

Benchmarking Alberta Recycling Stewardship Programs for Tires, Electronics, Paint and Oil

Final Report

Prepared for



Prepared by:



in association with



Millette Environmental
Research & Consulting

August, 2020

Table of Contents

Executive Summary.....	i
1. Introduction.....	1
2. Methodology	2
3. Benchmarking Alberta Recycling’s Tire Program Against Other Provincial Tire Programs	5
3.1 Tire Program Background and Fees	5
3.2 Tire Program Recovery (kg/cap) Across Canada	9
3.3 Tire Program Costs (\$/kg) Across Canada	10
3.4 Tire Program Awareness and Support	12
4 Benchmarking Alberta Recycling’s Electronics Program Against Other Provincial Electronics Programs	15
4.1 Electronics Program Background and Fees.....	15
4.2 Electronics Program Recovery (kg/cap) Across Canada.....	20
4.3 Electronics Program Costs (\$/kg) Across Canada	22
4.4 Electronics Program Awareness and Support.....	23
4.5 Electronics Program Accessibility	25
4.6 KPIs and Metrics to Reflect Changing Electronics Product and Material Mix	26
5. Benchmarking Alberta Recycling’s Paint Program Against Other Provincial Paint Programs	28
5.1 Paint Program Background and Fees	28
5.2 Paint Program Recovery (kg/cap) Across Canada	29
5.3 Paint Program Costs (\$/kg) Across Canada	32
5.4 Paint Program Awareness and Support	33
5.5 Paint Program Accessibility.....	35
6. Benchmarking Alberta Recycling’s Used Oil Program Against Other Provincial Used Oil Programs...	36
6.1 Used Oil Program Background and Fees.....	36
6.2 Used Oil Program Recovery (kg/cap) Across Canada.....	39
6.3 Used Oil Program Costs (\$/kg) Across Canada.....	40
6.4 Used Oil Program Awareness and Support.....	42
7. Summary and Conclusions.....	43
7.1 Recovery Performance.....	43
7.2 Cost Performance	45
7.3 Conclusions and Next Steps	46
Appendix A – References	47

Appendix B – Detailed List of KPIs and Metrics Reported in Tire Stewardship and EPR Programs in Canada	57
Appendix C – Detailed List of KPIs and Metrics Reported in Electronics Stewardship and EPR Programs in Canada	63
Appendix D – Detailed List of KPIs and Metrics Reported in Paint Stewardship and EPR Programs in Canada	66
Appendix E – Detailed List of KPIs and Metrics Reported for Used Oil Stewardship and EPR Programs in Canada	70
Appendix F – Population Data Used for Kilogram/Capita Calculations	74
Appendix G – Products Accepted for Recycling in Provincial Electronics Programs	75
Appendix H - Light-Weighting of Electronics	77

List of Tables

Table 1: Alberta Recycling Program Recovery Performance for Tires, Electronics, Paint, and Used Oil (2015-2018) (kg/cap)	i
Table 2: Alberta Recycling Cost Performance for Tires, Electronics, Paint, and Used Oil Programs (2015-2018) (\$/kg).....	iii
Table 3: Organizations Responsible for Used Tire Programs Across Canada (2019)	5
Table 4: Tire Fees Across Canada (as of February, 2019)	7
Table 5: Amount Recovered by Tire Programs Across Canada (2015-2018) (kg/cap)	9
Table 6: Tire Program Costs Across Canada (2015-2018) (\$/kg)	11
Table 7: Public Awareness and Support of Alberta Recycling's Tires Programs and Fees/Surcharges (2015/16-2018/19)	13
Table 8: Awareness of Tire Programs by Province (2015-2018)	14
Table 9: Electronics Fees Across Canada (as of December 2, 2019).....	17
Table 10: Amount Recovered by Electronics Programs Across Canada (2015-2018) (kg/cap)	20
Table 11: Electronics Program Costs Across Canada (2015-2018) (\$/kg)	22
Table 12: Public Awareness and Support of Alberta Recycling's Electronics Program and Fees/Surcharges (2015/16-2018/19)	24
Table 13: Awareness of Electronics Programs by Province (2015-2018).....	25
Table 14: Accessibility for Alberta Population to Electronics Recycling Facilities – Measured by Driving Distance (2018/2019)	25
Table 15: Accessibility of Electronics Programs Across Canada (2015-2018).....	26
Table 16: Paint Program Fees Across Canada (as of September 2019)	29
Table 17: Amount Recovered by Paint Programs Across Canada (2015-2018) (kg/cap).....	31
Table 18: Paint Program Costs Across Canada (2015-2018) (\$/kg)	32
Table 19: Public Awareness and Support of Alberta Recycling's Paint Program and Fees/Surcharges (2015/16-2018/19)	34
Table 20: Awareness of Paint Programs by Province (2015-2018).....	35
Table 21: Accessibility for Alberta Population to Paint Recycling Facilities – Measured by “Proximity” (Time + Distance) (2018/2019)	35
Table 22: Used Oil Program Fees by Province'.....	38
Table 23: Amount Recovered by Used Oil Programs Across Canada (All Program Materials) (2015-2018) (kg/cap)	39
Table 24: Oil Programs Across Canada – Comparison of Program Costs (All Program Materials) (2015-2018) (\$/kg).....	41
Table 25: Public Awareness and Support of Alberta Recycling's Oil Programs and Fees/Surcharges (2018/19)	42
Table 26: Alberta Recycling Program Recovery for Tires, Electronics, Paint, and Used Oil (2015-2018) (kg/cap)	44
Table 27: Alberta Recycling Program Cost Performance for Tires, Electronics, Paint, and Oil (2015-2018) (\$/kg).....	45
Table 28: Populations by Province (2015-2018) Used for Kilogram/Capita Calculations.....	74
Table 29: Designated Electronic Products Accepted for Recycling by Electronics Stewardship and EPR Programs in Canada (as of September 2019)	75

List of Figures

Figure 1: Alberta Recycling Tire Program Performance Compared to National Average for Recovery (kg/cap) and Cost (\$/kg) (2015-2018).....	iv
Figure 2: Alberta Recycling Electronics Program Performance Compared to National Average for Recovery (kg/cap) and Cost (\$/kg) (2015-2018)	v
Figure 3: Alberta Recycling Paint Program Performance Compared to National Average for Recovery (kg/cap) and Cost (\$/kg) (2015-2018).....	v
Figure 4: Alberta Recycling Used Oil Program Performance Compared to National Average for Recovery (kg/cap) and Cost (\$/kg) (2015-2018).....	vi
Figure 5: Comparison of Alberta Recycling's Tire Program Recovery to National Average (2015-2018) (kg/cap)	10
Figure 6: Alberta Recycling Tire Program Cost Compared to National Average (2015-2018) (\$/kg)	12
Figure 7: Public Awareness and Support for Alberta Recycling Tire Program and Fees (2015/16-2018/19)	13
Figure 8: Comparison of Current and Future Alberta Recycling Electronics Program Recovery	21
Figure 9: Alberta Recycling Electronics Program Costs Compared to National Average (2015-2018) (\$/kg)	23
Figure 10: Public Awareness and Support for Alberta Recycling Electronics Program and Fees (2015/16-2018/19).....	24
Figure 11: Alberta Recycling Paint Program Recovery Compared to National Average (2015-2018) (kg/cap)	31
Figure 12 Alberta Recycling Paint Program Cost Compared to National Average (2015-2018) (\$/kg)	33
Figure 13: Public Awareness and Support for Alberta Recycling Paint Program and Fees (2015/16-2018/19).....	34
Figure 14: Comparison of Alberta Recycling Used Oil Program Recovery (All Materials) to National Average (2015-2018) (kg/cap)	40
Figure 15 Alberta Recycling Used Oil Program Costs (All Materials) Compared to National Average (2015-2018) (\$/kg).....	41
Figure 16: Reduction in Electronics Collected in Connecticut (2011-2018).....	78

Executive Summary

In April, 2018, Alberta Recycling published a benchmarking study prepared by Kelleher Environmental comparing the performance of Alberta's stewardship programs for tires, electronics, and paint with similar stewardship/EPR programs across Canada.

Kelleher Environmental reviewed the annual reports and financial statements of each province's stewardship programs for tires, electronics, and paint for the years 2011 to 2016¹ to identify and collect data on reported recovery and program costs. Alberta Recycling's performance was compared to that of other provincial programs using standard KPIs of product recovery (kg/cap) and cost to recover the designated materials (\$/kg). Alberta Recycling's performance was then compared to the national weighted average for each year from 2011-2016

This report is an update of the April, 2018 benchmarking study and includes two additional years of data (2017 and 2018) and also benchmarks the used oil program which Alberta Recycling has been managing since October, 2018.

Recovery Performance

Table 1: Alberta Recycling Program Recovery Performance for Tires, Electronics, Paint, and Used Oil (2015-2018) (kg/cap)

Recovery Performance (kg/cap)		2015	2016	2017	2018
Tires 	Alberta Recycling*	17.0	14.8	14.5	16.1
	National Average	11.3	11.2	11.3	11.8
Electronics 	Alberta Recycling*	4.1	3.3	2.9	2.4
	Alberta Recycling (+100% for Expanded Program)	8.2	6.6	5.8	4.8
	National Average	4.0	3.6	3.1	2.9
Paint 	Alberta Recycling*	0.77	0.65	0.63	0.62
	National Average	0.67	0.65	0.71	0.71
Used Oil 	Alberta Recycling**	22.31	19.96	20.56	19.11
	National Average	8.1	7.7	7.9	7.7

* ARMA's fiscal year is April – March whereas all other programs are calendar year January – December (e.g. 2018 numbers are inclusive of the data from ARMA's FY2018/19)

**The AUOMA fiscal year is January-December. ARMA has been managing the program since October, 2018.

¹ Where available

Tire Program Recovery (kg/cap): For used tires, the table shows that during the period of 2015 to 2018, Alberta collected between 14.5 and 17.0 kg/cap of tires. This is higher than the national average in each year, which ranged from 11.2 kg/cap to 11.8 kg/cap. In Alberta, the amount of tires collected per capita decreased by 2.5 kg between 2015 and 2017, but appears to have recovered in 2018.

Electronics Program Recovery (kg/cap): From 2015 to 2018, the weight of electronics collected in Alberta declined from 4.1 kg/cap to 2.4 kg/cap. The same trend can be seen in the national average, where the weight of electronics recovered has decreased from 4.0 kg/cap in 2015 to 2.9 kg/cap in 2018. Compared to other provincial electronics recycling programs, Alberta's electronics program collects the smallest range of products. (The one exception is that Alberta Recycling collects more types of floor standing printers than other provinces). Recovered totals are shown for the existing program, and for double the current value if the electronics program is expanded.

Paint Program Recovery (kg/cap): The amount of paint materials recovered in Alberta's paint program over the last 4 years has decreased by 0.15 kg/cap, from 0.77 kg/cap in 2015 to 0.62 kg/cap in 2018. With the exception of 2015, Alberta's reported per capita recovery values for paint materials have been the same or lower than the national average, which has ranged 0.71 kg/cap and 0.72 kg/cap for the last 3 years.

Used Oil Program Recovery (kg/cap): Over the last four years (2015-2018), the amount of material collected by Alberta's used oil program declined from 22.31 kg/cap to 19.11 kg/cap. The national average has also declined, from 8.1 kg/cap to 7.7 kg/cap. Unlike other provincial used oil programs that collect a wider variety of materials, Alberta's program is limited to collecting used oil, used oil containers and oil filters. All other provinces that collect used oil also collect used glycol/antifreeze, as well as their containers. Two provinces – Saskatchewan and Manitoba – also collect diesel exhaust fluid (DEF) and their associated containers, and four provinces (Quebec, New Brunswick, PEI, and Newfoundland) also collect brake cleaner aerosol containers and lubricant aerosol containers. In Ontario, everything except used oil is covered by the Automotive Material Stewardship² program.

Cost Performance

Table 2 presents a summary of Alberta Recycling's costs expressed as \$/kg for the tires, electronics, paint, and used oil programs from 2015 to 2018, as well as the national average for these years.

² <https://www.automotivematerialsstewardship.ca/>

Table 2: Alberta Recycling Cost Performance for Tires, Electronics, Paint, and Used Oil Programs (2015-2018) (\$/kg)

Cost Performance (\$/kg)		2015	2016	2017	2018
Tires 	Alberta Recycling*	\$0.41	\$0.40	\$0.41	\$0.39
	National Average	\$0.40	\$0.40	\$0.43	\$0.35
Electronics 	Alberta Recycling*	\$1.02	\$1.03	\$1.05	\$1.09
	National Average	\$1.05	\$1.04	\$1.10	\$1.07
Paint 	Alberta Recycling*	\$1.52	\$1.59	\$1.65	\$1.72
	National Average	\$1.88	\$1.92	\$1.93	\$1.96
Used Oil 	Alberta Recycling**	\$0.19	\$0.19	\$0.19	\$0.19
	National Average	\$0.27	\$0.29	\$0.31	\$0.31

* ARMA's fiscal year is April – March whereas all other programs are calendar year January – December (e.g. 2018 numbers are inclusive of the data from ARMA's FY2018/19)

**The AUOMA fiscal year is January-December. ARMA has been managing the program since October, 2018.

Tire Program Costs (\$/kg): Alberta Recycling's cost to recover used tires has decreased over the past four years, from \$0.41/kg in 2015 to \$0.39/kg in 2018. Compared to the national average, Alberta Recycling's tire program costs (on a per kilogram basis) have been higher in two of the last four years, the same in the third year and less in the fourth year. The national average has also decreased from 2015 to 2018, from \$0.40/kg to \$0.35/kg.

Electronics Program Costs (\$/kg): Alberta Recycling's electronics program costs were \$1.09/kg in 2018 compared to the national average of \$1.07/kg. In both cases, this represents an increase in costs from 2015, when Alberta Recycling's cost to operate the electronics program was \$1.02/kg and the national average was \$1.05/kg.

Paint Program Costs (\$/kg): The cost to recover paint materials in Alberta Recycling's paint program has increased by \$0.20/kg since 2015, from \$1.52/kg to \$1.72/kg. The same trend can be seen in the national average³, where costs are generally 12% to 20% higher than Alberta's costs and have risen from \$1.88/kg in 2015 to \$1.96/kg in 2018.

Used Oil Program Costs (\$/kg): Alberta Recycling's oil program costs have remained fairly steady over the last four years at \$0.19/kg. This is lower than the national average in all years, which ranged between \$0.27/kg and \$0.31/kg which is at least 30% more than the Alberta program costs on a \$/kg basis.

³ The national average paint program costs do not include British Columbia, Ontario (except for 2015), Manitoba, or Quebec in the calculation as costs for these programs are not available in a format which allows direct comparison.

Summary: Recovery and Cost Performance for Tires, Electronics, Paint and Used Oil Programs (2015-2018)

The following graphs present the average recovery and cost values for Alberta Recycling compared to the national average for all four programs. The conclusion of the benchmarking exercise is that Alberta Recycling's programs for tires, electronics and paint all perform well when compared to other provincial programs. The used oil program collects substantially more product per capita and costs less in \$/capita than other used oil programs in Canada. The higher recovery per capita is likely related to higher amounts of oil sold into Alberta compared to other provinces. There is no clear explanation for the lower costs/capita for the oil program aside from potential economies of scale.

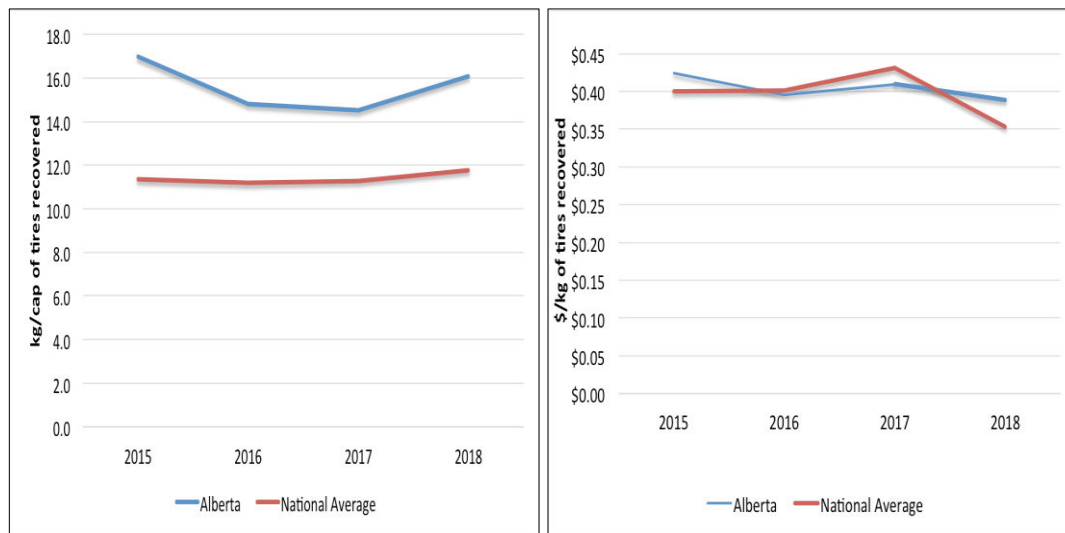


Figure 1: Alberta Recycling Tire Program Performance Compared to National Average for Recovery (kg/cap) and Cost (\$/kg) (2015-2018)

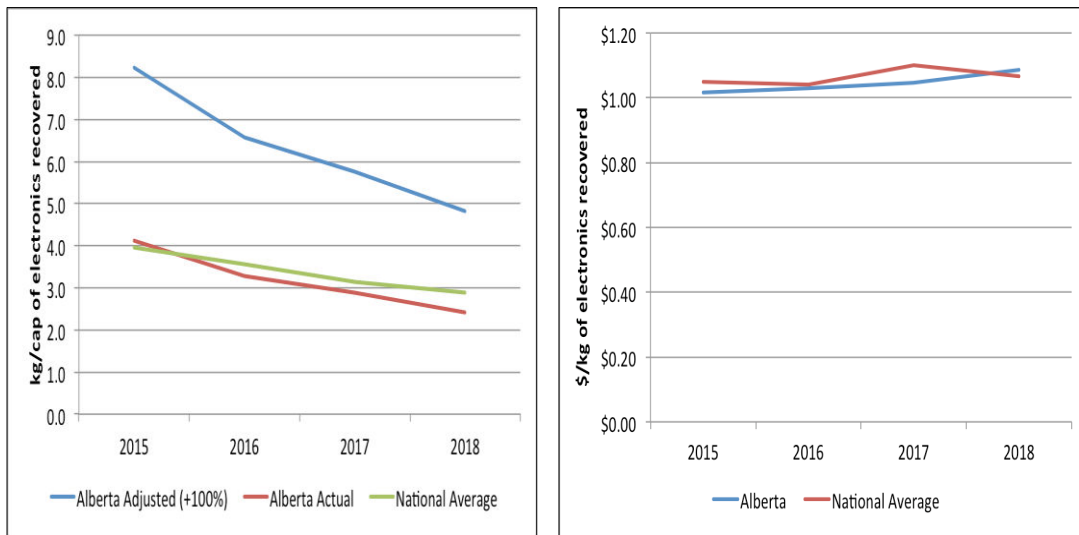


Figure 2: Alberta Recycling Electronics Program Performance Compared to National Average for Recovery (kg/cap) and Cost (\$/kg) (2015-2018)

