimat-Stikine	Municipal
Thornhill Landfill	Thornhill	Kitimat-Stikine	Municipal
Beaverdell Transfer Station	Beaverdell	Kootenay Boundary	Municipal
Big Y Auto	Grand Forks	Kootenay Boundary	Private
Christina Lake Transfer Station	Christina Lake	Kootenay Boundary	Municipal
Columbia Recycle	Trail	Kootenay Boundary	Private
Grand Forks and Electoral Area B Landfill	Grand Forks	Kootenay Boundary	Municipal
J. D. Towing	Grand Forks	Kootenay Boundary	Private
Rock Creek Transfer Station	Rock Creek	Kootenay Boundary	Municipal
West Boundary Landfill	Greenwood	Kootenay Boundary	Municipal
AABC Recycler's Group	Richmond	Metro Vancouver	Private
ABC Metals Recycling	Surrey	Metro Vancouver	Private
ABC Metals Recycling	Burnaby	Metro Vancouver	Private
Burnaby Recycling Depot	Burnaby	Metro Vancouver	Municipal
Capital Salvage Co	Vancouver	Metro Vancouver	Private
Coquitlam Transfer Station	Coquitlam	Metro Vancouver	Municipal
Ecowaste	Richmond	Metro Vancouver	Private
Fraser Valley Metal Exchange	Maple Ridge	Metro Vancouver	Private
Happy Stan's Recycling Services Ltd.	Port Coquitlam	Metro Vancouver	Private
Mac's Traders Inc.	Langley	Metro Vancouver	Private
New West Recycling Depot	New Westminster	Metro Vancouver	Municipal
North Shore Transfer Station	North Vancouver	Metro Vancouver	Municipal
Regional Recycling	Surrey	Metro Vancouver	Private
Regional Recycling Burnaby	Burnaby	Metro Vancouver	Private
Regional Recycling Richmond	Richmond	Metro Vancouver	Private
Regional Recycling Vancouver	Vancouver	Metro Vancouver	Private
Richmond Recycling Depot	Richmond	Metro Vancouver	Municipal
Ridge Meadows Recycling	Maple Ridge	Metro Vancouver	Municipal
Schnitzer Steel Pacific Recycling	Surrey	Metro Vancouver	Private
Surrey Transfer Station	Surrey	Metro Vancouver	Municipal
Township of Langley	Aldergrove	Metro Vancouver	Municipal
Vancouver Landfill	Delta	Metro Vancouver	Municipal
Vancouver South Transfer Station	Vancouver	Metro Vancouver	Municipal
Westcoast Metal Recycling	Langley	Metro Vancouver	Private
7 Mile Landfill	Black Creek	Mount Waddington	Municipal
Alert Bay Recycling Depot	Alert Bay	Mount Waddington	Municipal

Collection Site	City	Regional District	Type
Fox Disposal Services Ltd	Port Hardy	Mount Waddington	Private
Malcolm Island Transfer Station	Sointula	Mount Waddington	Municipal
Village of Port Alice	Port Alice	Mount Waddington	Municipal
Woss Transfer Station	Woss	Mount Waddington	Municipal
Carl's Metal Salvage	Nanaimo	Nanaimo	Private
Church Road Transfer Station	Parksville	Nanaimo	Municipal
Gabriola Island Recycling Organization	Gabriola	Nanaimo	Municipal
Nanaimo Recycling Exchange Society	Nanaimo	Nanaimo	Municipal
Parksville Bottle & Recycling Depot	Parksville	Nanaimo	Private
Regional Landfill	Nanaimo	Nanaimo	Municipal
Regional Recycling Nanaimo	Nanaimo	Nanaimo	Private
Regional Recycling Nanaimo Bottle Depot - Fremont	Nanaimo	Nanaimo	Private
Armstrong-Spallumcheen Regional Disposal Facility	Armstrong	North Okanagan	Municipal
Cherryville & Area E Regional Disposal Facility	Cherryville	North Okanagan	Municipal
Dead Or Alive Auto & Metals Recycling	Vernon	North Okanagan	Private
Greater Vernon Recycling and Disposal Facility	Vernon	North Okanagan	Municipal
Kingfisher Transfer Station	Kingfisher-Enderby	North Okanagan	Municipal
Lumby and Area D Regional Disposal Facility	Lumby	North Okanagan	Municipal
NRRM Landfill	Fort Nelson	Northern Rockies	Municipal
Action Steel Sales	Penticton	Okanagan-Similkameen	Private
Campbell Mountain Landfill	Penticton	Okanagan-Similkameen	Municipal
Keremeos Transfer Station	Keremos	Okanagan-Similkameen	Municipal
Okanagan Falls Landfill	Okanagan Falls	Okanagan-Similkameen	Municipal
Oliver Landfill	Oliver	Okanagan-Similkameen	Municipal
Osoyoos & District Sanitary Landfill	Osoyoos	Okanagan-Similkameen	Private
Princeton landfill	Princeton	Okanagan-Similkameen	Municipal
Puds Auto Wrecking Ltd	Osoyoos	Okanagan-Similkameen	Private
Summerland Landfill	Summerland	Okanagan-Similkameen	Municipal
ABC Metals Recycling	Fort St. John	Peace River	Private
Bessborough Landfill	Dawson Creek	Peace River	Municipal
Cecil Lake	Fort st John	Peace River	Municipal
Chetwynd Landfill	Chetwynd	Peace River	Municipal
Dawson Creek Transfer Station	Dawson Creek	Peace River	Municipal
Hudson's Hope Transfer Station	Hudson's Hope	Peace River	Municipal
Kelly Lake Transfer Station	Tomslake	Peace River	Municipal
North Peace Regional Landfill	Charlie Lake	Peace River	Municipal
Prespatou Transfer Station	Prespatou	Peace River	Municipal
Rose Prairie Transfer Station	Rose Prairie	Peace River	Municipal