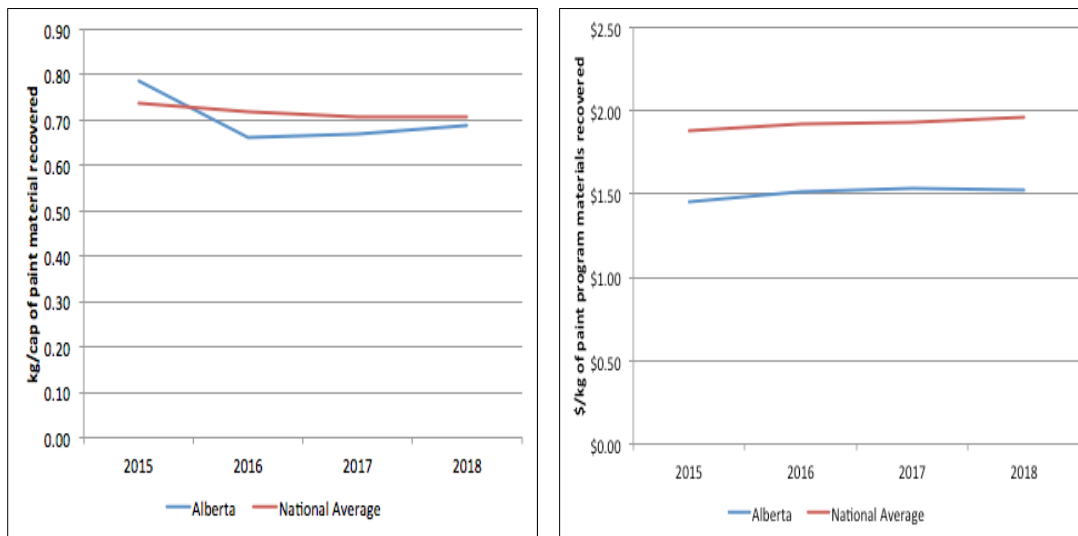


Figure 3: Alberta Recycling Paint Program Performance Compared to National Average for Recovery (kg/cap) and Cost (\$/kg) (2015-2018)

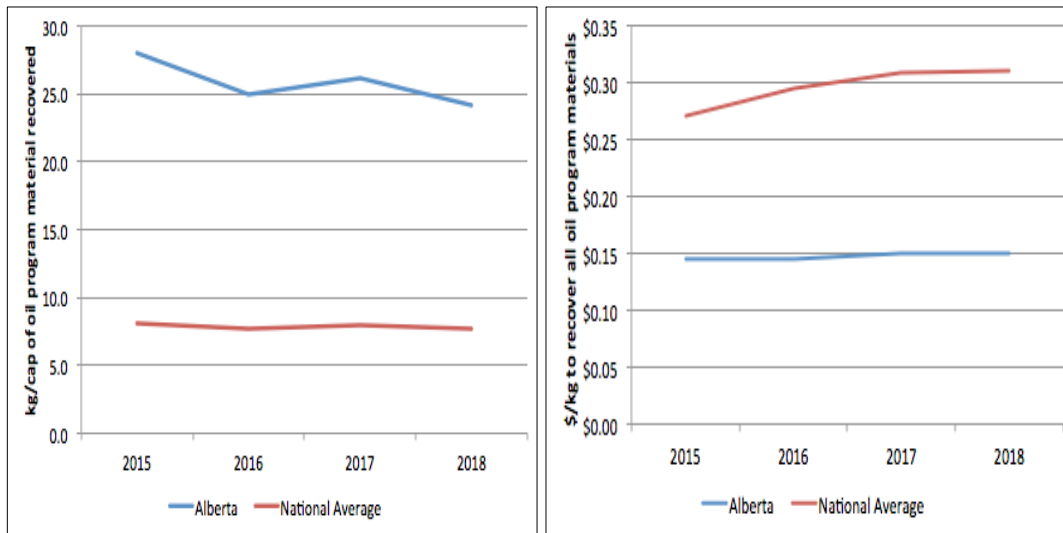


Figure 4: Alberta Recycling Used Oil Program Performance Compared to National Average for Recovery (kg/cap) and Cost (\$/kg) (2015-2018)

1. Introduction

One element of good governance for any organization is to benchmark performance against similar programs and organizations. Kelleher Environmental completed a Benchmarking Study in April, 2018 comparing Alberta Recycling's performance from 2011 to 2016 for the tire, electronics and paint programs. This report updates the previous report with two additional years of data (2017 and 2018) and also adds the used oil program.⁴

Quantitative KPIs from two key goals in Alberta Recycling's Business Plan (to collect and process all end-of-life designated products discarded in Alberta and to ensure program is sustainable and cost-effective) were used for the Benchmarking Study:

- The amount of the designated material recovered annually at end-of-life, expressed as **kg/cap**;
- The total program costs expended annually to recover the designated material at end-of-life, expressed as **\$/kg**.

The report is organized as follows:

- Section 2 describes the methodology;
- Sections 3 to 6 present information collected on tires (Section 3), electronics (Section 4), paint (Section 5), and used oil (Section 6) programs across Canada, and benchmarking results for Alberta Recycling's programs for each material;
- Section 7 presents a summary and conclusions from the benchmarking process.

Detailed information is presented in a series of appendices to the report.

⁴ For many years, the used oil program was operated by the Alberta Used Oil Management Association (AUOMA). In October 2018, the responsibility for program management was transferred to Alberta Recycling.

2. Methodology

The methodology used to compare Alberta Recycling's program performance to others across Canada involved the following steps:

- The Kelleher team reviewed the publicly available annual reports and financial statements by each province and territory's stewardship programs for tires, electronics, and paint for the years 2011-2016 (where available) for the previous Benchmarking Study to identify and collect reported data on material recovery and program costs. This study involved collecting data for 2017 and 2018 from the same sources. It also involved collecting recovery and cost data from the same sources for the used oil program for the years 2015-2018;
- ARMA's fiscal year is April – March whereas fiscal years for all other programs are calendar year January – December. Reference to a particular fiscal year throughout the report includes January to March of the following year. For instance, FY2018/19 includes Jan-March of 2019 for Alberta.
- The AUOMA fiscal year is January-December. ARMA has been managing the program since October, 2018
- In cases where annual reports did not include this data, program operators were contacted directly to obtain the information. A list of documents and references reviewed as part of the benchmarking research is presented in Appendix A.
- Available information on material recovery and program costs was converted to standard KPIs of kg/cap recovered and \$/kg.
- The performance of Alberta Recycling's stewardship programs was compared to other provincial programs as well as to the national weighted average value.
- Performance data related to accessibility (e.g., number of collection sites, number of collection events, and percentage of population with access to a drop-off site) and program awareness was also collected, where available. Awareness of and support for Alberta Recycling programs is measured through public opinion polling. Eight hundred (800) residents are polled annually: one third in each of Calgary, Edmonton and rural areas. Since the polling has been carried out since 2007 (for electronics and tires) and 2008 (for paint), changes in awareness can be tracked over time.

Metrics to Compare Performance of Alberta Used Oil Program to Others Across Canada

Comparing the performance of used oil programs across Canada with Alberta is challenging as Alberta does not collect anti-freeze or anti-freeze containers as most other provincial programs do. Alberta Recycling also does not collect diesel exhaust fluid (DEF) or DEF containers, which two programs do.

The recovery and costs of all program materials collected by the provincial program (in kg/cap) was compared with the amount collected in Alberta.

All reported values for materials collected by used oil programs in each province and territory were converted to kilograms to make the comparison easier. For used oil, all programs except for Alberta report

oil collected in litres. Where litres were reported these were converted to kg using a conversion factor of 0.87kg/litre.⁵

For filters, some programs report filter collection in units, some by weight, and others report both. Where only the number of filters collected was reported, units were converted to weight using a conversion factor of 0.63kg/filter measured by RCA (Recycling Council of Alberta).⁶

For the cost comparison, Alberta's total program costs (in \$/kg) were compared to other programs' total costs across Canada, recognizing that different used oil programs collect different materials.

KPIs Reported in Other Provincial Programs

Appendices B, C, D, and E provide a complete list of all the KPIs and metrics reported for tires, electronics, paint, and used oil programs across Canada in the most recent reporting year, along with references for the information.

Number of Years of Data Used for Benchmarking Tires, Electronics, Paint, and Used Oil Programs

The first Benchmarking Report, published in April 2018, covered program performance for a 6-year period spanning 2011 to 2016 (the most recent year for which data was available at the time). This time span was chosen as the period of study so that economic trends and other factors that could impact a given program's performance in any given year could be more easily identified and taken into consideration. This 2019 Benchmarking Report is intended to update and supplement the 2018 report by adding two additional years of data for the tires, electronics, and paint programs and by incorporating used oil program data for the first time. Given that the data from earlier years covers the period from 2011 to 2016, this report presents data from 2015 to 2018 to provide some overlap but focus on data from the four most recent years which is considered the most relevant.

Population Data for Kilogram/Capita Calculations

Populations by province and territory for the years 2015-2018 are presented in Appendix F. These were obtained through various Statistics Canada publications and were used to calculate kg/cap values for the tires, electronics, paint, and used oil programs where these were not already reported in stewardship organization annual reports.

⁵ Recycling Council of Alberta: Oil Filter Study – 2018 Recycling Ambassador Program Final Report for the Alberta Used Oil Management Association

⁶ Oil filter study conducted in 2018 by the Recycling Council of Alberta for AUOMA (Alberta Used Oil Management Association) measured a weight of 1.59 filters/kg which converts to 0.63kg/filter.

Calculating National Average Values

Weighted average values for kg/cap and \$/kg were calculated for each program for each year (2015-2018) of the Benchmarking Study.

To calculate the national average \$/kg, all reported costs for a given year were added together and divided by the total kilograms recovered for that year.

Only those programs that reported on both costs and kilograms recovered in the same year were included in the \$/kg analysis. In cases where recovery (kg) data was available but no costs were reported on, these kilograms were excluded from the national average \$/kg calculation.

Quebec's paint program, for example, is not included in the national average \$/kg value for paint because there is no information on program costs.

BC and Manitoba are also excluded from the national average \$/kg calculation for paint programs because their annual reports provide only a consolidated cost for all HHW materials collected under the program. With the exception of 2015, Ontario's paint program is also excluded from the national average \$/kg value for the same reason.

3. Benchmarking Alberta Recycling's Tire Program Against Other Provincial Tire Programs

This section presents the key findings of the benchmarking exercise for used tire programs across Canada.

3.1 Tire Program Background and Fees

Programs for collecting and recycling used tires are run by different organizations in different provinces across Canada (see Table 3).

Table 3: Organizations Responsible for Used Tire Programs Across Canada (2019)

Province/Territory	Responsible Organization
British Columbia	Tires Stewardship BC (TSBC)
Alberta	Alberta Recycling
Saskatchewan	Tire Stewardship of Saskatchewan (TSS) (until 2016 it was Saskatchewan Scrap Tire Corporation (SSTC))
Manitoba	Tire Stewardship Manitoba (TSM)
Ontario	Ontario Tire Stewardship until December 31 st , 2018. Under new legislation and regulations starting 1 st January, 2019 Ontario has moved to an IPR (individual producer responsibility) model with multiple PROs (producer responsibility organizations) managing used tires. To date the following PROs have registered with the RPRA (Resource Productivity and Recovery Authority): CRM; eTracks; Tire Management Systems; Mobius PRO Services; Reclay PRO; Ryse Solutions Inc., and YESS
Quebec	Recyc-Quebec
New Brunswick	RecycleNB
Nova Scotia	DivertNS (previously known as Resource Recovery Fund Board (RRFB))
Prince Edward Island	Island Waste Management Corporation (IWMC)
Newfoundland and Labrador	Multi-Materials Stewardship Board
Yukon	Yukon Government

While most programs include performance data on their websites in annual reports, the format these reports vary, with some containing more detail than others (Alberta Recycling's annual reports tend to provide a greater level of detail). Also, the metrics used to report on performance vary. Some programs report tires recovered in tonnes, while others report only in units.

In order to convert from units to tonnes, a conversion factor of one passenger tire equivalent (PTE) to 10kg was used.⁷ The majority of tire programs also report on the number of tires sold, number of collection sites, program costs, and revenues. In most cases, the KPIs that must be reported are outlined in provincial stewardship plans or regulations.

The way in which programs report on the final disposition of collected tires also varies. For example:

- BC provides a breakdown of the tonnes of processed tires that are converted into new products or sent to energy recovery or landfill.
- Tire Stewardship of Saskatchewan reports on the total weight of scrap tires that are converted into different products like shred, crumb, waste steel, and manufactured products.
- PEI's program operator, the Island Waste Management Corporation, simply states that a certain number of tonnes were shipped for recycling and/or as a fuel source, with no further breakdown or detail on end-fate of the material.
- Prior to moving to the new EPR regime, Ontario Tire Stewardship used to report on tonnes recovered, reused, actual input to recycling, material losses and disposal, recycled rubber, recycled steel, recycled fibre and total tonnes recycled, etc. The new Tires Regulation (O. Reg 225/18)⁸ requires producers to submit to the RPRA (Resource Productivity and Recovery Authority) an annual report that contains information on the number and calculated weight of tires, for each tire type, that were reused and retreaded; the weight of processed materials, by material type, that resulted from the processing of tires; a list of the types of products and packaging that were made with the processed materials; and the number and calculated weight of processed materials that were land disposed, incinerated, used as a fuel or fuel supplement, or stored, stockpiled, or otherwise deposited on land.

There are also differences between provinces in terms of what types and sizes of tires are included in each program. Manitoba and Ontario's programs, for example, are the most comprehensive and include all tire types, except for aviation tires. The programs in New Brunswick, Nova Scotia, and Newfoundland cover passenger/light truck tires and medium truck/bus tires.

Table 4 presents tire stewardship fees across Canada as of February 2019. For passenger car and light truck tires, the fees range from a low of \$3.00/tire in Quebec to \$11.25/tire (depending on rim size) in PEI. Alberta's fee for medium truck tires is \$9/tire, which is the same as that in Yukon, BC, Manitoba, and Newfoundland. The lowest fee is charged in Quebec (\$3/tire), and the highest fees are charged in Saskatchewan (\$14/tire) and Ontario (\$14/tire for one PRO). About half of the provinces (but not Alberta) collect agricultural tires, with the fees ranging from \$3.00 to \$36.41, depending on rim size. Fees for off-the-road (OTR) tires range from \$3.00 in Quebec to as high as \$1,015 in Ontario, depending on rim size.

⁷ Conversion factor was obtained from the 2014 New Brunswick Annual Report.

⁸ <https://www.ontario.ca/laws/regulation/r18225#BK23>

Table 4: Tire Fees Across Canada (as of February, 2019)⁹

TIRE CATEGORY	TIRE SUB-CATEGORY	YK	BC	AB	SK	MB	ON <i>eTracks only</i>	QC	NB	PE	NS	NL
Passenger / Light Truck	Passenger, Small RV, Light Truck	\$7.00	\$5.00	\$4.00*	\$4.00	\$3.75	\$4.00	\$3.00	\$4.50	\$4.00 or \$11.25*	\$4.50	\$3.00 or \$9.00*
	Motorcycle, Golf Cart, All Terrain Vehicle	\$5.00	\$5.00	\$4.00	\$4.00	\$3.75	\$4.00	\$3.00	\$3.00	\$4.00	\$4.50	\$9.00
	Small Utility, RV Trailer	\$5.00	\$5.00	\$4.00	\$4.00	\$3.75	\$4.00	\$3.00	\$4.50	\$4.00	\$4.50	\$3.00
	Lawn & Garden Tractor	\$5.00	\$5.00	\$4.00	\$4.00	\$3.75	\$4.55	\$3.00	\$3.00	\$4.00	-	-
Truck / Bus	Medium Truck, Bus, Highway Trailer	\$9.00	\$9.00	\$9.00	\$14.00	\$9.00	\$14.00	\$3.00	\$13.50	\$11.25	\$13.50	\$9.00
Agricultural	Agricultural (Small)	-	\$5.00	-	\$4.00	\$3.75	\$9.10	\$3.00	-	\$11.25	-	-
	Agricultural Drive (Med.)	-	\$15.00	-	\$25.00	\$9.00	\$22.76	\$3.00	-	\$11.25	-	-
	Agricultural Drive (Large)	-	\$35.00	-	\$25.00	\$30.00	\$36.41	\$3.00	-	\$11.25	-	-
Industrial	Forklift, Bobcat/Skid Steer	\$7.00**	\$5.00 or \$15.00 * / **	\$4.00 or \$40.00 * / **	\$4.00 or \$14.00 *	\$3.75 or \$9.00 *	\$9.10 to \$45.51	\$3.00	-	\$4.00	-	-
	Logger / Skidder	\$7.00	\$35.00	\$100.00	\$57.00	\$135.00	\$36.41	\$3.00	-	\$11.25	-	-

⁹ Canadian Association of Tire Recycling Agencies (CATRA). "Canada's Tire Recycling Fees by Province / by Tire Type." Rev. 22 Feb 2019. Available at https://www.catraonline.ca/storage/files/shares/publications-en/Canada_TRFs_by_province_by_tire_type-Rev_22Feb2019.pdf

TIRE CATEGORY	TIRE SUB-CATEGORY	YK	BC	AB	SK	MB	ON <i>eTracks</i> only	QC	NB	PE	NS	NL
	Skid Steer, Loader	\$7.00	\$35.00	\$40.00	\$14.00	\$9.00	\$22.76	\$3.00	-	\$11.25	-	-
	Aviation	-	-	-	-	-	-	-	-	-	-	-
Off the Road	Small OTR	\$40.00	-	\$40.00	\$57.00	\$60.00	\$22.76	\$3.00	-	\$11.25	-	-
	Medium OTR	\$100.00	-	\$100.00	\$140.00	\$135.00	\$141.10 to \$273.09	-	-	\$11.25	-	-
	Large OTR	\$200.00	-	\$200.00	\$140.00	\$135.00	\$423.29	-	-	\$11.25	-	-
	Giant OTR	-	-	-	-	\$135.00	\$1,014.98	-	-	\$11.25	-	-

Notes:

*The TRF varies by sub-category type

**Only selected sub-category types are included in this Province's program.

For Ontario, the fees shown in this table are those for the *eTracks Tire Management Systems* PRO only. There are 5 other PROs for tires in Ontario, and their fees may vary.

3.2 Tire Program Recovery (kg/cap) Across Canada

Table 5 summarizes the weight of tires recovered in each provincial program from 2015 to 2018 on a per capita basis, where data was available. Figure 7 shows a comparison between Alberta Recycling's tire program recovery performance and the national average for the same time period.

Table 5: Amount Recovered by Tire Programs Across Canada (2015-2018) (kg/cap)¹⁰

	2015	2016	2017	2018	2018 tonnes
AB*	17.0	14.8	14.5	16.1	67,611
BC	9.6	9.6	10.1	10.3	51,419
SK¹¹	17.3	15.9	9.1	14.7	17,058
MB	14.8	14.1	13.7	13.4	18,177
ON	10.0	10.2	10.1	10.9	156,515
QC	10.5	10.5	12.1	10.9	91,851
NB	14.5	15.1	14.1	15.9	12,217
NS	12.4	11.7	12.4	13.5	13,000
PEI	16.3	16.8	17.0	15.8	2,425
NL	9.8	9.7	9.4	8.3	4,370
YK	28.9	21.2	N/A	12.9	N/A
National Average¹²	11.3	11.2	11.3	11.8	524

* ARMA's fiscal year is April – March whereas all other programs are calendar year January – December (e.g. 2018 numbers are inclusive of the data from ARMA's FY2018/19)

¹⁰ In cases where data on tires collected was only reported in units, a conversion factor of 1 PTE = 10kg was used.

¹¹ Tire Stewardship of Saskatchewan took over the program from Saskatchewan Scrap Tire Corporation in July 2017. TSS's annual report only includes data on units collected for the period of September 1 to December 31, 2017. No data available on tonnes of tires collected by SSTC for the beginning of the year. However, CATRA's 2018 annual report estimates that 10,524 total tonnes of tires were collected in SK in 2017. They came up with this number by extrapolating based on actual volume for 4 months of operation under SK's new program managers.

¹² National average is calculated by summing the kilograms processed in participating provinces and dividing by the total population of those provinces which have operating programs.