Collection Site	City	Regional District	Type
Tomslake Transfer Station	Tomslake	Peace River	Municipal
Tumbler Ridge Transfer Station	Groundbirch	Peace River	Municipal
Wonowon Transfer Station	Wonowon	Peace River	Municipal
Augusta Recyclers Inc.	Powell River	Powell River	Private
Blackpoint Auto Recyclers	Powell River	Powell River	Private
Texada TS	Texada Island	Powell River	Municipal
Islands Landfill	Port Clements	Skeena-Queen Charlotte	Municipal
Masset TS	Masset	Skeena-Queen Charlotte	Municipal
Sandspit TS	Sandspit	Skeena-Queen Charlotte	Municipal
Skeena-Queen Charlotte Regional Recycling Depot	Prince Rupert	Skeena-Queen Charlotte	Municipal
Skidegate TS	Skidegate	Skeena-Queen Charlotte	Municipal
Gold Bridge Transfer Station	Gold Bridge	Squamish-Lillooet	Municipal
Lillooet Landfill	Lillooet	Squamish-Lillooet	Municipal
Pemberton Transfer Station	Pemberton	Squamish-Lillooet	Municipal
Regional Recycling Whistler	Whistler	Squamish-Lillooet	Private
Squamish Landfill	Squamish	Squamish-Lillooet	Municipal
Whistler Transfer Station	Whistler	Squamish-Lillooet	Municipal
ABC Metals Recycling	Campbell River	Strathcona	Private
Campbell River Waste Management Centre	Campbell River	Strathcona	Municipal
Gold River Waste Management Centre	Gold River	Strathcona	Municipal
Schnitzer Steel	Campbell River	Strathcona	Private
Village of Tahsis Landfill	Tahsis	Strathcona	Municipal
Village of Zeballos Landfill	Zeballos	Strathcona	Municipal
Zeballos Public Works Yard (Metal Pile)	Zeballos	Strathcona	Municipal
Gibsons Disposal	Gibsons	Sunshine Coast	Municipal
Pender Harbour Landfill	Garden Bay	Sunshine Coast	Municipal
Sechelt Landfill	Sechelt	Sunshine Coast	Municipal
70 Mile house	70 Mile House	Thompson-Nicola	Municipal
Barnhartvale Landfill	Kamloops	Thompson-Nicola	Municipal
Blue River	Blue River	Thompson-Nicola	Municipal
Clearwater Eco depot	Clearwater	Thompson-Nicola	Municipal
Clinton	Clinton	Thompson-Nicola	Municipal
Heffley Creek Eco depot	Heffley Creek	Thompson-Nicola	Municipal
Kamloops Scrap Iron Ltd	Kamloops	Thompson-Nicola	Private
Knutsford	Knutsford	Thompson-Nicola	Municipal
Logan Lake	Logan Lake	Thompson-Nicola	Municipal
Loon Lake	Clinton	Thompson-Nicola	Municipal
Louis Creek Eco depot	Barriere	Thompson-Nicola	Municipal
Lower Nicola Eco Depot	Merritt	Thompson-Nicola	Municipal
Lytton	Lytton	Thompson-Nicola	Municipal