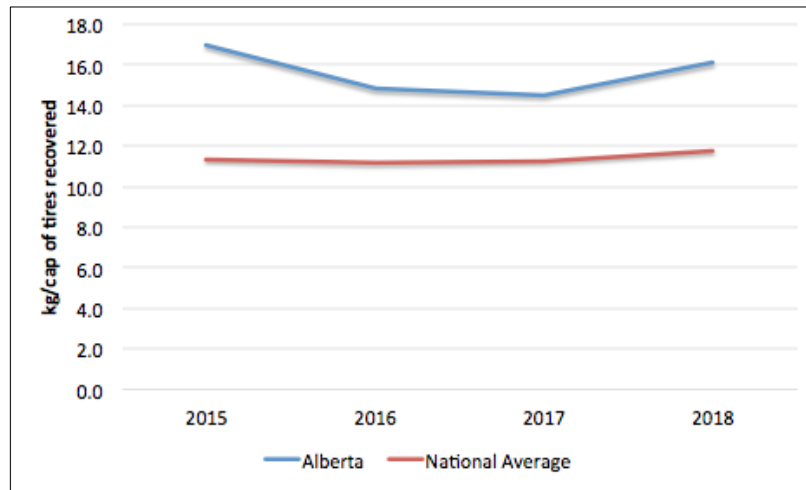


Figure 5: Comparison of Alberta Recycling's Tire Program Recovery to National Average (2015-2018) (kg/cap)

Key observations comparing Alberta Recycling's tire program recovery performance to other provincial programs, and to the national average are:

- Alberta Tire Program Recovery Performance (kg/cap):** Alberta recovered 16.1 kg/cap in 2018, which is a notable increase over 2016 and 2017 levels when recovery was 14.8 kg/cap and 14.5 kg/cap, respectively. Recovery was 17.0kg/cap in 2015. It is the first time since 2016 that kg/cap recovery is on the rise. The decline to 14.5kg/cap in 2017 was primarily attributed to the lagged decline in lower recoveries due to lower sales during the economic downturn in 2014. Recovery is a function of the amount of tires sold into the province on a per capita basis. This varies widely across Canada.
- Comparison of Alberta Tire Program Performance to National Average:** Alberta consistently exceeds the national average by a wide margin for kg/cap recovered. However, this may be related to the fact that higher amounts of tires per capita are sold into the province. In 2018 it exceeded the national average recovery rate by 4.3 kg/cap. The rate at which tires reach end of life and are recovered is impacted by economic conditions in different provinces.

3.3 Tire Program Costs (\$/kg) Across Canada

Table 6 presents information on the total cost per kilogram to recover tires in each program across Canada, from 2015-2018, where data are available. Alberta Recycling tire program costs are presented along with the national average in Figure 6.

Table 6: Tire Program Costs Across Canada (2015-2018) (\$/kg)

	2015	2016	2017	2018
AB*	\$0.41	\$0.40	\$0.41	\$0.39
BC	\$0.46	\$0.46	\$0.47	\$0.45
SK	\$0.51	\$0.47	\$0.61	\$0.53
MB	\$0.39	\$0.37	\$0.37	\$0.33
ON	\$0.47	\$0.45	\$0.52	\$0.29
QC	\$0.22	\$0.29	\$0.30	\$0.33
NB	\$0.45	\$0.44	\$0.44	\$0.43
NS	\$0.33	\$0.35	\$0.39	\$0.37
PEI	\$0.46	\$0.35	\$0.38	\$0.55
NL	\$0.46	\$0.44	\$0.44	\$0.54
YK	\$0.54	\$0.65	n/a	\$1.08
National Average	\$0.40	\$0.40	\$0.43	\$0.35

* ARMA's fiscal year is April – March whereas all other programs are calendar year January – December (e.g. 2018 numbers are inclusive of the data from ARMA's FY2018/19)

Key observations comparing Alberta Recycling's tire program cost performance with other provincial programs, and to the national average include:

- **Alberta Tire Program Cost Performance (\$/kg):** Alberta's cost to recover tires was \$0.39/kg in 2018, which is a small decrease from 2017. The higher costs in recent years are due to higher than projected levels of value-added processing including crumb and mulch. The Board reduced this funding in 2017/18 to reduce costs.
- **Comparison of Alberta Tire Program Cost Performance to National Average:** The national average cost to recover tires across Canada has been on the decline since 2015. In 2015, the average cost was \$0.39, and in 2018 this has decreased to \$0.35. Table 7 shows Alberta Recycling's program costs compared to the national average for 2015 to 2018. The table shows that Alberta Recycling's tire program costs (expressed as \$/kg of tires recovered) are typically very similar to the national average.

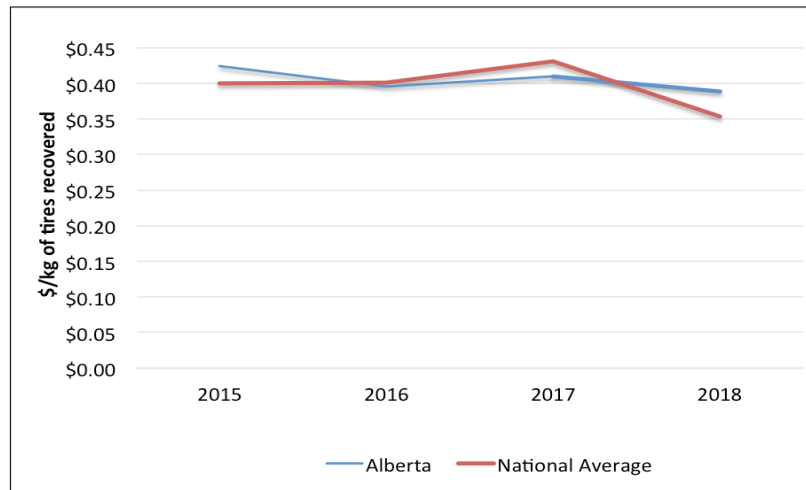


Figure 6: Alberta Recycling Tire Program Cost Compared to National Average (2015-2018) (\$/kg)

3.4 Tire Program Awareness and Support

Table 7 presents detailed awareness and support information for Alberta Recycling's tire program for 2015/16 to 2018/19. The information is presented in graphic format in Figure 7.

The table shows that support for the program is very high, ranging from 83% to 87% depending on the year. The percentage of the population aware that the tires programs exists is somewhat lower (61% to 72%).

Table 8 shows the results of public opinion polling on awareness of and support for the fees related to the tires programs. Similar to Alberta Recycling's other programs, public support for the tire surcharges is lower than support for the program itself.

Table 7: Public Awareness and Support of Alberta Recycling's Tires Programs and Fees/Surcharges (2015/16-2018/19)

Year	Awareness of Tire Program 	Support for Tire Program 	Awareness of Tire Surcharges 	Support for Tire Surcharges 
2015-16	72%	86%	70%	64%
2016-17 ¹³	61%	87%	64%	61%
2017-18	65%	83%	65%	60%
2018-19	61%	83%	64%	62%

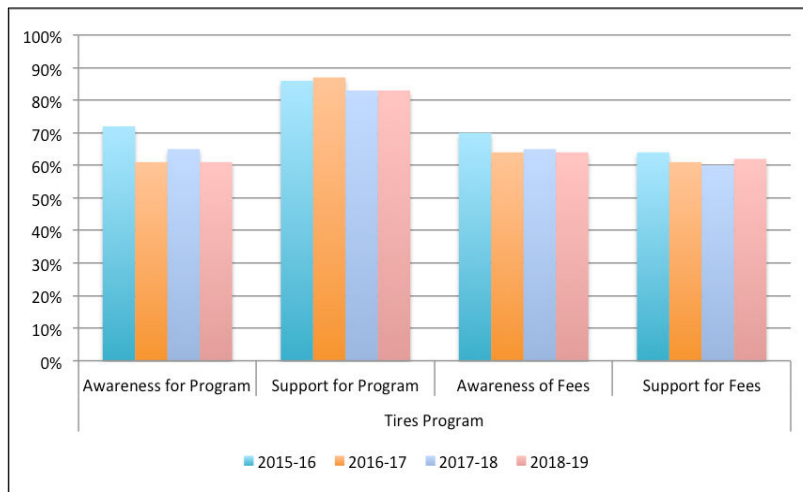


Figure 7: Public Awareness and Support for Alberta Recycling Tire Program and Fees (2015/16-2018/19)

¹³ In 2017, the response scale for support questions was revised from a 10-point scale to a five-point scale in order to simplify the respondent's selection process and to align with a related survey by Alberta Environment and Parks. This five-point scale will be used from this point forward.

Table 8 presents reported awareness levels of the various tire stewardship programs across Canada for 2015 to 2018. As with the paint programs, awareness of tire programs is not measured as regularly and is not measured by every province.

Table 8: Awareness of Tire Programs by Province (2015-2018)

	2015	2016	2017	2018
BC	Not measured	Not measured	Not measured	59%
SK	Not measured	Not measured	Not measured	Not measured
MB	53%	59%	56%	54%
ON	47%	58%	N/A	N/A
QC	Not measured	Not measured	Not measured	Not measured
NB	Not measured	Not measured	Not measured	Not measured
NS	Not measured	Not measured	Not measured	Not measured
PEI	Not measured	Not measured	Not measured	Not measured
NL	Not measured	Not measured	Not measured	Not measured

* ARMA's fiscal year is April – March whereas all other programs are calendar year January – December (e.g. 2018 numbers are inclusive of the data from ARMA's FY2018/19)

4 Benchmarking Alberta Recycling's Electronics Program Against Other Provincial Electronics Programs

This section presents the key findings of the benchmarking exercise for electronics stewardship programs across Canada.

4.1 Electronics Program Background and Fees

Alberta was the first province in Canada and North America to implement an electronic stewardship program in 2004. Since that time, all provinces and territories (with the exception of Nunavut) have followed suit, implementing similar programs aimed at increasing the collection and recycling of end-of-life electronics, with the latest being Yukon Territory in October 2018. Most of these programs are run by one organization, the Electronic Products Recycling Association (EPRA)¹⁴; the exceptions are Alberta, Yukon (government-run) and the Northwest Territories (government-run).

When comparing performance across provinces, the fact that the programs started at different times should be taken into account. Normally, as recycling programs mature, they collect more materials as the number of collection sites increases and as more people become aware of the program. The list of designated electronics varies by province, and is presented in Appendix G.

Table 9 presents a summary of the environmental handling fees (EHFs) charged on electronic products in each program across Canada.¹⁵ Since EHFs are meant to reflect the actual cost of recycling a particular product, they are not uniform across product categories or provinces and will vary depending on a number of factors.

For most product categories, the highest fees can be found in Yukon and the Northwest Territories, followed by the Atlantic provinces. In Yukon, for example, the fee for display devices 46" or greater in size is \$56 and in Northwest Territories is \$40. This is significantly higher than in other provinces, where the fees for this product category are between \$10 and \$35.

The provinces with the lowest fees are Saskatchewan, Manitoba, and Quebec. Both Saskatchewan and Manitoba have seen fee decreases in almost all categories since the last report, while Quebec's fees have generally remained the same. Alberta's fees, which have remain unchanged since the last report, fall somewhere in the middle.

There are now EHFs on countertop microwave ovens in five provinces and territories, including Manitoba, Saskatchewan, Yukon, Nova Scotia, and PEI. In the previous report, Manitoba was the only province that accepted microwaves in its program.

¹⁴ www.epra.ca

¹⁵ EPRA. Provincial Program Product Definitions and Fees. Current Listing December 2, 2019. Available at https://epra.ca/wp-content/uploads/2019/12/EPRA_EHF_Tables_Dec_Final.pdf

Since the last Benchmarking Report, a few provinces have also added cellular devices and pagers to their programs, including BC, Manitoba, and the Atlantic provinces. Saskatchewan and PEI added floor-standing printers.

Yukon charges EHF's on time and weight measurement devices; air treatment, garment care, and personal care appliances; kitchen countertop motorized and heating and cooking appliances; kitchen countertop appliances for making hot beverages; and small- and full-size floor cleaning devices. In BC, small household appliances are managed by a separate program and organization (CESA).

Table 9: Electronics Fees Across Canada (as of December 2, 2019)¹⁶

PRODUCT CATEGORY	BC	AB	SK	MB	ON*	QC	NS	PEI	NL	NWT	YK	NB
Desktop Computers	\$1.00	\$4.40	\$1.00	\$1.00	\$0.00	\$1.00	\$2.00	\$2.00	\$2.75	\$10.50	\$2.80	\$3.50
Large Battery-Powered Ride-On Toys	\$1.00	-	-	-	-	-	-	-	-	-	-	-
Portable Computers	\$0.80	\$1.20	\$0.80	\$0.80	\$0.00	\$0.80	\$1.00	1.00	\$1.50	\$3.00	\$2.00	\$2.00
Small Battery-Powered Ride-On Toys	\$0.80	-	-	-	-	-	-	-	-	-	-	-
Display Devices ≤ 29" All-in-one (AIO) computers	\$6.00	\$4.00	\$4.00	\$4.00	\$0.00	\$5.50	\$9.00	\$9.00	\$10.00	\$12.25	\$14.00	\$12.00
Display Devices 30-45" All-in-one (AIO) computers	\$10.00	>30": \$10.00	\$8.00	\$8.00	\$0.00	\$9.00	\$18.00	\$18.00	\$20.00	\$24.50	\$24.00	\$20.00
Display Devices ≥ 46" All-in-one (AIO) computers	\$25.00	>30": \$10.00	\$20.00	\$20.00	\$0.00	\$24.00	\$32.00	\$32.00	\$35.00	\$40.00	\$56.00	\$35.00
Desktop Printers	\$1.50	\$4.80	\$1.00	\$1.00	\$0.00	\$1.25	\$3.00	\$3.00	\$3.00	\$8.00	\$2.50	\$3.50
Floor Standing Printers	\$10.00	\$4.80	\$10.00	\$10.00	\$0.00	-	-	\$35.00	-	\$40.00	-	-
Computer Peripherals	\$0.20	-	\$0.20	\$0.20	\$0.00	\$0.20	\$0.50	\$0.50	\$0.50	-	\$0.40	\$0.75
Personal/Portable Audio/Video Playback and/or Recording Systems	\$0.35	-	\$0.20	\$0.20	\$0.00	\$0.25	\$0.50	\$0.50	\$0.50	-	\$0.50	\$0.75
Electronic Toys	\$0.35	-	-	-	-	-	-	-	-	-	-	-

¹⁶ EPRA. Provincial Program Product Definitions and Fees. Current Listing December 2, 2019. Available at https://epra.ca/wp-content/uploads/2019/12/EPRA_EHF_Tables_Dec_Final.pdf

PRODUCT CATEGORY	BC	AB	SK	MB	ON*	QC	NS	PEI	NL	NWT	YK	NB
Home Audio/Video Playback and/or Recording Systems	\$1.10	-	\$0.90	\$0.90	\$0.00	\$0.80	\$2.00	\$2.00	\$2.00	-	\$2.20	\$2.00
Home Theatre in a Box	\$1.10	-	\$0.90	\$0.90	\$0.00	\$0.80	\$2.00	\$2.00	\$2.00	-	\$2.20	\$2.00
Vehicle Audio and Video Systems	\$1.10	-	\$0.90	\$0.90	\$0.00	\$0.80	\$2.00	\$2.00	\$2.00	-	\$2.20	\$2.00
Non-Cellular Telephones and Answering Machines	\$0.45	-	\$0.25	\$0.25	\$0.00	\$0.45	\$0.60	\$0.60	\$0.60	-	\$0.90	\$0.85
Cellular Devices and Pagers	\$0.07	-	-	\$0.07	\$0.00	\$0.07	\$0.07	\$0.07	\$0.07	-	\$0.14	\$0.07
Countertop Microwave Ovens	-	-	\$1.50	\$1.50	-	-	<1.0 cu. ft.: \$4.50**	\$4.50	-	-	\$10.94	-
IT and Telecom Equipment and Medical and Monitoring Equipment		-	-	-	-	-	-	-	-	-	-	-
<2kg	\$0.35											
2-10kg	\$0.80											
10-50kg	\$1.00											
50-200kg	\$10.00											
Musical Instruments		-	-	-	-	-	-	-	-	-	-	-
With a battery	\$0.35											
With a plug	\$1.10											
Micro Toys Electronic	\$0.05	-	-	-	-	-	-	-	-	-	-	-
Time Measurement Devices	-	-	-	-	-	-	-	-	-	-	\$0.70	-

PRODUCT CATEGORY	BC	AB	SK	MB	ON*	QC	NS	PEI	NL	NWT	YK	NB
Weight Measurement Devices	-	-	-	-	-	-	-	-	-	-	\$0.70	-
Air Treatment Appliances	-	-	-	-	-	-	-	-	-	-	\$1.75	-
Garment Care Appliances	-	-	-	-	-	-	-	-	-	-	\$1.23	-
Personal Care Appliances	-	-	-	-	-	-	-	-	-	-	\$1.75	-
Kitchen Countertop Heating and Cooking Appliances	-	-	-	-	-	-	-	-	-	-	\$1.40	-
Kitchen Countertop Motorized Appliances	-	-	-	-	-	-	-	-	-	-	\$0.88	-
Kitchen Countertop Appliances For Making Hot Beverages	-	-	-	-	-	-	-	-	-	-	\$1.23	-
Small Floor Cleaning Devices	-	-	-	-	-	-	-	-		-	\$0.70	-
Full Size Floor Cleaning Devices	-	-	-	-	-	-	-	-		-	\$4.38	-
Note: *Due to OES program wind up, effective February 1, 2019 Ontario EHF is \$0.00. **Effective January 1, 2020.												

4.2 Electronics Program Recovery (kg/cap) Across Canada

Table 10 summarizes the weight of electronics recovered per capita in each provincial program from 2015 to 2018, where data was available. As part of its mandate to harmonize programs, EPRA uses a suite of core KPIs to report on provincial program performance each year. This makes it easy to compare programs on a province-by-province basis, since the format of each annual report is the same, except for Ontario where the format is slightly different because of regulatory requirements.

It is clear from the table that the tonnage of electronics recovered in most provincial programs has been on a decline. Part of this decline can be explained by the recent trends toward producing multi-function electrical and electronic equipment as well as toward light-weighting products and miniaturization.

Alberta Recycling recovered a total of 10,111 tonnes in 2018. Compared to other provinces, Alberta's electronics recycling program collects a smaller range of electronic products. It is estimated that an expanded electronics program which is currently under consideration by the Alberta government would increase electronics recovery by 100% from today's values. This value is shown also.

Table 10: Amount Recovered by Electronics Programs Across Canada (2015-2018) (kg/cap)

	2015	2016	2017	2018	2018 tonnes
AB (Actual)*	4.1	3.3	2.9	2.4	10,111
AB (Future Program Recovery: Adjusted by 100%)	8.2	6.6	5.8	4.8	20,222
BC	4.6	4.2	3.8	3.6	16,815
SK	2.4	2.3	2.1	2.1	2,344
MB	2.7	2.7	2.3	2.4	3,024
ON	4.8	4.5	3.9	3.6	47,711
QC¹⁷	2.5	2.6	2.7	2.6	21,387
NB¹⁸	No program	No program	1.1	1.2	861
NS	4.7	4.5	3.9	3.2	3,169
PEI	4.2	4.7	4.0	3.2	458
NL	2.0	1.9	1.7	1.5	796
NWT	No program	n/a ¹⁹	1.9	2.0	87
YK	No program	No program	No program	2.9	119
National Average	4.0	3.6	3.1	2.9	

* ARMA's fiscal year is April – March whereas all other programs are calendar year January – December (e.g. 2018 numbers are inclusive of the data from ARMA's FY2018/19)

¹⁷ In Quebec, the program requires the reporting of electronics collected for reuse to be reported separately from that collected for recycling. The kg/cap values in this table are for both totals added together.

¹⁸ New Brunswick's program launched in March 2017.

¹⁹ Northwest Territories' program began on February 1, 2016 but there is no performance data or cost data available for that year.

Key observations comparing Alberta Recycling's electronics program performance to other provincial programs, and to the national average are:

- **Alberta Electronics Program Recovery Performance (kg/cap):** In 2018, 2.4 kg/cap of designated electronics were recovered, down 0.5 kg from 2017, and 1.7 kg since 2015. The decline is primarily attributed to the lagged decline in lower recoveries due to lower sales during the economic downturn in 2014, as well as to the fact that a lot of the heavier electronics (e.g. CRT based televisions and monitors) have now been recycled. The recovery value for an expanded program in 2018 is estimated at 4.8 kg/cap (at a 100% increase).
- **Comparison of Alberta Electronics Program Recovery Performance to National Average:** In 2018, the national average was 2.9 kg/cap of electronics recovered, which is 0.5 kg/cap higher than Alberta's figure. However, Alberta's program covers a very narrow list of obligated products. The anticipated recovery value for an expanded program would be nearly 2kg/cap higher than the national average in 2018, assuming an expanded program would double recovery from current levels.