Collection Site	City	Regional District	Type
Mission Flats Landfill	Kamloops	Thompson-Nicola	Municipal
Paul Lake	Kamloops	Thompson-Nicola	Municipal
Savona	Savona	Thompson-Nicola	Municipal
South Thompson Eco Depot	Chase	Thompson-Nicola	Municipal
Spences Bridges Transfer Station	Spences Bridges	Thompson-Nicola	Municipal
Westwold	Westwold	Thompson-Nicola	Municipal

**Table 2: Collection Sites that Accept All MARR Program Product Added in 2015**

Collection Facility	City	Regional District	Type
Davis Trading	Vancouver	Metro Vancouver	Private
ASM Squamish Scrap Metal Ltd.	Squamish	Squamish-Lillooet	Private

**Table 3: Collection Sites No Longer Accepting Some or All MARR Program Product**

Collection Site	City	Regional District	Type
Glanford Bottle Depot	Victoria	Capital	Private
Accel Towing & Consulting Ltd	Parksville	Nanaimo	Private
Sylvester Road Transfer Station	Mission	Fraser Valley	Municipal

## Appendix C: Number of Collection Sites that Accept All Major Appliances by Regional District

Regional District	Number of Sites
Alberni-Clayoquot	5
Bulkley-Nechako	8
Capital	9
Cariboo	25
Central Coast	1
Central Kootenay	18
Central Okanagan	5
Columbia-Shuswap	14
Comox	2
Cowichan Valley	4
East Kootenay	11
Fraser-Fort George	12
Fraser Valley	4
GVRD (Metro Vancouver)	6
Kitimat-Stikine	8
Kootenay Boundary	25
Mt. Waddington	6
Nanaimo	8
North Okanagan	6
Northern Rockies	1
Okanagan-Similkameen	9
Peace River	13
Powell River	3
Skeena-Queen Charlotte	5
Squamish-Lillooet	7
Strathcona	7
Sunshine Coast	3
Thompson-Nicola	19
<b>TOTAL</b>	<b>244</b>



## **APPENDIX D: 2015 MARR Non-Financial Audit**

**MAJOR APPLIANCE RECYCLING ROUNDTABLE**

**INDEPENDENT REASONABLE ASSURANCE  
REPORT**

**31 DECEMBER 2015**



**ROLFE, BENSON LLP**  
CHARTERED PROFESSIONAL ACCOUNTANTS



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## INDEPENDENT REASONABLE ASSURANCE REPORT

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To the Directors of  
Major Appliance Recycling Roundtable,

We have been engaged by Major Appliance Recycling Roundtable (“MARR”) to perform a reasonable assurance engagement in respect of the following information (the “Selected Information”), detailed in Appendix 1, and also included within MARR’s Annual Report to the Ministry of Environment for the year ended 31 December 2015:

- Section 4 Collection System and Facilities and Appendix B - the location of collection facilities, and any changes in the number and location of collection facilities from the previous report in accordance with Section 8(2)(b) of BC Regulation 449/2004 (the “Recycling Regulation”);
- Section 6 Pollution Prevention Hierarchy and Product/Component Management - the description of how the recovered product was managed in accordance with the pollution prevention hierarchy under Section 8(2)(d) of the Recycling Regulation;
- Section 7 Product Collected - the description of how total amounts of the producer’s product collected has been calculated in accordance with Section 8(2)(e) of the Recycling Regulation; and
- Section 9 Plan Performance - the description of performance for the year in relation to targets in the approved stewardship plan under Section 8(2)(b), (d) and (e) of the Recycling Regulation.

Our reasonable assurance engagement does not constitute a legal determination on MARR’s compliance with Sections 8(2)(b), (d) and (e) of the Recycling Regulation.

### Responsibilities

Preparation and fair presentation of the Selected Information in accordance with the evaluation criteria as listed in Appendix 1 is the responsibility of MARR’s management. Management is also responsible for such internal control as management determines is necessary to enable the preparation of the Selected Information such that it is free from material misstatement. Furthermore management is responsible for preparation of suitable evaluation criteria in accordance with the Third Party Assurance Requirements for Non-Financial Information in Annual Reports - 2015 Reporting Year dated February 2016 (“Assurance requirements”) as specified by the Director under section 8(2)(h) of the Recycling Regulation of the Province of British Columbia.



Our responsibility is to express an opinion on the Selected Information based on the procedures we have performed and the evidence we have obtained.

### **Evaluation Criteria**

The evaluation criteria presented in Appendix 1 are an integral part of the Selected Information and address the relevance, completeness, reliability, neutrality and understandability of the Selected Information.

### **Scope of the Assurance Procedures**

We carried out our reasonable assurance engagement in accordance with the International Standard on Assurance Engagements 3000 (ISAE 3000) published by the International Federation of Accountants. This Standard requires that we comply with independence requirements and plan and perform the engagement to obtain reasonable assurance about whether the Selected Information is free of material misstatement.

A reasonable assurance engagement includes examining, on a test basis, evidence supporting the amounts and disclosures within the Selected Information. The procedures selected depend on our judgement, including the assessment of the risks of material misstatement in the Selected Information due to omissions, misrepresentations and errors. In making those risk assessments, we consider internal control relevant to the entity's preparation and fair presentation of the Selected Information in order to design assurance procedures that are appropriate in the circumstances, but not for the purpose of expressing a conclusion on the effectiveness of the entity's internal control. A reasonable assurance engagement also includes assessing the evaluation criteria used and significant estimates made by management, as well as evaluating the overall presentation of the Selected Information. The main elements of our work were:

- Gain an understanding of the data collection, monitoring and reporting processes through inquiries of management;
- Evaluating the qualifications and independence of contractors used to help prepare the 2015 System Study Update to the Study on the Operations and Effectiveness of the Major Appliance Collection and Recycling System in British Columbia (the "System Study Update");
- Testing the processes, documents and records on a sample basis;
- Re-calculating quantitative data on a sample basis as it pertains to the Selected Information;
- Ensuring the Selected Information is presented consistently in the Annual Report.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

### **Inherent Limitations**

Non-financial performance information is subject to more inherent limitations than financial information, given the characteristics of the Selected Information and the methods used for determining and calculating such information. Qualitative interpretations of relevance, materiality and the accuracy of data are subject to individual assumptions and judgments. Furthermore, the nature and methods used to determine such information, as well the evaluation criteria and the precision thereof, may change over time. It is important to read our report in the context of evaluation criteria.



### Conclusion

In our opinion, the Selected Information within MARR's Annual Report for the year ended 31 December 2015 presents fairly, in all material respects, in accordance with the evaluation criteria listed in Appendix 1:

- the location of collection facilities, and any changes in the number and location of collection facilities from the previous report in accordance with Section 8(2)(b) of the Recycling Regulation;
- the description of how the recovered product was managed in accordance with the pollution prevention hierarchy under Section 8(2)(d) of the Recycling Regulation;
- the description of how total amounts of the producer's product collected has been calculated in accordance with Section 8(2)(e) of the Recycling Program; and
- the description of performance for the year in relation to targets in the approved stewardship plan under Section 8(2)(b), (d) and (e) of the Recycling Regulation.

### Emphasis of Matter

Without qualifying our opinion, the following should be noted regarding the information contained in the Annual Report:

1. The Selected Information included in Section 4 - Collection System and Facilities, and Section 7 - specifically relating to Product Collected and Section 9 - Plan Performance is based on information included in the System Study Update as described in Appendix 1. Additionally, the information included in Section 6 - Pollution Prevention Hierarchy and Product / Component Management is based on information in the 2013 System Study and was not included in the System Study Update. As such, there is uncertainty surrounding the information presented.
2. MARR does not present a recovery rate in the Annual Report. As such, the total amount of producer's products sold as presented on Table 3 - Total Sales of Major Appliances in BC (2015) on page 9 of the Annual Report has not been included in the Selected Information in accordance with the Third Party Assurance Requirements for Non-Financial Information in Annual Reports - 2015 Reporting Year dated February 2016 as issued by the British Columbia Ministry of Environment.
3. Section 9 Plan Performance of the Annual Report contains a performance target for capture rate which is not included in the scope of our reasonable assurance engagement for Section 8(2)(e) of the Recycling Regulation, and as such, this is not included in the Selected Information. Section 7.1 of MARR's approved stewardship plan as issued on 29 June 2012 incorrectly makes reference to a recovery rate target whereas the actual target presented in the stewardship plan is for capture rate.