Alberta Recycling's performance for the electronics program (current as well as future) is shown along with the national average in Figure 8.

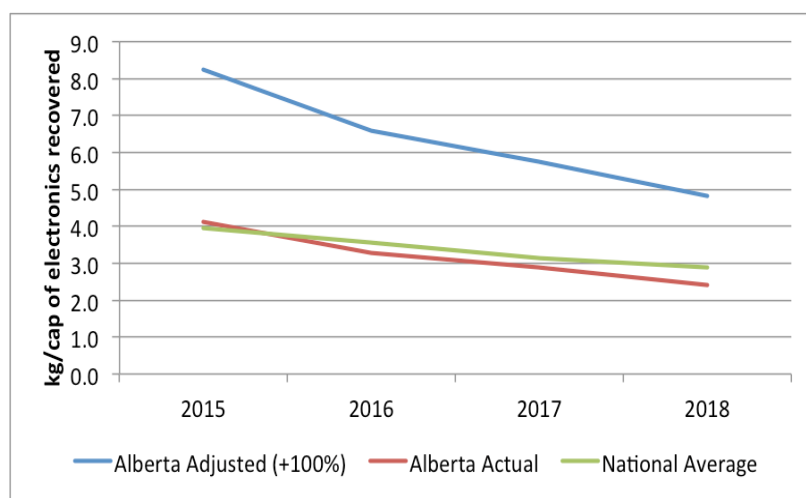


Figure 8: Comparison of Current and Future Alberta Recycling Electronics Program Recovery to National Average (2015-2018) (kg/cap)

The figure shows the continuous drop in the amount of electronics recovered from 2015 to 2018. This trend, which started around 2013 and has also occurred in electronic programs throughout the US and Europe, was discussed in some detail in the 2018 Benchmarking Report. The trend of declining tonnages of electronics is related to a number of factors, including product light weighting and miniaturization, device convergence, and the gradual reduction in the number of heavier televisions and monitors being collected, as noted above.

4.3 Electronics Program Costs (\$/kg) Across Canada

Table 11 presents information on the total costs to operate electronics stewardship programs across Canada each year from 2015 to 2018 on a \$/kg basis. New Brunswick and NWT were not included in the 2018 Benchmarking Report in the analysis as no performance information was available at the time. They are now included.

Table 11: Electronics Program Costs Across Canada (2015-2018) (\$/kg)

	2015	2016	2017	2018
AB*	\$1.02	\$1.03	\$1.05	\$1.09
BC	\$1.03	\$1.02	\$1.03	\$1.06
SK	\$1.38	\$1.35	\$1.44	\$1.34
MB	\$1.10	\$1.10	\$1.17	\$1.15
ON	\$1.02	\$1.01	\$1.08	\$0.98
QC	\$1.10	\$1.05	\$1.08	\$1.07
NB²⁰	No program	No program	\$2.86	\$2.55
NS	\$1.05	\$1.05	\$1.08	\$1.08
PEI	\$1.09	\$1.02	\$1.16	\$1.19
NL	\$2.03	\$2.09	\$2.18	\$2.35
NWT²¹	No program	See note	See note	\$4.63
YK	No program	No program	No program	\$4.07
National Average	\$1.05	\$1.04	\$1.10	\$1.06

* ARMA's fiscal year is April – March whereas all other programs are calendar year January – December (e.g. 2018 numbers are inclusive of the data from ARMA's FY2018/19)

Comparing Alberta Recycling electronics program cost performance to other provincial programs, and to the national average:

- **Alberta Electronics Program Cost (\$/kg):** Alberta's cost to recover electronics has increased each year since 2015, from \$1.02/kg in 2015 to \$1.09/kg in 2018.
- **Comparison of Alberta Electronics Program Cost to National Average:** In 2018, Alberta Recycling's cost was slightly (2%) higher than the national average. This is in contrast to other years), when Alberta's costs were 1-5% lower. Program costs per kilogram are generally higher in provinces with smaller populations (SK, PEI, NWT, and YK), and can be explained by lack of economies of scale in these markets.

²⁰ New Brunswick's program launched in March 2017

²¹ Northwest Territories' electronics program launched on February 1, 2016. No recovery or cost data was available for 2016/2017. 86,400 kilograms were collected in 2017-2018 but cost data is incomplete (does not include transportation or administration costs) so this year was excluded from the analysis. 2018/2019 cost and performance data was provided via e-mail by NWT's Recycling Coordinator.

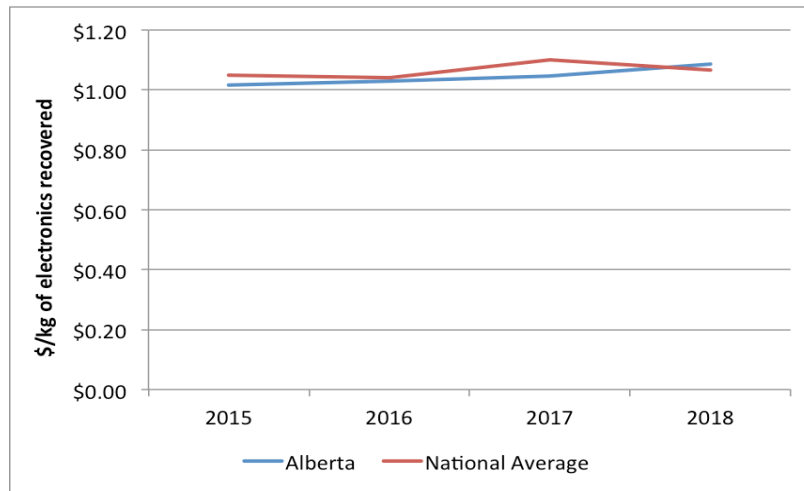


Figure 9: Alberta Recycling Electronics Program Costs Compared to National Average (2015-2018) (\$/kg)

4.4 Electronics Program Awareness and Support

Table 12 presents detailed awareness and support information for Alberta Recycling’s electronics program for 2015/16 to 2018/19. The information is presented graphically in Figure 10.

The table shows that support for the electronics program is very high, ranging from 85% to 89% depending on the year. The percentage of the population aware that this program exists is much lower, at between 52% and 70%, and has been decreasing each year since 2015.

Table 12 also shows the results of public opinion polling on awareness of and support for the fees related to the electronics program. As with Alberta Recycling’s other stewardship programs, public support for the surcharges is lower than support for the program itself. Support for Alberta Recycling’s electronics surcharges was at 47% in 2018/19, which is a drop of 6 percentage points from 2015/16. The public’s awareness of these surcharges has also declined in the last four years, from 55% to 49%.

Table 12: Public Awareness and Support of Alberta Recycling's Electronics Program and Fees/Surcharges (2015/16-2018/19)

Year	Awareness of Program 	Support for Program 	Awareness of Surcharges 	Support for Surcharges 
2015-16	70%	89%	55%	53%
2016-17²²	66%	86%	53%	51%
2017-18	64%	89%	49%	47%
2018-19	52%	85%	49%	47%

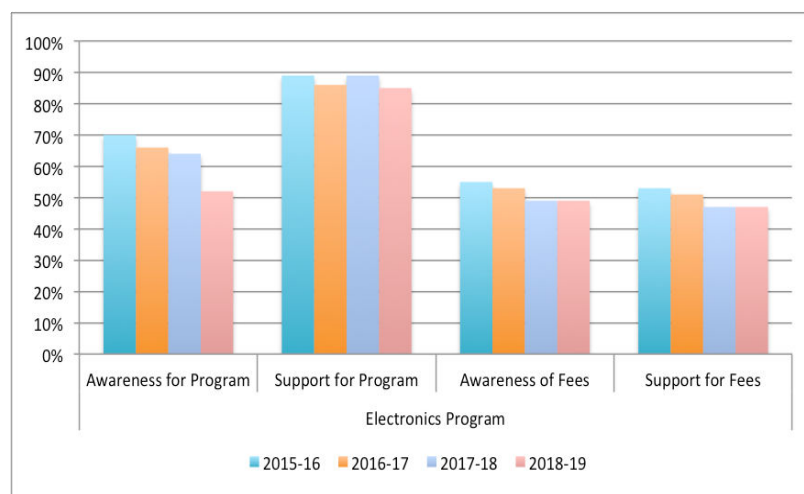


Figure 10: Public Awareness and Support for Alberta Recycling Electronics Program and Fees (2015/16-2018/19)

EPRA measures awareness of its electronics recycling programs in all provinces. Reported EPRA data for all provinces is presented in Table 13, along with Alberta Recycling data on electronics program awareness for the years from 2015 to 2018. Awareness levels are not measured in NWT and Yukon's programs.

²² In 2017, the response scale for support questions was revised from a 10-point scale to a five-point scale in order to simplify the respondent's selection process and to align with a related survey by Alberta Environment and Parks. This five-point scale will be used from this point forward.

Table 13: Awareness of Electronics Programs by Province (2015-2018)

	2015	2016	2017	2018
BC	76%	75%	76%	70%
SK	82%	84%	85%	89%
MB	68%	69%	69%	76%
ON	62%	65%	66%	69%
QC	80%	79%	77%	78%
NB	No program	No program	61%	65%
NS	83%	87%	88%	94%
PEI	86%	84%	82%	86%
NL	72%	74%	69%	78%
AB*	70%	66%	64%	52%

* ARMA's fiscal year is April – March whereas all other programs are calendar year January – December (e.g. 2018 numbers are inclusive of the data from ARMA's FY2018/19)

4.5 Electronics Program Accessibility

Proximity to electronics drop off facilities in Alberta was measured by a third-party analysis. The results, presented in Table 14, show for example that 95.7% of rural Albertans live within a 20-minute drive of a collection site. The next proximity analysis is scheduled for 2020/2021.

Table 14: Accessibility for Alberta Population to Electronics Recycling Facilities – Measured by Driving Distance (2018/2019)²³

Electronics Program	Metro	Cities	Rural
Drive Time For Analysis	15 min	15 min	20 min
% of Population With Access at Noted Drive Times	95.5%	100%	95.7%

EPRA Accessibility Analysis

EPRA reports annually on access to their electronics recycling programs in the provinces where they deliver the electronics program. Data for 2015 to 2018 are presented in Table 15. The definition of access varies by province depending on geography and population base. It is sometimes measured as drive time and in other cases as the distance from a drop off location (in km) and is different for urban and rural areas of each province. Alberta Recycling hired the same consultant in 2017 to carry out a proximity analysis for Alberta using the same approach.

²³ Alberta Recycling 2018-2019 Annual Report

Table 15: Accessibility of Electronics Programs Across Canada (2015-2018)

	2015	2016	2017	2018
AB*	Not measured	99.4%	95.5% / 100% / 95.7%	95.5% / 100% / 95.7%
BC	98%	98%	99%	99%
SK	92%	93%	93%	93%
MB	90%	91%	92%	92%
ON	99.6%	99.7%	99.7%	99.5%
QC	99%	99%	99%	99%
NB	No program	No program	97%	97%
NS	99%	99%	99%	99%
PEI	99%	100%	100%	100%
NL	96%	96%	96%	97%
YK	No program	No program	No program	90-100%
NWT	No program	No program	84%	84%

* ARMA's fiscal year is April – March whereas all other programs are calendar year January – December (e.g. 2018 numbers are inclusive of the data from ARMA's FY2018/19)

4.6 KPIs and Metrics to Reflect Changing Electronics Product and Material Mix

Light-weighting of electronics and also convergence (where a number of functions that used to be performed by multiple devices are now performed by one device) are starting to have an impact on the weight of electronics managed in stewardship and EPR programs. Electronics Product Stewardship Canada (EPSC)'s *2019 Design for Environment Report*²⁴ provides a number of examples of how electronic products are becoming lighter. The EPSC report notes that in less than 10 years, the weight of laptops with similar specifications has decreased by about 60%. As an example, it compares the weight of Lenovo's 2009 15.4" IdeaPad Y530, which weighed 3 kg, and Lenovo's 2019 13.9" Yoga S940, which weighs only 1.2 kg.²⁵ The *2019 Design for Environment Report* also reports that Samsung's 'Frame', a Premium 4K UHD Television released in 2017, is 37% lighter than older television models.

Similar statistics apply to other electronics recovered in stewardship and EPR programs.

This light-weighting trend has been underway for a number of years and is now being felt in less tonnage coming back to electronics stewardship and EPR programs. This will be an increasing factor in electronics program design and management because the annual tonnages of electronics recovered will continue to

²⁴ Electronics Products Stewardship Canada. 2019 Design for Environment Report. <http://epsc.ca/wp-content/uploads/EPSC_Report_2019_Web_Final.pdf>

²⁵ *ibid.*

decline. Also, many older, heavier products such as CRT televisions and monitors have been recovered and are seen less frequently in electronics returned.

With more light-weighting and electronic product integration, as well as the introduction of an increasing number of smaller and lighter electronic products into the market, the constantly changing electronics landscape suggests that weight-based metrics are not sufficient to accurately measure program success, and that new metrics—such as units or cost per unit—are needed. Considerable research is underway at this time to identify other metrics for programs where the product mix is changing, particularly electronics. For further information on the trend of product light-weighting, see the 2018 Benchmarking Report.

5. Benchmarking Alberta Recycling's Paint Program Against Other Provincial Paint Programs

This section presents the key findings of the benchmarking exercise for paint stewardship programs across Canada for the years 2015 to 2018.

5.1 Paint Program Background and Fees

British Columbia was the first province in Canada to implement a stewardship program for paint in 1994. Since then, nearly all provinces have followed suit, with PEI being the latest to launch a program in 2012. There are no on-going paint collection or diversion programs operating in the territories.

With the exception of Alberta and Quebec, Product Care Association (PCA), a federally incorporated, not-for-profit, product stewardship organization, operates all provincial paint stewardship programs across Canada. Quebec's program is run by Éco-Peinture (Société québécoise de gestion écologique de la peinture), which was created by Quebec paint manufacturers and brand owners to fulfill their obligations under the province's *Regulation respecting the recovery and recycling of disposed paint containers and paints* (repealed and replaced by the *Regulation respecting the recovery and recycling of products by businesses*.)

Some programs (i.e., Saskatchewan, Quebec, New Brunswick, Newfoundland, Nova Scotia, and PEI) collect paint products only, while others collect paint along with other materials like pesticides, fluorescent lights, gasoline, and flammables (i.e., British Columbia, Manitoba, Ontario). The format of annual reports varies somewhat, and they generally provide less detail specific to the paint program than Alberta Recycling. In almost all cases, the paint metrics that must be reported on are outlined in stewardship plans or regulations.

Paint is a consumable product, and in this regard it is different from electronics or tires, where a product needs managing at end of life. In an ideal world, all paint would be consumed, and none would need to be recovered. Even though kg/cap recovered is the performance metric used for reporting by most paint programs, the ultimate goal is to reduce this value over time and also to ensure that any residual paint is properly managed to protect the environment.

Table 16 presents the environmental handling fees (EHFs) charged on different paint products across Canada. As shown in the table, paint fees vary considerably from province to province and are highest in PEI. The range of products covered in EPR and stewardship programs also varies by province.

Table 16: Paint Program Fees Across Canada (as of September 2019)

Province	AB	BC	SK	MB	ON	QC	NB	NS	NL	PEI
Aerosols (any size)	\$0.10	\$0.35	\$0.25	\$0.25	\$0.25	\$0.25	\$0.25	\$0.25	\$0.20	\$0.45
100ml-250ml	\$0.10	\$0.35	\$0.20	\$0.20	\$0.20	\$0.30	\$0.25	\$0.25	\$0.20	\$0.45
251ml-1 L	\$0.25	\$0.65	\$0.35	\$0.25	\$0.35	\$0.30	\$0.45	\$0.45	\$0.35	\$0.75
1.01L-5 L	\$0.75	\$1.00	\$0.75	\$0.60	\$0.85	\$0.65	\$0.95	\$0.95	\$0.70	\$1.75
5.01L-23 L	\$2.00	\$2.25	\$1.95	\$1.50	\$2.15	\$1.75	\$1.90	\$1.90	\$1.50	\$3.15
Fee Effective	Aug-09	Oct-17	Oct-17	May-12	Sep-16	May-16	Apr-09	Oct-14	Feb-14	Apr-15
Startup Date	Apr-08	1994	Apr-06	May-12	Jul-10	1998	Apr-08	Apr-02	May-12	Sep-12
Source: Product Care and Provincial Program websites.										

The fees charged by Alberta Recycling are among the lowest for most smaller container categories. The Alberta fee of \$0.10 for aerosols and small cans (100 to 250ml) is the lowest of all fees charged across Canada for this container size. Some of the paint fees in Saskatchewan were similar to Alberta's in 2016, but in October 2017 Saskatchewan's fees were raised, making Alberta paint fees the lowest.

The \$0.25 fee Alberta charges for containers in the 251ml -1L category is the same as the fee charged by Manitoba and Quebec, and is less than fees charged in other programs. Manitoba, Quebec, New Brunswick and Newfoundland charge less than Alberta for paint sold in the 1-5 litre category, while Saskatchewan charges the same amount. Alberta charges \$0.75 for containers in the 1-5 litre category, while Manitoba charges \$0.60 and Quebec charges \$0.55. It is worth noting that PEI charges \$1.75 for containers in the 1-5 litre category.

5.2 Paint Program Recovery (kg/cap) Across Canada

Paint programs across Canada report on performance using different KPIs. PCA, which manages the paint programs in all provinces except for Alberta and Quebec, reports on paint collection using two different metrics:

- Residual Recovery Volume (RRV) (Litres); and
- Container Capacity Volume (CCV) (Litres)

For paint, RRV was used for the Benchmarking Study, as it represents the actual quantity of residual paint collected by the program (*excluding containers*). In contrast, the CCV, also known as 'equivalent litres of containers', is defined as: "the measure of the maximum capacity of containers, if they were full, returned through the Program."

BC's *Paint and HHW Stewardship Plan* states the following about CCV values:

CCV values are extrapolated from the number of "tub-skids" of Program Products managed by the Program. Tub-skids are collection bins used to transport containers of Program Products

from collection sites to processing facilities. In order to reduce the variability that can result from changes in external market conditions, CCV is used by the Program as the metric for collection quantity, and RRV is used to calculate the recovery rate.

There are different approaches to measuring volumes collected, each of which, in the context of consumable products like paint, has benefits and limitations as a measure of program performance. In general, the assessment of program performance for consumable products requires the analysis of a number of performance metrics. CCV is most commonly used by PCA programs in other jurisdictions to report on volume collected, and RRV is used in calculating recovery rates.

Because paint programs across Canada report on collection differently, it is difficult to obtain equivalent data from different programs on which to carry out an “apples to apples” comparison. For example, BC doesn’t report the weight of containers collected and neither does Manitoba. Other programs, like Quebec and Ontario, report a combined collection figure that includes both paint and paint containers. Because most programs provide data on both the weight of paint and paint containers collected (either separately or combined), the benchmarking exercise used the reported weight of all paint material recovered (paint and associated containers, where data was available).

Table 17 presents data on the amount of paint material recovered in each provincial program from 2015 to 2018 on a per capita basis. It is worth noting that BC and Manitoba’s figures only include the weight of paint collected, and not the containers, since the latter is not reported. Despite the fact that BC’s reported recovery values do not include the weight of containers, it is still one of the best performing provinces in terms of paint recovery in the last four years, recovering between 0.73kg/cap and 0.86 kg/cap. Quebec and PEI also achieve high recovery, collecting between 0.80 kg/cap and 0.98 kg/cap between 2015 and 2018. Alberta’s recovery value for paint materials was 0.62 kg/cap in 2018, which is 3% lower than the national average and a decrease of 0.15 kg/cap since 2015.

More provinces report the kilograms of paint as well as paint containers collected (not necessarily a combined figure, but they provide data for both indicators), than provinces who don’t. BC and Manitoba are the only provinces that don’t provide any information on weight of containers collected. Ontario and Quebec are the only provinces that provide a ‘combined’ figure (no breakdown of paint and paint containers), which includes the weight of all paint program material.