### Other Matter

Our report has been prepared solely for the purposes of management's stewardship under the Recycling Regulation and is not intended to be and should not be used for any other purpose. Our duties in relation to this report are owed solely to MARR, and accordingly, we do not accept any responsibility for loss occasioned to any other party acting or refraining from acting based on this report.

*Rolfe Benson LLP*

CHARTERED PROFESSIONAL ACCOUNTANTS

Appendix 1

Evaluation Criteria

Collection facilities

Specific disclosures in the annual stewardship report for which evaluation criteria were developed	
Disclosure per Annual Report	Reference
Total number of collection sites – 244	Section 4 Collection System and Facilities - Table 1 – Estimate of Sites that Accepted All MARR Products (2015) on page 5;  Appendix B - Table 1 – Collection Sites that Accept All MARR Program Products on page 16-22 and Table 2 – Collection Sites that Accept All MARR Program Product Added in 2015 on page 22.
“The list of collectors provided is based on reports of which sites were accepting major appliances and represents the best available information as of March 2016. This list is not exhaustive, nor guaranteed to be current, due to ongoing changes in business operations. The list only includes local government and private/non-profit collector drop off sites, and does not include the numerous collection options that may be offered through retailers, utility bounty programs or other possible pick up options.”	Section 4 Collection System and Facilities – Footnote 1 on page 5
Decrease in the number of collection facilities in 2015 – 0.4% (1 collection facility)	Section 4 Collection System and Facilities on page 5

The following evaluation criteria were applied to the assessment of the location of collection facilities, and any changes in the number and location of collection facilities from the previous report in accordance with Section 8(2)(b) of the Recycling Regulation:

- The number and location of collection facilities have been determined using the information included in *The Study on the Operations and Effectiveness of the Major Appliance Collection and Recycling System in British Columbia*, dated May 8, 2014 (“2013 System Study”) which was originally prepared for the 2013 fiscal year and has been updated to reflect 2015 fiscal year data (“System Study Update”).
- The content of the System Study Update appears to be sufficient to meet the reporting requirements by MARR to the British Columbia Ministry of Environment with respect to the number and location of collection facilities.
- The System Study Update was performed by a third party consultant who also provided a letter of assurance thereon.
- The third party consultant involved in the System Study Update is independent from MARR and has no business relationship outside of the System Study Update. Their qualifications appear sufficient to be able to prepare the report.

- The number and location of collection facilities as disclosed in the Annual Report agrees with the information included in the System Study Update.
- The change in the number of collection facilities is determined by comparing the estimated number of collection facilities between the 2014 Annual Report and the System Study Update.
- The listing of collection facilities only includes locations that accept all major appliances under the MARR program.

**Pollution prevention hierarchy**

<b>Specific disclosures in the annual stewardship report for which evaluation criteria were developed</b>	
<b>Disclosure per Annual Report</b>	<b>Reference</b>
<p>“The following information is based on the understanding of the free market system, as well as findings from the System Study completed by MARR in 2014 reflecting the 2013 fiscal year. The System Study involved surveying industry participants with regard to collection volumes and product management practices. No further due diligence was performed on the information in terms of site visits or other investigations and therefore there is some degree of uncertainty surrounding the end fate of the products.”</p>	<p>Section 6 Pollution Prevention Hierarchy and Product/Component Management on pages 7 and 8</p>
<p>“As major appliance recycling utilizes the existing market-driven system, MARR does not contract directly with collectors or processors, and is therefore not able to obtain information on percentages of materials processed. Volumes and percentages reported are based on estimates derived from survey responses obtained from collectors and processors as part of MARR’s System Study.”</p>	<p>Section 6 Pollution Prevention Hierarchy and Product/Component Management on page 9</p>
<p>“The material composition of major appliances is reportedly approximately 75 percent metal. Processors report that 98 percent of ferrous and non-ferrous metal that enters the shredder is recovered and recycled back into the commodities market. On that basis, it is estimated that 74 percent of materials recycled are ferrous and non-ferrous metal. (Based on survey responses from the two processors in BC currently operating shredders.)”</p> <p>“The remaining 26 percent, including plastic, glass, rubber and foam, does not undergo further processing, and is currently sent to landfill as part of the shredder residue to serve as landfill cover.”</p> <p>“Prior to shredding, products undergo decommissioning to remove refrigerant and to look for any other substances of concern. In general, the System Study identified that refrigerant was extracted responsibly, but</p>	<p>Section 6 Pollution Prevention Hierarchy and Product/Component Management on page 8 and 9 and footnote 6</p>

that some gaps remained. The vast majority of retailers transferred major appliances with refrigerant to secondary collectors and most processors had onsite staff to perform refrigerant removal. At local government sites that accept appliances with refrigerants, most contracted out the removal of refrigerants as part of the scrap metal removal contract. Refrigerant removal generally occurred at the first location to receive the appliance. The refrigerant was removed by a Technician and subsequently sent for recycling or destruction.”