Table 17: Amount Recovered by Paint Programs Across Canada (2015-2018) (kg/cap)²⁶

Province	2015	2016	2017	2018
AB*	0.77	0.65	0.63	0.62
BC ²⁷	0.83	0.86	0.81	0.73
SK	0.54	0.52	0.51	0.55
MB ²⁸	0.31	0.38	0.31	0.44
ON ²⁹	0.72	0.69	0.68	0.69
QC	0.82	0.83	0.82	0.82
NB	0.54	0.59	0.64	0.58
NS	0.73	0.72	0.68	0.70
PEI	0.80	0.98	0.89	0.88
NL	0.46	0.48	0.53	0.44
National Average	0.74	0.72	0.71	0.71

* ARMA's fiscal year is April – March whereas all other programs are calendar year January – December (e.g. 2018 numbers are inclusive of the data from ARMA's FY2018/19)

Figure 11 shows Alberta Recycling's recovery performance for paint program materials compared to the national average for 2015 to 2018.

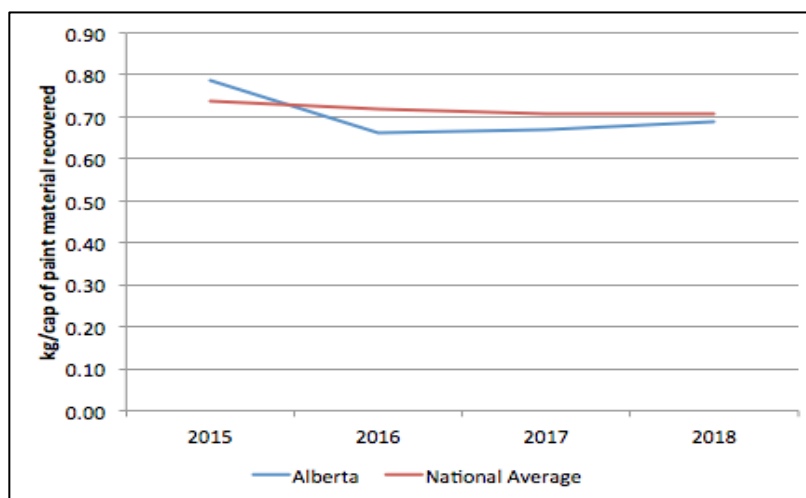


Figure 11: Alberta Recycling Paint Program Recovery Compared to National Average (2015-2018) (kg/cap)

²⁶ A conversion factor of 1L = 1.2kg²⁶ was used to convert reported litres of paint to tonnes (Conversion value provided by Alberta Recycling).

²⁷ BC's recovery values only include the weight of paint. Data on weight of paint containers is not reported.

²⁸ Manitoba's recovery values only include the weight of paint. Data on weight of paint containers is not reported.

²⁹ Ontario reports paint recovery in tonnes (which was multiplied by 1,000 to get kg). It was discovered during the research for the second benchmarking report that Ontario's reported values for paint also include the weight of paint containers collected.

Key observations comparing Alberta Recycling's paint program performance to other provincial programs, and to the national average are:

- **Alberta Paint Program Recovery Performance (kg/cap):** In 2018, Alberta Recycling recovered 0.62 kg/cap of paint and paint containers, which is a 0.15 kg/cap decrease from 2015.
- **Comparison of Alberta Paint Program Recovery Performance to National Average:** In 2018, Alberta's paint program recovered 12% less paint program material than the national average. This is similar to 2016 and 2017 (when it recovered 10% and 11% less, respectively), but is a significant decrease from 2015 when it collected 15% more than the national average.

5.3 Paint Program Costs (\$/kg) Across Canada

Table 18 presents information on the costs to recover paint materials by stewardship programs across Canada from 2015 to 2018. Figure 12 shows Alberta Recycling's performance compared to the national average for the same time period. BC and Manitoba are left out of this table because their annual reports do not break out costs by material type; rather, they only give total program expenses, which includes costs to collect products other than paint, for example, pesticides and fluorescent lights as part of an HHW program. Quebec's program is also left out of the analysis because its cost data is unavailable and is part of a confidential agreement with Eco-Peinture's supplier. Cost information for Ontario's paint program was available until 2015, after which time the program was taken over by Product Care Association. Ontario's paint program costs are now reported as a consolidated figure with the costs of managing other program materials, similar to the situation in BC and Manitoba.

Table 18: Paint Program Costs Across Canada (2015-2018) (\$/kg)³⁰

Province	2015	2016	2017	2018
AB*	\$1.52	\$1.59	\$1.65	\$1.72
SK	\$1.80	\$1.73	\$1.58	\$1.48
ON ^a	\$1.59	n/a	n/a	n/a
NB	\$2.36	\$2.25	\$2.23	\$2.26
NS	\$1.77	\$1.79	\$1.67	\$1.65
PEI	\$2.44	\$2.16	\$2.47	\$2.47
NL	\$2.94	\$2.74	\$2.66	\$2.67
National Average	\$1.88	\$1.92	\$1.93	\$1.96

* ARMA's fiscal year is April – March whereas all other programs are calendar year January – December (e.g. 2018 numbers are inclusive of the data from ARMA's FY2018/19)

³⁰ A conversion factor of 1L = 1.2kg³⁰ was used to convert reported litres of paint to tonnes (Conversion value provided by Alberta Recycling).

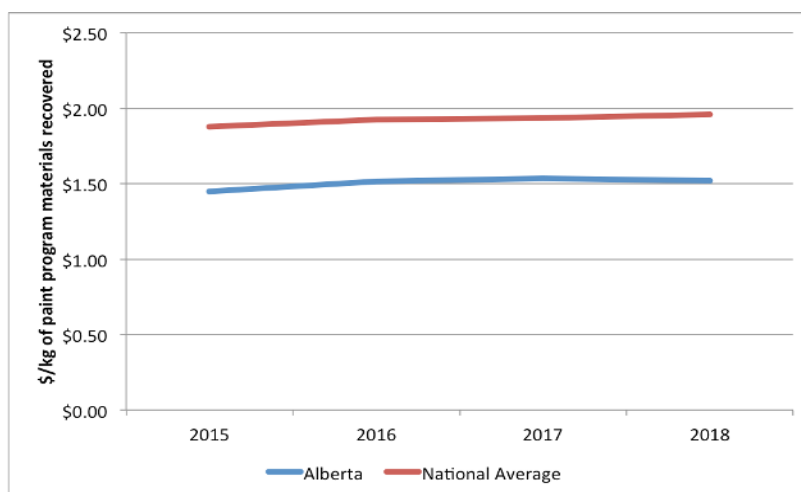


Figure 12 Alberta Recycling Paint Program Cost Compared to National Average (2015-2018) (\$/kg)

Key observations comparing Alberta Recycling’s paint program costs to other provincial programs, and to the national average are:

- **Alberta Paint Program Cost Performance (\$/kg):** Alberta’s cost to recover paint program materials in 2018 was \$1.72/kg. From 2015 to 2018, costs have increased by \$0.20/kg.
- **Comparison of Alberta Paint Program Cost Performance to National Average:** In all years, Alberta Recycling’s cost to recover paint on a per kilogram basis has been much lower than the national average, ranging from 20% lower in 2015 to 12% lower in 2018.

5.4 Paint Program Awareness and Support

Table 19 presents awareness and support information for Alberta’s paint stewardship program for 2015/16 to 2018/19 (the same information is shown graphically in Figure 13). The table shows that support for Alberta’s paint program is very high in all years, ranging from 82% to 86%. The percentage of the population aware that the program exists is much lower, at 51-71%. Table 19 also shows the results of public opinion polling on awareness of and support for the fees related to the paint program. Awareness of the fees is measured at 42-46% in the four years whereas support for the fees is much higher at 53-61%.

Table 19: Public Awareness and Support of Alberta Recycling's Paint Program and Fees/Surcharges (2015/16-2018/19)

Year	Awareness of Paint Program 	Support for Paint Program 	Awareness of Paint Surcharges 	Support for Paint Surcharges 
2015-16	71%	86%	46%	61%
2016-17 ³¹	64%	84%	42%	53%
2017-18	59%	82%	42%	54%
2018-19	57%	82%	42%	59%

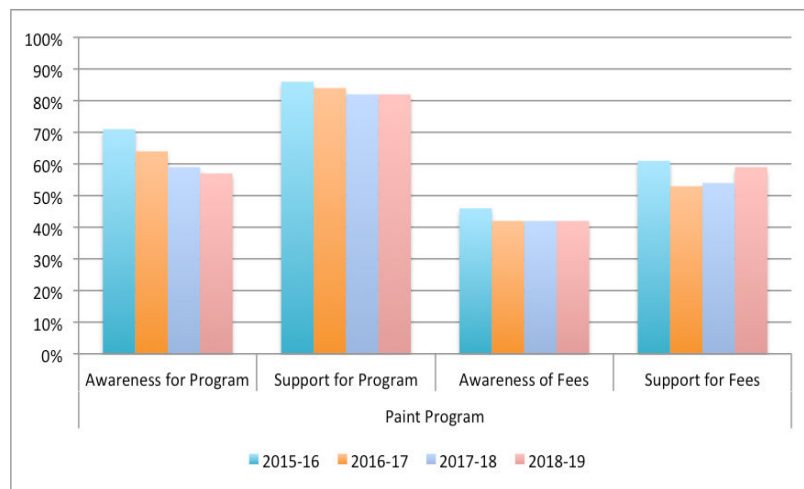


Figure 13: Public Awareness and Support for Alberta Recycling Paint Program and Fees (2015/16-2018/19)

PCA also measures awareness of its paint programs in all provinces, albeit on a less regular basis than Alberta Recycling. Reported awareness levels for PCA's paint programs for 2015 to 2018 are presented in Table 20.

³¹ In 2017, the response scale for support questions was revised from a 10-point scale to a five-point scale in order to simplify the respondent's selection process and to align with a related survey by Alberta Environment and Parks. This five-point scale will be used from this point forward.

Table 20: Awareness of Paint Programs by Province (2015-2018)

Province	2015	2016	2017	2018
BC	62%	Not measured	60%	60%
SK	Not measured	Not measured	Not measured	73%
MB	Not measured	Not measured	51%	51%
ON	Not measured	Not measured	Not measured	55%
QC	Not measured	Not measured	Not measured	Not measured
NB	53%	Not measured	66%	66%
NS	Not measured	Not measured	68%	68%
PEI	Not measured	Not measured	Not measured	Not measured
NL	45%	Not measured	58%	58%
AB*	71%	64%	59%	57%

* ARMA's fiscal year is April – March whereas all other programs are calendar year January – December (e.g. 2018 numbers are inclusive of the data from ARMA's FY2018/19)

5.5 Paint Program Accessibility

Table 21 presents the results of a third-party analysis conducted for Alberta Recycling to calculate the proximity of Alberta's population to facilities where paint can be dropped off for recycling. Accessibility levels are high at between 93.6% and 99.6%, depending on whether the population lives in an urban or rural area and what driving distance is used for the calculation.

Table 21: Accessibility for Alberta Population to Paint Recycling Facilities – Measured by “Proximity” (Time + Distance) (2018/2019)³²

Program	Urban	Rural	Urban	Rural	Urban	Rural
	15 min	20 min	20 min	30 min	30 min	45 min
Paint	93.6%	95.3%	96.9%	98.5%	99.3%	99.6%

³² Alberta Recycling 2018/2019 Annual Report

6. Benchmarking Alberta Recycling's Used Oil Program Against Other Provincial Used Oil Programs

6.1 Used Oil Program Background and Fees

Programs to collect and recycle used oil, containers, and filters are well established in most Canadian provinces, with some programs mandatory and others voluntary. Alberta and Saskatchewan were the first provinces to legislate used oil collection in 1997, followed by Manitoba in 1998. Newfoundland and Labrador is the latest province to launch a used oil program in October 2019, and Nova Scotia's program is set to start in January 2020.

BC, Saskatchewan, Manitoba, Quebec, New Brunswick, PEI, and Newfoundland all have used oil associations, mandated by provincial legislation, that are members of the Used Oil Management Associations of Canada (UOMA). These associations are responsible for facilitating the collection and end-of-life management of used oil and antifreeze materials, including used oil, used oil filters, used antifreeze, and used plastic oil/antifreeze/diesel exhaust fluid (DEF) containers.

Everything except used oil in Ontario is covered by the Automotive Material Stewardship (AMS)³³ program. The generation and tracking of used oil is carried out under the Hazardous Waste Information Network (HWIN). There is no EPR requirement for used oil in Ontario due to the fact the oil has high collection rates and its final disposition is tracked under HWIN.

Used oil recovery in the territories is encouraged but not mandated.³⁴

Used oil management associations which run the provincial programs in Canada as of October 2019 are listed below:

- British Columbia Used Oil Management Association (BCUOMA)
- Alberta Recycling Management Authority (Alberta Recycling)
- Saskatchewan Association for Resource Recovery Corp. (SARRC)
- Manitoba Association for Resource Recovery Corp. (MARRC)
- Société de gestion des huiles usagées (SOGHU)
- UOMA Atlantic – New Brunswick (UOMA NB)
- UOMA Atlantic – Prince Edward Island (UOMA PE)
- UOMA Atlantic – Newfoundland and Labrador (UOMA NL)
- UOMA Atlantic – Nova Scotia (UOMA NS) – effective January 1, 2020

For many years, Alberta's used oil program was managed by the Alberta Used Oil Management Association (AUOMA). On November 28, 2017, the Alberta government announced its intention to transfer the program to Alberta Recycling, as part of the government's ongoing review of agencies, boards, and commissions. Management of the program was officially transferred to Alberta Recycling on October 1, 2018.

³³ <https://www.automotivematerialsstewardship.ca/>

³⁴ http://publications.gc.ca/collections/collection_2019/eccc/En40-894-2011-eng.pdf

Each of the provincial associations and Automotive Materials Stewardship in Ontario produce an annual report quantifying the amount of designated products collected and recycled. All of the reports provide data on the amount of materials collected and/or recycled, and some provide information on reuse as well. Some reports provide a combined container figure while others break it down into the various container types (antifreeze, oil, and DEF) collected. Some reports show filter collection in units only, while others report both in units and kg.

Used oil programs are funded by an environmental handling charge (EHC) remitted by all retailers, wholesalers, or first sellers on lubricating products including filters, antifreeze and plastic containers. Table 22 shows the EHCs charged on used oil, oil filters, oil and antifreeze containers, and used antifreeze in each program across Canada, where applicable. These fees are often passed down to the retailer and consumer.

Table 22: Used Oil Program Fees by Province^{35,36}

Used Oil Program Material	AB	BC	SK	MB	ON	QC	NB (effective Jan 1, 2014)	PEI (effective Apr 1, 2015)	NL (effective Oct 1, 2019)
Lubricating Oil	\$0.05 per litre	\$0.05 per litre	\$0.05 per litre	\$0.05 per litre	-	\$0.06 per litre effective Oct 1, 2016	\$0.03 per litre effective July 1, 2018	\$0.03 per litre effective July 1, 2018	\$0.07 per litre
Containers HDPE or Metal	\$0.05 per litre / container size 50 litres or less	\$0.10 per litre / container size 50 litres or less	\$0.10 per litre / container size 50 litres or less	\$0.10 per litre / container size 50 litres or less	\$0.14 per litre (does not distinguish between material type)	\$0.12 per litre / container size 50 litres or less	\$0.10 per litre / container size 50 litres or less	\$0.10 per litre / container size 50 litres or less	\$0.20 per litre / container size 50 litres or less
Containers Non-Metal or Non- HDPE	\$0.05 per litre / container size 50 litres or less	\$0.17 per litre / container size 50 litres or less	\$0.17 per litre / container size 50 litres or less	\$0.17 per litre / container size 50 litres or less		\$0.20 per litre / container size 50 litres or less	\$0.17 per litre / container size 50 litres or less	\$0.17 per litre / container size 50 litres or less	\$0.50 per litre / container size 50 litres or less
Filters < 8" or all sump type filters	\$0.50 per filter	\$0.55 per filter	\$0.50 per filter	\$0.50 per filter	\$0.35 per filter ≤ 8"	\$0.35 per filter	\$0.50 per filter	\$0.50 per filter	\$0.60 per filter
Filters ≥ 8"	\$1.00 per filter	\$1.25 per filter	\$1.00 per filter	\$1.00 per filter	\$1.00 per filter > 8"	\$0.85 per filter	\$1.00 per filter	\$1.00 per filter	\$1.20 per filter
Glycol/Antifreeze Concentrate	-	\$0.20 per litre	\$0.14 per litre	\$0.08 per litre	\$0.16 per litre	\$0.16 per litre	\$0.12 per litre	\$0.12 per litre	\$0.35 per litre
Glycol/Antifreeze Premix	-	\$0.20 per litre	\$0.14 per litre	\$0.08 per litre	\$0.10 per litre	\$0.10 per litre	\$0.08 per litre	\$0.08 per litre	\$0.20 per litre
Glycol/Antifreeze Container	-	\$0.10 per litre / container size 50 litres or less	\$0.10 per litre / container size	\$0.10 per litre / container size 50 litres or less	\$0.10 per litre	\$0.08 per litre / container size 50 litres or less	\$0.10 per litre / container size 50 litres or less	\$0.10 per litre / container size 50 litres or less	\$0.20 per litre / container size 50 litres or less
Diesel Exhaust Fluid Container	-	-	\$0.10 per litre / container size 50 litres or less	\$0.10 per litre / container size 50 litres or less	-	-	-	-	-
Brake Cleaner Aerosol Container	-	-	-	-	-	\$0.25 per unit	\$0.25 per unit	\$0.25 per unit	\$0.35 per unit
Lubricant Aerosol Container	-	-	-	-	-	\$0.25 per unit	\$0.25 per unit	\$0.25 per unit	\$0.35 per unit

³⁵ Used Oil Management Associations of Canada. Environmental Handling Charges (EHC) Applicable Products List and Rates Schedule. Available at: <http://usedoilrecycling.com/wordpress/wp-content/uploads/2019/09/EHC-Applicable-Product-List-Sept-2019.pdf>

³⁶ Automotive Materials Stewardship. Fees. Available at: <https://www.automotivematerialsstewardship.ca/fees/>

6.2 Used Oil Program Recovery (kg/cap) Across Canada

For the other three programs reviewed in this report (tires, electronics, paint), ARMA's fiscal year is April – March whereas all other programs across Canada for these three materials have a fiscal calendar year January – December. In contrast, the AUOMA fiscal year is January-December. ARMA has been managing the program since October, 2018.

The weight of total program materials (oil, oil filters, all types of containers, DEF fluid, and antifreeze) recovered in each provincial program on a per capita basis is shown in Table 23. In 2018, Alberta Recycling recovered 19.11 kg/cap of oil program materials—the highest of all provinces—despite collecting a smaller range of materials than other programs. This is likely related to the fact that more oil is sold into Alberta compared to other provinces. The reason why Ontario's numbers are so low is because it is the only program that does not recover used oil as part of the EPR program. However, it does collect used antifreeze, oil containers, and oil filters.

Table 23: Amount Recovered by Used Oil Programs Across Canada (All Program Materials) (2015-2018) (kg/cap)

Province	2015	2016	2017	2018
AB ³⁷	22.31	19.96	20.56	19.11
BC	10.6	10.2	10.2	10.5
SK	16.4	15.6	15.7	15.4
MB	11.4	10.7	11.0	11.3
ON ³⁸	1.2	1.2	1.1	1.2
QC	7.1	7.2	7.7	7.3
NB	4.7	5.2	5.2	5.0
PEI ³⁹	1.3	1.6	1.7	1.9
National Average	8.1	7.7	7.9	7.7

³⁷ Effective January 1, 2018, a change was implemented by AUOMA to the methodology for paying Return Incentives on used oil. Prior to this change, a small amount of water content was included in the processed weight and received incentives under the program. Effective with the change, no water content is included in the processed weight. As a result, the processed volumes and capture rate for oil is expected to be lower but more accurate from 2018/19 forward, compared to 2015-2017.