“Very few appliances reaching end of life contain mercury switches or PCBs though some contain heavy metals (e.g., circuit boards), mercury (i.e., fluorescent lights), compressor oil and polyurethane foam (i.e., insulation).“

The following evaluation criteria were applied to the assessment of how the recovered product is managed in accordance with the pollution prevention hierarchy in accordance with Section 8(2)(d) of the Recycling Regulation:

- The information on product management has been determined based on a general understanding of the free market collection system and by using the information included in *The Study on the Operations and Effectiveness of the Major Appliance Collection and Recycling System in British Columbia*, dated May 8, 2014 (“2013 System Study”) which was originally prepared for the 2013 fiscal year. The Systems Study Update for the 2015 fiscal year did not include an extrapolation of the product management data to the 2015 fiscal year.
- The content of the 2013 System Study appears to be sufficient to meet the reporting requirements by MARR to the British Columbia Ministry of Environment with respect to the product management.
- The third party consultant involved in the 2013 System Study is independent from MARR and has no business relationship outside of the System Study. Their qualifications appear sufficient to be able to prepare the report.

**Product collected**

Specific disclosures in the annual stewardship report for which evaluation criteria were developed	
Disclosure per Annual Report	Reference
<b>Product collected</b> Tonnes of product collected – 38,269	Section 7 Product Sold and Collected and Recovery Rate - Table 4: Estimated Tonnes of Collected Major Appliances by Region (2015) on pages 10 and 11

The following evaluation criteria were applied to the assessment of the description of how total amounts of the producer’s product collected has been calculated in accordance with Section 8(2)(e) of the Recycling Regulation:



**Product Collected:**

- The Estimated Tonnes of Collected Major Appliances have been determined using the information included in *The Study on the Operations and Effectiveness of the Major Appliance Collection and Recycling System in British Columbia*, dated May 8, 2014 ("2013 System Study") which was originally prepared for the 2013 fiscal year and has been updated to reflect 2015 fiscal year data ("System Study Update").
- The content of the System Study Update appears to be sufficient to meet the reporting requirements by MARR to the British Columbia Ministry of Environment with respect to the number and location of collection facilities.
- The System Study Update was performed by MARR with the support of a third party consultant who reviewed the procedures, methods and calculations used in the System Study Update and provided a letter of assurance thereon.
- The third party consultant involved in the System Study Update is independent from MARR and has no business relationship outside of the System Study Update. Their qualifications appear sufficient to be able to prepare the report.
- The volumes of product collected as disclosed in the Annual Report agree with the estimated collection volumes as reported in the System Study Update.



## **APPENDIX E: 2015 MARR Financial Statements**

**MAJOR APPLIANCE RECYCLING ROUNDTABLE**

**FINANCIAL STATEMENTS**

**31 DECEMBER 2015**

## **MAJOR APPLIANCE RECYCLING ROUNDTABLE**

### **Financial Statements**

For the year ended 31 December 2015

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**ROLFE, BENSON LLP**

CHARTERED PROFESSIONAL ACCOUNTANTS

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## INDEPENDENT AUDITORS' REPORT

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To the Members,  
Major Appliance Recycling Roundtable

### **Report on the Financial Statements**

We have audited the accompanying financial statements of Major Appliance Recycling Roundtable, which comprise the statement of financial position as at 31 December 2015, and the statements of changes in net assets, operations and cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

### **Management's Responsibility for the Financial Statements**

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian accounting standards for not-for-profit organizations, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

### **Auditors' Responsibility**

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditors consider internal control relevant to the organization's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the organization's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.



ROLFE, BENSON LLP

CHARTERED PROFESSIONAL ACCOUNTANTS

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## INDEPENDENT AUDITORS' REPORT - Continued

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We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

### Opinion

In our opinion, the financial statements present fairly, in all material respects, the financial position of Major Appliance Recycling Roundtable as at 31 December 2015, and the results of its operations and its cash flows for the year then ended in accordance with Canadian accounting standards for not-for-profit organizations.