³⁸ On February 2, 2017, Stewardship Ontario (SO) entered into a Supply Chain Agreement with Automotive Materials Stewardship (AMS), a newly established organization whose program was previously under the Organization's MHSW program. AMS focuses on the waste management of anti-freeze, oil filters, and oil containers. Stewardship Ontario's 2018 annual report says that "Where an ISP has been approved, the metrics in the tables reflect Stewardship Ontario's obligation and performance only for stewards who remain in the MHSW program." For this reason we have added up the collection figures from SO's report as well as ASM's annual report to get a total picture for 2018.

³⁹ PEI's used oil recycling program began on April 1, 2015. Data represents 9-month period from April-December 2015.

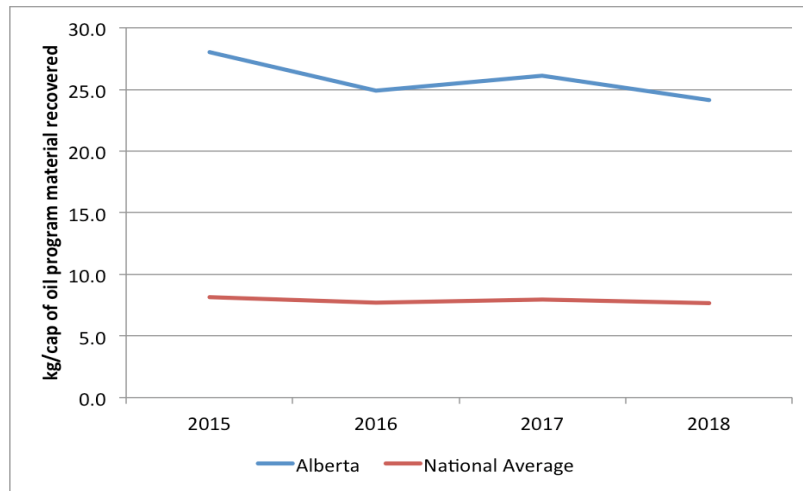


Figure 14: Comparison of Alberta Recycling Used Oil Program Recovery (All Materials) to National Average (2015-2018) (kg/cap)

Key observations comparing Alberta Recycling’s used oil program performance to other provincial programs, and to the national average, for all program materials are:

- **Alberta Oil Program Recovery Performance (kg/cap):** In 2018, Alberta Recycling collected 19.11kg/cap of program material, which is a 3.2 kg/cap decrease from 2015. Recovery in 2016 and 2017 were 19.96 and 20.56 kg/cap respectively.
- **Comparison of Alberta Oil Program Recovery Performance to National Average:** Alberta’s kg/cap recovered is significantly higher than all other provinces, even though the program collects a narrower range of products. This significant difference may be related to higher amounts of oil sold into Alberta compared to other provinces.

6.3 Used Oil Program Costs (\$/kg) Across Canada

Table 24 presents information on the costs to recover used oil program materials by stewardship programs across Canada from 2015 to 2018. Figure 15 shows Alberta Recycling’s performance compared to the national average for the same time period.

Table 24: Oil Programs Across Canada – Comparison of Program Costs (All Program Materials) (2015-2018) (\$/kg)

	2015	2016	2017	2018
AB	\$0.19	\$0.19	\$0.19	\$0.19
BC	\$0.25	\$0.29	\$0.29	\$0.30
SK	\$0.33	\$0.34	\$0.33	\$0.34
MB	\$0.30	\$0.31	\$0.31	\$0.32
ON ⁴⁰	\$1.21	\$1.17	\$1.42	\$1.37
QC	\$0.23	\$0.29	\$0.30	\$0.28
NB	\$0.55	\$0.49	\$0.47	\$0.49
PEI ⁴¹	\$1.19	\$1.31	\$1.23	\$1.16
National Average	\$0.27	\$0.29	\$0.31	\$0.31

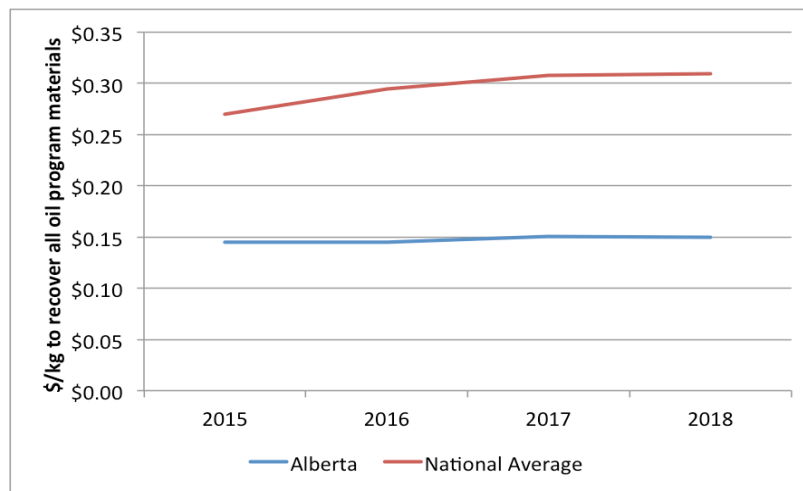


Figure 15 Alberta Recycling Used Oil Program Costs (All Materials) Compared to National Average (2015-2018) (\$/kg)

Key observations comparing Alberta Recycling's oil program cost to other provincial programs, and to the national average, for all materials recovered are:

- **Alberta Oil Program Cost Performance (\$/kg):** Alberta Recycling's cost to recover all oil program materials was \$0.19/kg for the last four fiscal years.
- **Comparison of Alberta Oil Program Cost Performance to National Average:** Alberta's cost to recover oil program materials was lower than the national average in all years, ranging from 30% lower in 2015 to 39% lower in 2018.

⁴⁰ On February 2, 2017, Stewardship Ontario (SO) entered into a Supply Chain Agreement with AMS, a newly established organization whose program was previously under SO's MHSW program. AMS focuses on the waste management of anti-freeze, oil filters, and oil containers. SO's 2018 annual report says that "Where an ISP has been approved, the metrics in the tables reflect SO's obligation and performance only for stewards who remain in the MHSW program." For this reason we have added up the program costs from SO's 2018 annual report as well as ASM's 2018 annual report to get a total picture for 2018.

⁴¹ PEI's used oil recycling program began on April 1, 2015. Data represents 9-month period from April-December 2015.

6.4 Used Oil Program Awareness and Support

Table 25 presents awareness and support information for Alberta's used oil programs for 2018/19. AUOMA did not track these KPIs and therefore data on awareness and support of the oil program and related fees is not available for 2015 to 2017. AUOMA did, however, measure the percentage of Albertans who support the addition of other automotive materials like antifreeze to the program (at least 80% in 2017). AUOMA also measured the percentage of Albertans that support regularly adjusting Alberta's eco-fees to ensure they encourage Albertans to collect and recycle used oil materials (68% in 2017).

With the exception of BC for a couple of years, other used oil programs do not report on awareness and support levels.

The table shows that awareness of Alberta's used oil program is not high at 57%. However, support for Alberta's used oil program is very high at 86%. While only 54% of those polled are aware of the used oil surcharges, support for the surcharges is higher than awareness at 64%.

Table 25: Public Awareness and Support of Alberta Recycling's Oil Programs and Fees/Surcharges (2018/19)

Year	Awareness of Used Oil Program 	Support for Used Oil Program 	Awareness of Used Oil Surcharges 	Support for Used Oil Surcharges 
2018-19	57%	86%	54%	64%

7. Summary and Conclusions

A Benchmarking Report was published in 2018⁴² comparing the performance of Alberta's programs for tires, electronics and paint to that of other programs across Canada. The benchmarking was originally carried out using 6 years of data from 2011 to 2016.

The purpose of this second Benchmarking Report is to update the original benchmarking exercise with data for two additional years (2017 and 2018) and also to compare the performance of the used oil program (which Alberta Recycling took over in late 2018) to that of other used oil programs across Canada. Two KPIs were used for the benchmarking exercise:

- recovery (expressed as kg/cap) and
- program costs (expressed as \$/kg recovered)

While the report includes some information on awareness, support, and accessibility, these metrics were not used for the benchmarking process. This section presents a summary of the benchmarking results.

7.1 Recovery Performance

Table 26 summarizes recovery performance for Alberta Recycling's tires, electronics, paint, and oil programs for 2015 to 2018. A national average value for each program for each year was calculated by dividing the reported kilograms recovered by the population served on a province by province basis.

For used tires, the table shows that during the period of 2015 to 2018, Alberta collected between 14.5 and 17.0 kg/cap of tires. This is higher than the national average in each year, which ranged from 11.2 kg/cap to 11.8 kg/cap. In Alberta, the amount of tires collected per capita decreased by 2.5 kg between 2015 and 2017, but appears to have recovered in 2018.

As with other electronics programs, the annual tonnage recovered in Alberta has been on the decline for the last few years (from 4.1 kg/cap in 2015 to 2.4 kg/cap in 2018). This decline is attributed to the fact that many designated electronics products have been light-weighted. Also, many older, heavier products such as CRT televisions and monitors have been recycled and are seen less frequently in electronics returned. Compared to other provincial electronics recycling programs, Alberta's electronics program collects the smallest range of products. (The one exception is that Alberta Recycling collects more types of floor standing printers than other provinces). Recovered totals are shown for the existing program, and for double the current value if the electronics program is expanded. The same light-weighting trend can be seen in the national average, where the weight of electronics recovered has decreased from 4.0 kg/cap in 2015 to 2.9 kg/cap in 2018. There is a need to identify new performance measures for electronics programs that take the changing product mix and light-weighting trend into account.

⁴² Kelleher Environmental in association with SAMI Environmental. April 2018. Benchmarking Alberta Recycling Stewardship Programs for Tires, Electronics, and Paint – Final Report prepared for Alberta Recycling. Available at http://kelleherenvironmental.com/wp-content/uploads/2019/10/Benchmarking_AB_Recycling_Stewardship_Programs_Report.pdf

Table 26: Alberta Recycling Program Recovery for Tires, Electronics, Paint, and Used Oil (2015-2018) (kg/cap)

Recovery Performance (kg/cap)		2015	2016	2017	2018
 Tires	Alberta Recycling*	17.0	14.8	14.5	16.1
	National Average	11.3	11.2	11.3	11.8
 Electronics	Alberta Recycling*	4.1	3.3	2.9	2.4
	Alberta Recycling (+100% for Expanded Program)	8.2	6.6	5.8	4.8
	National Average	4.0	3.6	3.1	2.9
 Paint	Alberta Recycling*	0.77	0.65	0.63	0.62
	National Average	0.67	0.65	0.71	0.71
 Used Oil	Alberta Recycling**	22.31	19.96	20.56	19.11
	National Average	8.1	7.7	7.9	7.7

* ARMA's fiscal year is April – March whereas all other programs are calendar year January – December (e.g. 2018 numbers are inclusive of the data from ARMA's FY2018/19)

**The AUOMA fiscal year is January-December. ARMA has been managing the program since October, 2018.

The amount of paint materials recovered over the last 4 years has decreased by 0.15 kg/cap, from 0.77 kg/cap in 2015 to 0.62 kg/cap in 2018. With the exception of 2015, Alberta's reported per capita recovery values for paint materials have been the same or lower than the national average, which has ranged 0.65 kg/cap and 0.71 kg/cap for the last 3 years.

Used oil material recovery has declined over the last four years but is still substantially higher than values for other provincial programs. From 2015-2018, the amount of material collected by Alberta's program declined from 22.31 kg/cap to 19.11kg/cap. The national average has also been on the decline, from 8.1 kg/cap to 7.7 kg/cap. Unlike other provincial used oil programs that collect a wider variety of materials, Alberta's program is limited to collecting used oil, used oil containers and oil filters. All other provinces that collect oil material also collect used glycol/antifreeze, as well as their containers. Two provinces – Saskatchewan and Manitoba – also collect diesel exhaust fluid (DEF) and their associated containers, and four provinces (Quebec, New Brunswick, PEI, and Newfoundland) also collect brake cleaner aerosol containers and lubricant aerosol containers. In Ontario, everything except used oil is covered by the Automotive Material Stewardship⁴³ program.

⁴³ <https://www.automotivematerialsstewardship.ca/>

7.2 Cost Performance

Table 27 shows Alberta Recycling program costs compared to the national average for 2015 to 2018.

As shown in the table, Alberta Recycling's cost to recover used tires has decreased over the past four years, from \$0.41/kg in 2015 to \$0.39 kg in 2018. Compared to the national average, Alberta Recycling's tire program costs (on a per kilogram basis) have been higher in two of the last four years; the same in one year, and less than the national average in one year. The national average has also decreased from 2015 to 2018, from \$0.40/kg to \$0.35/kg.

Alberta Recycling's electronics program costs at \$1.09/kg in 2018 are similar to the national average of \$1.07/kg. In both cases, this represents an increase in costs from 2015, when Alberta Recycling's cost to operate the electronics program was \$1.02/kg and the national average was \$1.05/kg.

The cost to recover paint materials in Alberta Recycling's paint program has increased by \$0.20/kg since 2015, from \$1.52/kg to \$1.72/kg. The same trend can be seen in the national average, where costs have risen from \$1.88/kg in 2015 to \$1.96/kg in 2018. The national average for paint program costs does not include British Columbia, Ontario (except for 2015), Manitoba, or Quebec in the calculation as costs for these programs are not available.

Alberta Recycling's costs to recover oil materials have remained steady over the last four years at \$0.19/kg. This is substantially lower than the national average in all years, which ranged between \$0.27/kg and \$0.31/kg.

Table 27: Alberta Recycling Program Cost Performance for Tires, Electronics, Paint, and Oil (2015-2018) (\$/kg)

Cost Performance (\$/kg)		2015	2016	2017	2018
Tires 	Alberta Recycling*	\$0.41	\$0.40	\$0.41	\$0.39
	National Average	\$0.40	\$0.40	\$0.43	\$0.35
Electronics 	Alberta Recycling*	\$1.02	\$1.03	\$1.05	\$1.09
	National Average	\$1.05	\$1.04	\$1.10	\$1.07
Paint 	Alberta Recycling*	\$1.52	\$1.59	\$1.65	\$1.72
	National Average	\$1.88	\$1.92	\$1.93	\$1.96
Used Oil 	Alberta Recycling*	\$0.19	\$0.19	\$0.19	\$0.19
	National Average	\$0.27	\$0.29	\$0.31	\$0.31

* ARMA's fiscal year is April – March whereas all other programs are calendar year January – December (e.g. 2018 numbers are inclusive of the data from ARMA's FY2018/19)

**The AUOMA fiscal year is January-December. ARMA has been managing the program since October, 2018.

7.3 Conclusions and Next Steps

Based on the analysis carried out for this study, Alberta Recycling's stewardship programs for tires, electronics and paint all perform well when compared to other provincial programs. The used oil program collects substantially more material than other provincial programs (almost twice the amount per capita), and costs substantially less per capita than other programs. The much higher recovery could be explained by higher amounts of oil sold into Alberta per capita than in other provinces. Taking this analysis further would require collection of sold into market data from the other provincial programs. There is no clear explanation for the lower per capita costs of the oil program, aside from economies of scale.

On a go forward basis, additional metrics and KPIs need to be developed to adequately reflect the performance of the electronics program, which is processing more units and less weight than originally envisaged due to changing market conditions discussed earlier in this report (product integration, light-weighting, etc.).

KPIs should also be developed for all programs to address issues such as governance, enforcement, compliance, revenue completeness, expenditures and environmental outcomes.

Appendix A – References

Documents Reviewed – Tire Programs

- Tire Stewardship BC. *Annual Report to the Director 2018*, Extended Producer Responsibility, Environmental Protection Division, dated 26th June 2019⁴⁴
- Tire Stewardship BC. *Annual Report to the Director 2017*, Extended Producer Responsibility, Environmental Protection Division, dated 28th June 2019⁴⁵
- Tire Stewardship BC. *Annual Report to the Director 2016*, Waste Prevention, Environmental Protection Division, Ministry of Environment, dated 1st July 2017⁴⁶
- Tire Stewardship BC. *Annual Report to the Director 2015*, Waste Prevention, Environmental Protection Division, Ministry of Environment, dated 1st July 2016⁴⁷
- Tire Stewardship BC. *Annual Report to the Director 2014*, Waste Prevention, Environmental Protection Division, Ministry of Environment, dated 1st July 2015⁴⁸
- Tire Stewardship BC. *Annual Report to the Director 2013*, Waste Prevention, Environmental Protection Division, Ministry of Environment, dated 1st July 2014⁴⁹
- Tire Stewardship BC. *Annual Report to the Director 2012*, Waste Prevention, Environmental Protection Division, Ministry of Environment, dated 1st July 2013⁵⁰
- Tire Stewardship BC. *Annual Report 2011*, dated 1st July 2012⁵¹
- Tire Stewardship BC. *Annual Report 2010*, dated 1st July, 2011⁵²
- Alberta Recycling Management Authority. *2018/2019 Annual Report (standard version)*⁵³
- Alberta Recycling Management Authority. *Annual Report 2017/2018*⁵⁴
- Alberta Recycling Management Authority. *Annual Report 2016/2017*⁵⁵
- Alberta Recycling Management Authority. *The Promise of Responsible Environmental Stewardship – 2015/16 Annual Report to the 2015-18 Business Plan*⁵⁶
- Alberta Recycling Management Authority. *The Promise of Responsible Environmental Stewardship – 2014/15 Annual Report to the 2014-17 Business Plan*⁵⁷
- Alberta Recycling Management Authority. *2013/14 Annual Report*
- Alberta Recycling Management Authority. *2012/13 Annual Report*
- Alberta Recycling Management Authority. *2011/12 Annual Report*
- Tire Stewardship of Saskatchewan Inc. *2018 Annual Report*⁵⁸
- Tire Stewardship of Saskatchewan Inc. *2017 Annual Report*⁵⁹
- Saskatchewan Scrap Tire Corporation. *2016 Annual Report*⁶⁰
- Saskatchewan Scrap Tire Corporation. *2015 Annual Report*⁶¹
- Saskatchewan Scrap Tire Corporation. *2015 Annual Report*⁶²
- Saskatchewan Scrap Tire Corporation. *Annual Report 2013*⁶³

⁴⁴ <https://www.tsbc.ca/pdf/TSBC-AnnualReport2018.pdf>

⁴⁵ <https://www.tsbc.ca/pdf/TSBC-AnnualReport2017.pdf>

⁴⁶ <http://www.tsbc.ca/pdf/TSBC-AnnualReport2016.pdf>

⁴⁷ <http://www.tsbc.ca/pdf/TSBC-AnnualReport2015.pdf>

⁴⁸ <http://www.tsbc.ca/pdf/TSBC-AnnualReport2014.pdf>

⁴⁹ <http://www.tsbc.ca/pdf/TSBC-AnnualReport2013.pdf>

⁵⁰ <http://www.tsbc.ca/pdf/TSBC-AnnualReport2012.pdf>

⁵¹ <http://www.tsbc.ca/pdf/TSBC-AnnualReport2011.pdf>

⁵² <http://www.tsbc.ca/pdf/TSBC-AnnualReport2010.pdf>

⁵³ <https://albertarecyclingreports.ca/2018/>

⁵⁴ <https://www.albertarecycling.ca/about/reports/>

⁵⁵ <http://www.albertarecycling.ca/docs/annual-reports/2016-17-annual-report-web-version.pdf?Status=Temp&sfvrsn=4>

⁵⁶ [http://www.albertarecycling.ca/docs/annual-reports/2015-16-annual-report-final-\(web-version\).pdf?Status=Temp&sfvrsn=2](http://www.albertarecycling.ca/docs/annual-reports/2015-16-annual-report-final-(web-version).pdf?Status=Temp&sfvrsn=2)

⁵⁷ <http://www.albertarecycling.ca/docs/annual-reports/2014-15-annual-report.pdf?Status=Temp&sfvrsn=6>

⁵⁸ http://www.tssk.ca/public/CKEditorUpload/TSS_Annual_Report_2018_Web_Version-compressed.pdf

⁵⁹ http://www.tssk.ca/public/CKEditorUpload/Tire_Stewardship_of_Saskatchewan_2017_Annual_Report-.pdf