*Rolfe, Benson LLP*

CHARTERED PROFESSIONAL ACCOUNTANTS

Vancouver, Canada  
17 June 2016

**MAJOR APPLIANCE RECYCLING ROUNDTABLE**  
**Statement of Financial Position**  
**31 December 2015**

	2015	2014
<b>Assets</b>		
<b>Current</b>		
Cash	\$ 574,629	\$ 202,921
Accounts receivable	232,590	284,075
Prepaid expenses	2,706	2,231
	809,925	489,227
<b>Reserve Fund (Note 4)</b>	<b>300,210</b>	<b>-</b>
	<b>\$ 1,110,135</b>	<b>\$ 489,227</b>

**Liabilities**

<b>Current</b>		
Accounts payable and accrued liabilities	\$ 59,249	\$ 40,723
GST payable	2,755	27,835
	62,004	68,558

**Net Assets**

Unrestricted	747,921	420,669
Internally Restricted Reserve (Note 4)	300,210	-
	1,048,131	420,669
	<b>\$ 1,110,135</b>	<b>\$ 489,227</b>

APPROVED BY THE DIRECTORS:

\_\_\_\_\_ Director

\_\_\_\_\_ Director

The accompanying notes are an integral part of these financial statements.

**MAJOR APPLIANCE RECYCLING ROUNDTABLE**  
**Statement of Changes in Net Assets**  
**For the year ended 31 December 2015**

	Unrestricted	Internally Restricted Reserve	Total 2015	Total 2014
Balance - beginning of year	\$ 420,669	\$ -	\$ 420,669	\$ (159,161)
Excess of revenues over expenses for the year	627,462	-	627,462	579,830
Transfer to reserve (Note 4)	(300,210)	300,210	-	-
<b>- end of year</b>	<b>\$ 747,921</b>	<b>\$ 300,210</b>	<b>\$ 1,048,131</b>	<b>\$ 420,669</b>

The accompanying notes are an integral part of these financial statements.



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**MAJOR APPLIANCE RECYCLING ROUNDTABLE**  
**Statement of Operations**  
**For the year ended 31 December 2015**

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	2015	2014
<b>Revenues</b>	<u>\$ 1,095,045</u>	<u>\$ 1,030,232</u>
<b>Expenses</b>		
Program administration	422,306	366,682
Communications	27,386	17,529
Research and studies	17,891	66,191
	<u>467,583</u>	<u>450,402</u>
<b>Excess of revenues over expenses for the year</b>	<u>\$ 627,462</u>	<u>\$ 579,830</u>

The accompanying notes are an integral part of these financial statements.

**MAJOR APPLIANCE RECYCLING ROUNDTABLE**  
**Statement of Cash Flows**  
**For the year ended 31 December 2015**

	2015	2014
<b>Cash provided by (used in):</b>		
<b>Operating activities</b>		
Excess of revenues over expenses for the year	\$ 627,462	\$ 579,830
Changes in non-cash working capital balances		
Accounts receivable	51,485	(30,336)
Prepaid expenses	(475)	(1,731)
Accounts payable and accrued liabilities	18,526	(500,342)
GST payable	(25,080)	20,511
	<b>671,918</b>	<b>67,932</b>
<b>Investing activity</b>		
Transfer to reserve fund	(300,210)	-
<b>Net increase in cash</b>	<b>371,708</b>	<b>67,932</b>
<b>Cash - beginning of year</b>	<b>202,921</b>	<b>134,989</b>
<b>Cash - end of year</b>	<b>\$ 574,629</b>	<b>\$ 202,921</b>

The accompanying notes are an integral part of these financial statements.

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**MAJOR APPLIANCE RECYCLING ROUNDTABLE**  
**Notes to the Financial Statements**  
**For the year ended 31 December 2015**

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**1. Incorporation**

Major Appliance Recycling Roundtable ("MARR") was incorporated under the Canada Not-for-Profit Corporations Act on 17 July 2012 and commenced operations on 1 August 2013. MARR is a not-for-profit organization and it is not subject to income taxes. MARR currently operates a stewardship program in the Province of British Columbia to assist the major appliance producers in discharging their obligation to establish end of life product collection and recycling programs under the British Columbia Recycling Regulations.