⁶⁰ https://www.scraptire.sk.ca/wp-content/uploads/2016/10/SSTC_AnnualReport_2016_Web.pdf

⁶¹ http://www.scraptire.sk.ca/wp-content/uploads/2016/11/SSTC_AnnualReport_2015_Final.pdf

⁶² http://www.scraptire.sk.ca/wp-content/uploads/2016/11/SSTC_AnnualReport_2014_Web.pdf

⁶³ https://issuu.com/sstc/docs/sstc_annualreport_2014_web

- Saskatchewan Scrap Tire Corporation. *Annual Report 2012*⁶⁴
- Saskatchewan Scrap Tire Corporation. *Making Tracks – 2011 Annual Report*⁶⁵
- Tire Stewardship Manitoba. *2016 Annual Report*⁶⁶
- Tire Stewardship Manitoba. *2017 Annual Report*⁶⁷
- Tire Stewardship Manitoba. *2016 Annual Report*⁶⁸
- Tire Stewardship Manitoba. *2015 Annual Report*⁶⁹
- Tire Stewardship Manitoba. *2014 Annual Report*⁷⁰
- Tire Stewardship Manitoba. *2013 Annual Report*⁷¹
- Tire Stewardship Manitoba. *2012 Annual Report*⁷²
- Tire Stewardship Manitoba. *2011 Annual Report*⁷³
- Tire Stewardship Manitoba. *2010 Annual Report*⁷⁴
- Ontario Tire Stewardship. *2018 Annual Report*, dated 1st April, 2019⁷⁵
- Ontario Tire Stewardship Audited Financial Statements, Year Ended December 31, 2018⁷⁶
- Ontario Tire Stewardship. *2017 Annual Report*, dated 29th March, 2018⁷⁷
- Ontario Tire Stewardship Audited Financial Statements, Year Ended December 31, 2017⁷⁸
- Ontario Tire Stewardship. *2016 Annual Report*, dated 31st March, 2017⁷⁹
- Ontario Tire Stewardship Audited Financial Statements, Year Ended December 31, 2016⁸⁰
- Ontario Tire Stewardship. *2015 Annual Report*, dated 31st March, 2016⁸¹
- Ontario Tire Stewardship Audited Financial Statements, Year Ended December 31, 2015⁸²
- Ontario Tire Stewardship. *2014 Annual Report*, dated 31st March, 2015⁸³
- Ontario Tire Stewardship. *2013 Annual Report*, dated 31st March, 2014⁸⁴
- Ontario Tire Stewardship. *2012 Annual Report*, dated 31st March, 2013⁸⁵
- Ontario Tire Stewardship. *2011 Annual Report*, dated 31st March, 2012⁸⁶
- Ontario Tire Stewardship. *2010 Annual Report*, dated 31st March, 2011⁸⁷
- Recyc-Quebec. *Concrete Actions: A Vision for the Future – Annual Report 2017-2018*⁸⁸
- Recyc-Quebec. *Live. Recycle. Take Part – 2016-2017 Annual Report*⁸⁹
- Recyc-Quebec. *The Faces of Recyc-Quebec - 2015-2016 Annual Report*⁹⁰
- Recyc-Quebec. *Taking Action for the Future - 2014-2015 Annual Report*⁹¹
- Recyc-Quebec. *13/14 Annual Report - 2013-2014 Annual Report*⁹²

⁶⁴ <https://issuu.com/sstc/docs/sstc-2012-annual-report>

⁶⁵ https://www.scraptire.sk.ca/wp-content/uploads/2016/10/sstc_annualreport2011_final_web.pdf

⁶⁶ https://www.tirestewardshipmb.ca/wp-content/uploads/34321-tsm_annual_report_2018-web-2.pdf

⁶⁷ https://www.tirestewardshipmb.ca/wp-content/uploads/32195-tsm_annual_report_2017-web.pdf

⁶⁸ http://www.tirestewardshipmb.ca/wp-content/uploads/29367-tsm_annual_report_2016-web-1.pdf

⁶⁹ http://www.tirestewardshipmb.ca/wp-content/uploads/tsm_annual_report_2015.pdf

⁷⁰ http://www.tirestewardshipmb.ca/wp-content/uploads/tsm_annual_report_2014-web.pdf

⁷¹ http://www.tirestewardshipmb.ca/wp-content/uploads/tsm_annual_report_2013_web.pdf

⁷² http://www.tirestewardshipmb.ca/wp-content/uploads/15981_tsm_annual_report_2012_final_lores.pdf

⁷³ http://www.tirestewardshipmb.ca/wp-content/uploads/TSM-2011annualreport_fin_NEW_WEB.pdf

⁷⁴ http://www.tirestewardshipmb.ca/wp-content/uploads/TSM-2010annualreport_final_WEB1.pdf

⁷⁵ <http://rethinktires.ca/wp-content/uploads/OTS-2018-Annual-Report-ENGLISH-FINAL-Formatted.pdf>

⁷⁶ <http://rethinktires.ca/wp-content/uploads/2018-OTS-Audited-Financials-English.pdf>

⁷⁷ <http://rethinktires.ca/wp-content/uploads/2017-Annual-Report.pdf>

⁷⁸ <http://rethinktires.ca/wp-content/uploads/2017-Audited-Financials.pdf>

⁷⁹ <http://rethinktires.ca/wp-content/uploads/OTS-2016-Annual-Report-UTP-March-31-2017-Updated-May-26-17.pdf>

⁸⁰ <http://rethinktires.ca/wp-content/uploads/OTS-2016-AFS-Signed.pdf>

⁸¹ <http://rethinktires.ca/wp-content/uploads/OTS-2015-Annual-Report-Final.pdf>

⁸² <http://rethinktires.ca/wp-content/uploads/Ont-Tire-Stewardship-Audit-Financial-Statments-2015.pdf>

⁸³ <http://rethinktires.ca/wp-content/uploads/OTS-2014-Annual-Report-Final.pdf>

⁸⁴ <http://rethinktires.ca/wp-content/uploads/OTS-2013-Annual-Report-Final.pdf>

⁸⁵ <http://rethinktires.ca/wp-content/uploads/OTS-2012-Annual-Report-Final.pdf>

⁸⁶ <http://rethinktires.ca/wp-content/uploads/OTS-2011-Annual-Report-Final.pdf>

⁸⁷ <http://rethinktires.ca/wp-content/uploads/OTS-2010-Annual-Report-Final.pdf>

⁸⁸ <https://www.recyc-quebec.gouv.qc.ca/sites/default/files/documents/rapport-annuel-2017-2018-english.pdf>

⁸⁹ http://rapport-annuel-2016-2017.recyc-quebec.gouv.qc.ca/pdf/RQ_RA_EN_Web_2016-2017.pdf

⁹⁰ <https://www.recyc-quebec.gouv.qc.ca/sites/default/files/documents/rapport-annuel-2015-2016-anglais.pdf>

⁹¹ <https://www.recyc-quebec.gouv.qc.ca/sites/default/files/documents/rapport-annuel-2014-2015-anglais.pdf>

⁹² <https://www.recyc-quebec.gouv.qc.ca/sites/default/files/documents/rapport-annuel-2013-2014-anglais.pdf>

- Recyc-Quebec. *Our 3Rs - 2012-2013 Annual Report*⁹³
- Recyc-Quebec. Bilan de la gestion des matières résiduelles au Québec – 2010-2011 - Révisé en mai 2013⁹⁴
- Recycle NB. *Moving Beyond Waste: 2018 Annual Report*⁹⁵
- Recycle NB.⁹⁶ *Moving Beyond Waste: 2017 Annual Report*
- Recycle NB. *Moving Beyond Waste: 2016 Annual Report*⁹⁷
- Recycle NB. *Moving Beyond Waste: 2015 Annual Report*⁹⁸
- Recycle NB. *Moving Beyond Waste: 2014 Annual Report*⁹⁹
- Recycle NB. *Moving Beyond Waste: 2013 Annual Report*¹⁰⁰
- Recycle NB. *Moving Beyond Waste: 2012 Annual Report*¹⁰¹
- Recycle NB. *Moving Beyond Waste: 2011 Annual Report*¹⁰²
- Recycle NB. *Moving Beyond Waste: 2010 Annual Report*¹⁰³
- Divert NS. *Pivot: 2018-2019 Annual Report*¹⁰⁴
- Divert NS. *Nothing Wasted So Much Gained: Annual Report 2017-2018*¹⁰⁵
- Divert NS. *Growing Our Culture of Recycling: 2016-2017 Annual Report*¹⁰⁶
- Divert NS. *Two Decades. Tremendous Impact: 2015-2016 Annual Report*¹⁰⁷
- Resource Recovery Fund Board (RRFB). *More Than Just a Bottle, A Message: 2014-2015 Annual Report*¹⁰⁸
- Resource Recovery Fund Board (RRFB). *Planting the Seeds for A Sustainable Future: 2013-2014 Annual Report*¹⁰⁹
- Resource Recovery Fund Board (RRFB). *Re-Imagination: 2012-2013 Annual Report*¹¹⁰
- Resource Recovery Fund Board (RRFB). *Reduce, Reuse, Recycle: 2011-2012 Annual Report*¹¹¹
- Resource Recovery Fund Board (RRFB). *Reduce, Reuse, Recycle: 2010-2011 Annual Report*¹¹²
- Resource Recovery Fund Board (RRFB). *RE: 2009-2010 Annual Report*¹¹³
- Island Waste Management Corporation. *2017 Annual Report*¹¹⁴
- Island Waste Management Corporation Consolidated Financial Statements, March 31, 2017¹¹⁵
- Island Waste Management Corporation. *2016 Annual Report*¹¹⁶
- Island Waste Management Corporation. *2015 Annual Report*¹¹⁷
- Island Waste Management Corporation. *2014 Annual Report*¹¹⁸
- Island Waste Management Corporation. *2013 Annual Report*¹¹⁹
- Island Waste Management Corporation. *2012 Annual Report*¹²⁰
- Multi-Material Stewardship Board. *2017-2018 Annual Report*¹²¹

⁹³ <https://www.recyc-quebec.gouv.qc.ca/sites/default/files/documents/rapport-annuel-2012-2013-anglais.pdf>

⁹⁴ <https://www.recyc-quebec.gouv.qc.ca/sites/default/files/documents/bilan-gmr-2010-2011.pdf>

⁹⁵ https://recyclenb.com/storage/files/shares/RNB_AR_2018_en_v12_LR.pdf

⁹⁶ https://recyclenb.com/storage/files/shares/publications-english/annual-reports/RNB_AR_2017_EN_LR.pdf

⁹⁷ https://www.recyclenb.com/files/shares/Recycle_NB_2016_anglais_v7_LR.pdf

⁹⁸ <https://www.recyclenb.com/vendor/laravel-filemanager/files/annual-reports-e/recycle-nb-2015-anglais-v7-lr.pdf>

⁹⁹ <https://www.recyclenb.com/vendor/laravel-filemanager/files/annual-reports-e/2014-annual-report-e.pdf>

¹⁰⁰ <https://www.recyclenb.com/vendor/laravel-filemanager/files/annual-reports-e/2013-annual-report-e.pdf>

¹⁰¹ <https://www.recyclenb.com/vendor/laravel-filemanager/files/annual-reports-e/2012-annual-report-e.pdf>

¹⁰² <https://www.recyclenb.com/vendor/laravel-filemanager/files/annual-reports-e/2011-annual-report-e.pdf>

¹⁰³ <https://www.recyclenb.com/vendor/laravel-filemanager/files/annual-reports-e/2010-annual-report-e.pdf>

¹⁰⁴ <https://divertns.ca/assets/files/DivertNS2019AnnualReport.pdf>

¹⁰⁵ <https://divertns.ca/assets/files/2018AnnualReport.pdf>

¹⁰⁶ <http://divertns.ca/assets/files/DivertNS-Annual-Report-WEB-FINAL.pdf>

¹⁰⁷ http://divertns.ca/assets/files/DivertNS_AnnualReport2016.PDF

¹⁰⁸ http://divertns.ca/assets/files/RRFB_AR_2015.pdf

¹⁰⁹ http://divertns.ca/assets/files/RRFB_AR_2014.pdf

¹¹⁰ http://divertns.ca/assets/files/RRFB_AR_2013.pdf

¹¹¹ http://divertns.ca/assets/files/RRFB_AR_2012.pdf

¹¹² http://divertns.ca/assets/files/RRFB_AR_2011.pdf

¹¹³ http://divertns.ca/assets/files/RRFB_AR_2010.pdf

¹¹⁴ <https://www.iwmc.pe.ca/pdfs/2017AnnualReportFINALSMALL.pdf>

¹¹⁵ <https://www.iwmc.pe.ca/pdfs/IIFRSFSIWMc2017withESIS.pdf>

¹¹⁶ <https://www.iwmc.pe.ca/pdfs/2016AnnualReport.pdf> and <https://www.iwmc.pe.ca/pdfs/2016AnnualReportFinancialStatements.pdf>

¹¹⁷ <https://www.iwmc.pe.ca/pdfs/2015AnnualReport.pdf> and <https://www.iwmc.pe.ca/pdfs/2015AnnualReportFinancialStatements.pdf>

¹¹⁸ <https://www.iwmc.pe.ca/pdfs/2014AnnualReport.pdf>

¹¹⁹ <https://www.iwmc.pe.ca/pdfs/2013AnnualReport.pdf>

¹²⁰ <https://www.iwmc.pe.ca/pdfs/2012AnnualReport.pdf>

¹²¹ <http://mmsb.nl.ca/wp-content/uploads/2019/01/MMSB-Annual-Report-2017-18.pdf>

- Multi-Material Stewardship Board. *Guiding Our Province to a Greener Future: 2016-2017 Annual Report*¹²²
- Multi-Material Stewardship Board. *Guiding Our Province to a Greener Future: 2015-2016 Annual Report*¹²³
- Multi-Material Stewardship Board. *Guiding Our Province to a Greener Future: 2014-2015 Annual Report*¹²⁴
- Multi-Material Stewardship Board. *Guiding Our Province to a Greener Future: 2013-2014 Annual Report*¹²⁵
- Multi-Material Stewardship Board. *Guiding Our Province to a Greener Future: 2012-2013 Annual Report*¹²⁶
- Multi-Material Stewardship Board. *Guiding Our Province to a Greener Future: 2011-2012 Annual Report*¹²⁷
- Multi-Material Stewardship Board. *Guiding Our Province to a Greener Future: 2010-2011 Annual Report*¹²⁸

Documents Reviewed – Electronics Programs

- Electronic Products Recycling Association. *Annual Report 2018*¹²⁹
- Electronic Products Recycling Association. *Annual Report 2017*¹³⁰
- Electronic Products Recycling Association. *Annual Report 2016*¹³¹
- Electronic Products Recycling Association. *Annual Report 2015*¹³²
- Electronic Products Recycling Association. *Annual Report 2014*¹³³
- Electronic Products Recycling Association. *Annual Report 2013*¹³⁴
- Electronic Products Recycling Association. *Annual Report 2012*¹³⁵
- Electronic Products Recycling Association. *BC 2016 EPRA Annual Report to the Director*. Dated 30th June 2017¹³⁶
- Electronic Products Recycling Association. *BC 2015 EPRA Annual Report to the Director*. Dated 30th June 2016¹³⁷
- Electronic Products Recycling Association. *BC 2014 EPRA Annual Report to the Director*. Dated 30th June 2015¹³⁸
- Electronic Products Recycling Association. *BC 2013 EPRA Annual Report to the Director*. Dated 28th June 2014¹³⁹
- Electronic Products Recycling Association. *BC 2012 EPRA Annual Report to the Director*. Dated 28th June 2013¹⁴⁰
- Alberta Recycling Management Authority. *2018/2019 Annual Report (standard version)*¹⁴¹
- Alberta Recycling Management Authority. *Annual Report 2017/2018*¹⁴²
- Alberta Recycling Management Authority. *Annual Report 2016/2017*¹⁴³
- Alberta Recycling Management Authority. *The Promise of Responsible Environmental Stewardship – 2015/16 Annual Report to the 2015-18 Business Plan*¹⁴⁴
- Alberta Recycling Management Authority. *The Promise of Responsible Environmental Stewardship – 2014/15 Annual Report to the 2014-17 Business Plan*¹⁴⁵
- Alberta Recycling Management Authority. *2013/14 Annual Report*
- Alberta Recycling Management Authority. *2012/13 Annual Report*
- Alberta Recycling Management Authority. *2011/12 Annual Report*
- Ontario Electronic Stewardship. *OES 2018 Annual Report*¹⁴⁶

¹²² <http://mmsb.nl.ca/wp-content/uploads/2017/08/MMSB-Annual-Report-2016-17.pdf>

¹²³ <http://mmsb.nl.ca/wp-content/uploads/2014/03/MMSB-AnnualReport-2015-16-Tabled.pdf>

¹²⁴ http://mmsb.nl.ca/wp-content/uploads/2014/05/MMSB_AnnualReport_2014-15_Final.pdf

¹²⁵ http://mmsb.nl.ca/wp-content/uploads/2014/05/MMSB-2013-14_AnnualReport.pdf

¹²⁶ <http://mmsb.nl.ca/wp-content/uploads/2014/05/2012-13-Annual-Report.pdf>

¹²⁷ http://mmsb.nl.ca/wp-content/uploads/2014/05/2011-2012-Annual-Report_.pdf.pdf

¹²⁸ <http://mmsb.nl.ca/wp-content/uploads/2014/05/MMSB-10-11-Annual-Report.pdf>

¹²⁹ https://epra.ca/wp-content/uploads/2019/06/EPRA_Annual_Report_2018_ENGLISH.pdf

¹³⁰ https://epra.ca/wp-content/uploads/2018/06/EPRA_Annual_Report_ENG_2017_Final.pdf

¹³¹ http://epra.ca/wp-content/uploads/2017/06/EPRA_Annual_Report_EN_2016_Final.pdf.pdf

¹³² http://epra.ca/wp-content/uploads/2016/06/EPRA_Annual_Report_EN_Final.pdf

¹³³ <http://epra.ca/wp-content/uploads/ar/english/2014-v2/EPRA%20AR%202014%20July2.pdf>

¹³⁴ <http://epra.ca/wp-content/uploads/ar/english/2013/EPRA2013%20-%20Annual%20Report.pdf>

¹³⁵ <http://epra.ca/wp-content/uploads/ar/english/2012/EPRA2012%20-%20Annual%20Report.pdf>

¹³⁶ <https://www.recyclemyelectronics.ca/bc/wp-content/uploads/2017/10/EPRA-Report-to-Director-2016-Final.pdf>

¹³⁷ <https://www.recyclemyelectronics.ca/bc/wp-content/uploads/2017/10/EPRA-Report-to-Director-2015-Final.pdf>

¹³⁸ <https://www.recyclemyelectronics.ca/bc/wp-content/uploads/2017/10/EPRA-Report-to-Director-2014-final.pdf>

¹³⁹ <https://www.recyclemyelectronics.ca/bc/wp-content/uploads/2017/10/EPRA-BC-Report-to-Director-2013.pdf>

¹⁴⁰ <https://www.recyclemyelectronics.ca/bc/wp-content/uploads/2017/10/EPRA-Report-to-Director-2012-final.pdf>

¹⁴¹ <https://albertarecyclingreports.ca/2018/>

¹⁴² <https://www.albertarecycling.ca/about/reports/>

¹⁴³ <http://www.albertarecycling.ca/docs/annual-reports/2016-17-annual-report-web-version.pdf?Status=Temp&sfvrsn=4>

¹⁴⁴ [http://www.albertarecycling.ca/docs/annual-reports/2015-16-annual-report-final-\(web-version\).pdf?Status=Temp&sfvrsn=2](http://www.albertarecycling.ca/docs/annual-reports/2015-16-annual-report-final-(web-version).pdf?Status=Temp&sfvrsn=2)

¹⁴⁵ <http://www.albertarecycling.ca/docs/annual-reports/2014-15-annual-report.pdf?Status=Temp&sfvrsn=6>

¹⁴⁶ https://ontarioelectronicstewardship.ca/wp-content/uploads/2019/04/OES_2018_Annual_Report_EN_FR.pdf