**2. Summary of significant accounting policies**

These financial statements are prepared in accordance with Canadian accounting standards for not-for-profit organizations. The significant policies are detailed as follows:

(a) Revenue recognition

Revenue from administrative program fees ("APF") is recognized at the time an APF applicable product is sold by a member of MARR, and the APF becomes due and payable. APF's are received from registered members which participate in MARR's programs. MARR recognizes these fees as revenue when received or receivable if the amount to be received can be reasonably estimated and collection is reasonably assured. APF revenues are recognized as individual members report and remit them as required by applicable provincial environmental legislation.

(b) Cash and cash equivalents

MARR's policy is to disclose bank balances under cash and cash equivalents, including bank overdrafts with balances that fluctuate frequently from being positive to overdrawn and term deposits with a maturity period of three months or less from the date of acquisition.

(c) Financial instruments

(i) Measurement of financial instruments

MARR initially measures its financial assets and liabilities at fair value and subsequently measures all of its financial assets and financial liabilities at amortized cost.

Financial assets measured at amortized cost include cash, accounts receivable and the reserve.

Financial liabilities measured at amortized cost include accounts payable and accrued liabilities.

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**MAJOR APPLIANCE RECYCLING ROUNDTABLE**  
**Notes to the Financial Statements**  
**For the year ended 31 December 2015**

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**2. Summary of significant accounting policies - Continued**

(c) Financial instruments - Continued

(ii) Impairment

Financial assets measured at cost are tested for impairment when there are indicators of impairment. The amount of the write-down is recognized in the statement of operations. The previously recognized impairment loss may be reversed to the extent of the improvement, directly or by adjusting the allowance account, provided it is no greater than the amount that would have been reported at the date of the reversal had the impairment not been recognized previously. The amount of the reversal is recognized in the statement of operations.

(iii) Transaction costs

MARR recognizes its transaction costs in the statement of operations in the period incurred. However, financial instruments that will not be subsequently measured at fair value are adjusted by the transaction costs that are directly attributable to their origination, issuance or assumption.

(d) Use of estimates

The preparation of financial statements in accordance with Canadian accounting standards for not-for-profit organizations requires management to make estimates and assumptions that affect the reported amount of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements and the reported amount of revenues and expenses during the reported period. Actual results could differ from these estimates.

**3. Financial instruments risks**

MARR is exposed to various risks through its financial instruments. The following analysis provides a measure of MARR's risk exposure and concentrations at the statement of financial position date, 31 December 2015.

(a) Credit risk

Credit risk is the risk that one party to a financial instrument will cause a financial loss for the other party by failing to discharge an obligation. MARR's main credit risks relate to its cash and accounts receivable. Cash is in place with major financial institutions. Concentrations of credit risk with respect to accounts receivable are limited due to the large number of members. MARR has evaluation and monitoring processes in place and writes off accounts when they are determined to be uncollectible.

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**MAJOR APPLIANCE RECYCLING ROUNDTABLE**  
**Notes to the Financial Statements**  
**For the year ended 31 December 2015**

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**3. Financial instruments risks - Continued**

(b) Liquidity risk

Liquidity risk is the risk that an entity will encounter difficulty in meeting obligations associated with financial liabilities. MARR is exposed to this risk mainly in respect of its accounts payable and accrued liabilities. MARR maintains adequate cash to meet obligations as they become due.

**4. Reserve Fund**

During the year, the Board of Directors passed a resolution to establish the Reserve Fund. The purposes of the Reserve Fund are as follows:

- To assist in stabilizing eco fees by being available to manage year to year volume fluctuations.
- To cover the costs of winding up the Program by the decision of the members or as a consequence of regulatory change, in an orderly manner, not to exceed one year.
- To cover any claims against the Program, Board of directors or staff in excess of the Program's insurance coverage.
- To cover the cost of unanticipated or extraordinary items.
- To make available interim funding for program expansion.
- To fund other special projects (such as the acquisition or construction of a building).
- To fund the purchase of capital equipment.
- To act as a sinking fund to cover the cost of managing products with long life spans, for which collection may occur well in the future.

Transfers to the Reserve Fund are made upon resolutions passed by the Board of Directors. Total contributions to the Reserve Fund are not to exceed one year's operating expenses.

The Reserve Fund consists of an investment in a commercial savings account and is managed in accordance with MARR's investment policy. All income earned on the investment is initially reported in the unrestricted fund and then transferred to the Reserve Fund. During the year, \$300,210 was transferred from unrestricted net assets to the Reserve Fund.