- Ontario Electronic Stewardship. *OES 2017 Annual Report*¹⁴⁷
- Ontario Electronic Stewardship. *OES 2016 Annual Report*¹⁴⁸
- Ontario Electronic Stewardship. *OES 2015 Annual Report*¹⁴⁹
- Ontario Electronic Stewardship. *OES 2014 Annual Report: The Future is in Your Hands*.¹⁵⁰
- Ontario Electronic Stewardship. *OES 2013 Annual Report: Hard at Work for You*.¹⁵¹
- Ontario Electronic Stewardship. *OES 2012 Annual Report: Growing and Building Reforms for a Sustainable Future*.¹⁵²
- Ontario Electronic Stewardship. *OES 2011 Annual Report: Doing More, Doing Better with You*.¹⁵³
- Ontario Electronic Stewardship. *OES 2009/2010 Annual Report*¹⁵⁴

Documents Reviewed - Paint Programs

- Product Care Recycling. *2018 Annual Report*¹⁵⁵
- Product Care Association. *2017 Annual Report*¹⁵⁶
- Product Care Association. *Product Care 2016 Annual Report*¹⁵⁷
- Product Care Association. *Product Care 2015 Annual Report*¹⁵⁸
- Product Care Association of Canada. *Product Care Association Paint and Household Hazardous Waste Annual Report 2018*, dated 1st July 2019¹⁵⁹
- Product Care Association of Canada. *British Columbia Paint and Household Hazardous Waste Stewardship Program Annual Report 2017*, dated 27th June 2018¹⁶⁰
- Product Care Association. *2016 BC Paint and Household Hazardous Waste Stewardship Program Annual Report*, dated 30th June 2017¹⁶¹
- Product Care Association. *2015 BC Paint and Household Hazardous Waste Stewardship Program Annual Report*, dated 30th June 2016¹⁶²
- Product Care Association. *2014 BC Paint and Household Hazardous Waste Stewardship Program Annual Report*, dated 30th June 2015¹⁶³
- Product Care Association. *2013 BC Paint and Household Hazardous Waste Stewardship Program Annual Report*, dated 30th June 2014¹⁶⁴
- Product Care Association. *Annual Report to the Director 2012*, dated June 30, 2013.¹⁶⁵
- Product Care Association. *BC Paint and Household Hazardous Waste (HHW) 2011 Program Year Annual Report*.¹⁶⁶
- Alberta Recycling Management Authority. *2018/2019 Annual Report (standard version)*¹⁶⁷
- Alberta Recycling Management Authority. *Annual Report 2017/2018*¹⁶⁸
- Alberta Recycling Management Authority. *Annual Report 2016/2017*¹⁶⁹

¹⁴⁷ https://ontarioelectronicstewardship.ca/wp-content/uploads/2018/04/OES_2017_Annual_Report_English_French.pdf

¹⁴⁸ http://ontarioelectronicstewardship.ca/wp-content/uploads/2017/06/OES_2016_Annual_Report_v_final.pdf

¹⁴⁹ http://ontarioelectronicstewardship.ca/wp-content/uploads/2016/06/OES_2015_Annual_Report_Final.pdf

¹⁵⁰ <http://ontarioelectronicstewardship.ca/wp-content/themes/Avada-Child-Theme/annualreport/2014/files/inc/27358d5c6c.pdf>

¹⁵¹ <http://ontarioelectronicstewardship.ca/wp-content/themes/Avada-Child-Theme/annualreport/2013-final/files/inc/a3b00616cd.pdf>

¹⁵² <http://ontarioelectronicstewardship.ca/wp-content/themes/Avada-Child-Theme/annualreport/2012/files/inc/4d82ba63fa.pdf>

¹⁵³ <http://ontarioelectronicstewardship.ca/wp-content/themes/Avada-Child-Theme/annualreport/2011/files/inc/1765338039.pdf>

¹⁵⁴ <http://ontarioelectronicstewardship.ca/wp-content/themes/Avada-Child-Theme/annualreport/2010/files/assets/downloads/publication.pdf>

¹⁵⁵ <https://www.productcare.org/app/uploads/2019/08/2018-Product-Care-Annual-Report-EN.pdf>

¹⁵⁶ <https://www.productcare.org/app/uploads/2018/11/EN-PCA-2017-Annual-Report.pdf>

¹⁵⁷ <https://www.productcare.org/wp-content/uploads/2017/08/PCA-Annual-Report-2016.pdf>

¹⁵⁸ <https://www.productcare.org/wp-content/uploads/2016/08/PCA-2015-Annual-Report.pdf>

¹⁵⁹ <https://www.productcare.org/app/uploads/2019/07/2018-BC-Paint-HHW-Annual-Report.pdf>

¹⁶⁰ <https://www.productcare.org/app/uploads/2019/07/2018-BC-Paint-HHW-Annual-Report.pdf>

¹⁶¹ <http://www.productcare.org/wp-content/uploads/2017/06/2016-BC-Paint-HHW-Annual-Report.pdf>

¹⁶² <https://www.productcare.org/wp-content/uploads/2016/06/2015-BC-Paint-HHW-Annual-Report-1.pdf>

¹⁶³ <https://www.productcare.org/wp-content/uploads/2016/06/2014-BC-Paint-HHW-Annual-Report-1.pdf>

¹⁶⁴ <https://www.productcare.org/wp-content/uploads/2016/03/2013-BC-Paint-HHW-Annual-Report1.pdf>

¹⁶⁵ <https://www.regeneration.ca/wp-content/uploads/2014/09/2012-BC-PaintHHW-Annual-Report-Final-FS-and-non-FS.pdf>

¹⁶⁶ https://www2.gov.bc.ca/assets/gov/environment/waste-management/recycling/recycle/paints-solvents-gas/ar/hhw_2011_annual_report.pdf

¹⁶⁷ <https://albertarecyclingreports.ca/2018/>

¹⁶⁸ <https://www.albertarecycling.ca/about/reports/>

¹⁶⁹ <http://www.albertarecycling.ca/docs/annual-reports/2016-17-annual-report-web-version.pdf?Status=Temp&sfvrsn=4>

- Alberta Recycling Management Authority. *The Promise of Responsible Environmental Stewardship – 2015/16 Annual Report to the 2015-18 Business Plan*¹⁷⁰
- Alberta Recycling Management Authority. *The Promise of Responsible Environmental Stewardship – 2014/15 Annual Report to the 2014-17 Business Plan*¹⁷¹
- Alberta Recycling Management Authority. *2013/14 Annual Report*
- Alberta Recycling Management Authority. *2012/13 Annual Report*
- Alberta Recycling Management Authority. *2011/12 Annual Report*
- Product Care Association of Canada. *Saskatchewan Waste Paint Management Program Annual Report*, dated 28th June 2019¹⁷²
- Product Care Association of Canada. *Saskatchewan Waste Paint Management Program 2017 Annual Report*, dated 30th June 2018¹⁷³
- Product Care Association. *2016 Saskatchewan Waste Paint Management Program Annual Report*, dated 30th June 2017¹⁷⁴
- Product Care Association. *2015 Saskatchewan Waste Paint Management Program Annual Report*¹⁷⁵
- Product Care Association. *2014 Saskatchewan Waste Paint Management Program Annual Report*¹⁷⁶
- Product Care Association. *2013 Saskatchewan Waste Paint Management Program Annual Report*¹⁷⁷
- Product Care Association. *Saskatchewan Paint Stewardship Program 2012 Annual Report*¹⁷⁸
- Product Care Association. *Saskatchewan Paint Stewardship Program 2011 Annual Report to Saskatchewan Ministry of Environment pursuant to the Waste Paint Management Regulations (Chapter E-10.21 Reg 3)*
- Product Care Association of Canada. *Manitoba Household Hazardous Waste Annual Report 2018*¹⁷⁹
- Product Care Association of Canada. *Manitoba Household Hazardous Waste Annual Report 2017*, dated 1st May 2018¹⁸⁰
- Product Care Association. *2016 Manitoba HHW Annual Report*, dated 1st May 2017¹⁸¹
- Product Care Association. *2015 Manitoba HHW Annual Report*¹⁸²
- Product Care Association. *2014 Manitoba HHW Annual Report*¹⁸³
- Product Care Association. *MB Household Hazardous Waste (HHW) 2013 Program Year Annual Report*¹⁸⁴
- Product Care Association. *MB Household Hazardous Waste (HHW) 2012 Program Year Annual Report*.¹⁸⁵
- Product Care Association. *Ontario Industry Stewardship Programs 2018 Annual Report* Submitted to Resource Productivity & Recovery Authority¹⁸⁶
- Product Care Association. *Ontario Industry Stewardship Programs 2017 Annual Report* Submitted to Resource Productivity & Recovery Authority¹⁸⁷
- Product Care Association. *Ontario Industry Stewardship Programs 2016 Annual Report* Submitted to Resource Productivity & Recovery Authority¹⁸⁸
- Product Care Association. *2015 Annual Report to Waste Diversion Ontario*.¹⁸⁹
- Stewardship Ontario. *2014 Annual Report – Thinking Beyond the Box*.¹⁹⁰
- Stewardship Ontario. *2013 Annual Report - Participation: Working Together to Recycle More*.¹⁹¹

¹⁷⁰ [http://www.albertarecycling.ca/docs/annual-reports/2015-16-annual-report-final-\(web-version\).pdf?Status=Temp&sfvrsn=2](http://www.albertarecycling.ca/docs/annual-reports/2015-16-annual-report-final-(web-version).pdf?Status=Temp&sfvrsn=2)

¹⁷¹ <http://www.albertarecycling.ca/docs/annual-reports/2014-15-annual-report.pdf?Status=Temp&sfvrsn=6>

¹⁷² <http://www.productcare.org/wp-content/uploads/2017/06/Saskatchewan-Paint-Annual-Report-2016.pdf>

¹⁷³ <http://www.productcare.org/wp-content/uploads/2017/06/Saskatchewan-Paint-Annual-Report-2016.pdf>

¹⁷⁴ <http://www.productcare.org/wp-content/uploads/2017/06/Saskatchewan-Paint-Annual-Report-2016.pdf>

¹⁷⁵ <https://www.productcare.org/wp-content/uploads/2016/07/Saskatchewan-Paint-Annual-Report-2015-1.pdf>

¹⁷⁶ <https://www.productcare.org/wp-content/uploads/2016/03/Saskatchewan-Paint-Annual-Report-2014.pdf>

¹⁷⁷ <https://www.productcare.org/wp-content/uploads/2016/03/SK-Paint-2013-Annual-Report-1.pdf>

¹⁷⁸ <https://www.regeneration.ca/wp-content/uploads/2014/09/SK-Paint-2012-Annual-Report-Final.pdf>

¹⁷⁹ <https://www.productcare.org/app/uploads/2019/05/Manitoba-HHW-Annual-Report-2018.pdf>

¹⁸⁰ <https://www.productcare.org/app/uploads/2018/12/Manitoba-HHW-Annual-Report-2017.pdf>

¹⁸¹ <http://www.productcare.org/wp-content/uploads/2017/05/Manitoba-HHW-2016-Annual-Report.pdf>

¹⁸² <https://www.productcare.org/wp-content/uploads/2017/05/2015-MB-HHW-Annual-Report.pdf>

¹⁸³ <https://www.productcare.org/wp-content/uploads/2017/05/2014-MB-HHW-Annual-Report.pdf>

¹⁸⁴ <https://www.lightrecycle.ca/wp-content/uploads/2015/03/141003-MB-HHW-2013-Annual-Report-Final.pdf>

¹⁸⁵ <https://www.regeneration.ca/wp-content/uploads/2014/09/MB-HHW-2012-Annual-Report-Final-May-2013-Amended-incl-Financials.pdf>

¹⁸⁶ <https://www.productcare.org/app/uploads/2019/05/Ontario-Annual-Report-2018-EN.pdf>

¹⁸⁷ <https://www.productcare.org/app/uploads/2018/12/2017-PCA-ON-Annual-Report-EN-.pdf>

¹⁸⁸ <http://www.productcare.org/wp-content/uploads/2017/06/2016-PCA-Annual-Report-x01.pdf>

¹⁸⁹ <https://www.productcare.org/wp-content/uploads/2016/07/ON-PaintRecycle-2015-Annual-Report.pdf>

¹⁹⁰ http://stewardshipontario.ca/wp-content/uploads/2015/09/2014_SO_Annual_Report_WEB.pdf

¹⁹¹ <http://2013.stewardshipontario.ca/wp-content/uploads/2014/06/stewardship-ontario-digital-annual-report-2013.pdf>

- Stewardship Ontario. *2012 Annual Report - Partnership*.¹⁹²
- Stewardship Ontario. *2011 Annual Report – The Circle of Sustainability*.¹⁹³
- Stewardship Ontario. *2010 Annual Report – This is Not Garbage*.¹⁹⁴
- Eco-Peinture. *Results*.¹⁹⁵
- Product Care Association of Canada. *New Brunswick Paint Program Annual Report*, dated 30th April 2019¹⁹⁶
- Product Care Association of Canada. *New Brunswick Paint Stewardship Program 2017 Annual Report*, dated 30th April 2018¹⁹⁷
- Product Care Association. *New Brunswick Paint Stewardship Program 2016 Annual Report*, dated 30th April 2017¹⁹⁸
- Product Care Association. *2015 New Brunswick Paint Stewardship Program Annual Report*, dated 30th April 2016¹⁹⁹
- Product Care Association. *2014 New Brunswick Paint Stewardship Program Annual Report*, dated 30th April 2015²⁰⁰
- Product Care Association. *2013 New Brunswick Paint Recycling Program Annual Report*, dated 30th April 2014²⁰¹
- Product Care Association. *2012 New Brunswick Paint Recycling Program Annual Report*, dated 30th April 2013²⁰²
- Recycle NB. *2011 Annual Report*²⁰³
- Product Care Association of Canada. *Nova Scotia Paint Program Annual Report*, dated 30th March 2019²⁰⁴
- Product Care Association. *Nova Scotia Paint Stewardship Program 2017 Annual Report*, dated 31st May 2018²⁰⁵
- Product Care Association. *Nova Scotia Paint Stewardship Program 2016 Annual Report*, dated 31st May 2017²⁰⁶
- Product Care Association. *2015 Nova Scotia Paint Stewardship Program Annual Report*, dated 31st May 2016²⁰⁷
- Product Care Association. *2014 Nova Scotia Paint Stewardship Program Annual Report*, dated 31st May 2015²⁰⁸
- Product Care Association. *Annual Report Nova Scotia Paint Recycling Program January 1, 2013 – December 31, 2013*²⁰⁹
- Product Care Association of Canada. *Prince Edward Island Paint Program Annual Report*, dated 30th June 2019²¹⁰
- Product Care Association of Canada. *Prince Edward Island Paint Recycling Program Annual Report 2017*, dated 29th June 2018²¹¹
- Product Care Association. *PEI Paint Recycling Program Annual Report 2016*, dated 19th June 2017²¹²
- Product Care Association. *2015 PEI Paint Recycling Program Annual Report*, dated 30th June 2016²¹³
- Product Care Association. *2014 PEI Paint Recycling Program Annual Report*, dated 30th June 2015²¹⁴
- Product Care Association. *2013 PEI Paint Recycling Program Annual Report*, dated 27th June 2014²¹⁵
- Product Care Association. *2012 PEI Paint Recycling Program Annual Report*, dated 30th June 2013²¹⁶
- Product Care Association of Canada. *Newfoundland and Labrador Paint Program Annual Report* dated, 30th April 2019²¹⁷

¹⁹² http://stewardshipontario.ca/wp-content/uploads/2013/06/SO_2012AR_WEB.pdf

¹⁹³ http://stewardshipontario.ca/wp-content/uploads/2013/01/SO_2011_AR_WEB_2.pdf

¹⁹⁴ http://stewardshipontario.ca/wp-content/uploads/2013/03/SO_2010_Annual_Report_FINAL.pdf

¹⁹⁵ <https://www.ecopeinture.ca/en/eco-peinture/results>

¹⁹⁶ <https://www.productcare.org/app/uploads/2019/07/2018-NB-Paint-Annual-Report.pdf>

¹⁹⁷ <https://www.productcare.org/app/uploads/2018/12/2017-NB-Annual-Report.pdf>

¹⁹⁸ <http://www.productcare.org/wp-content/uploads/2017/04/NB-2016-Annual-report.pdf>

¹⁹⁹ <https://www.productcare.org/wp-content/uploads/2016/06/2015-NB-Annual-Report-1.pdf> and <https://www.productcare.org/wp-content/uploads/2016/06/PCA-NB-2015-Paint-Recycling-Program-final-FS-2015.pdf>

²⁰⁰ <https://www.productcare.org/wp-content/uploads/2016/03/2014-New-Brunswick-Paint-Annual-Report.pdf> and

<https://www.productcare.org/wp-content/uploads/2016/03/Product-Care-Assn-NB-Paint-Recycling-Program-final-FS-2013.pdf>

²⁰¹ <https://www.productcare.org/wp-content/uploads/2016/03/2013-NB-Paint-Recycling-Program-Annual-Report.pdf>

²⁰² https://www.regeneration.ca/wp-content/uploads/2015/01/2012-NB-Annual-Report_Final.pdf

²⁰³ <https://www.recyclenb.com/vendor/laravel-filemanager/files/annual-reports-e/recycle-nb2011-english-lr-5.pdf>

²⁰⁴ <https://www.productcare.org/app/uploads/2019/07/2018-NS-Paint-Annual-Report.pdf>

²⁰⁵ <https://www.productcare.org/app/uploads/2018/12/2017-NS-Paint-Report.pdf>

²⁰⁶ <http://www.productcare.org/wp-content/uploads/2017/05/2016-NS-Paint-Annual-report-with-FS.pdf>

²⁰⁷ <https://www.productcare.org/wp-content/uploads/2016/06/2015-NS-Annual-Report.pdf> and <https://www.productcare.org/wp-content/uploads/2016/06/PCA-NS-Paint-Recycle-final-FS-2015.pdf>

²⁰⁸ <https://www.productcare.org/wp-content/uploads/2016/02/2014-Nova-Scotia-Paint-Recycling-Program-Annual-Report.pdf>

²⁰⁹ <https://www.productcare.org/wp-content/uploads/2016/02/NS-2013-Annual-Report.pdf>

²¹⁰ <https://www.productcare.org/app/uploads/2019/07/2018-PEI-Paint-Annual-Report.pdf>

²¹¹ <https://www.productcare.org/app/uploads/2018/12/2017-PEI-Paint-Annual-Report.pdf>

²¹² <http://www.productcare.org/wp-content/uploads/2017/06/2016-PEI-Paint-Annual-Report.pdf>

²¹³ <https://www.productcare.org/wp-content/uploads/2016/06/2015-PEI-Annual-Report.pdf>

²¹⁴ <https://www.productcare.org/wp-content/uploads/2016/03/2014-PEI-Paint-Program-Annual-Report.pdf>

²¹⁵ <https://www.productcare.org/wp-content/uploads/2016/03/2013-PEI-Annual-Report.pdf>

²¹⁶ <https://www.regeneration.ca/wp-content/uploads/2015/01/2012-PEI-Annual-ReportFinal.pdf>

²¹⁷ <https://www.productcare.org/app/uploads/2019/04/2018-NL-Paint-Annual-Report.pdf>

- Product Care Association of Canada. *Newfoundland and Labrador Paint Stewardship Program 2017 Annual Report* dated, 30th April 2018²¹⁸
- Product Care Association. *Newfoundland and Labrador Paint Stewardship Program 2016 Annual Report* dated, 28th April 2017²¹⁹
- Product Care Association. *2015 Newfoundland and Labrador Paint Stewardship Program Annual Report*, dated 30th April 2016²²⁰
- Product Care Association. *2014 Newfoundland and Labrador Paint Stewardship Program Annual Report*, dated 30th April 2015²²¹
- Product Care Association. *2013 Newfoundland and Labrador Paint Stewardship Program Annual Report*, revised August 2014²²²
- Product Care Association. *2012 Newfoundland and Labrador Paint Stewardship Program Annual Report*, dated 30th April 2013²²³

Documents Reviewed – Used Oil Programs

- BC Used Oil Management Association. *Don't juts change your oil. Recycle It: Annual Report 2018* ²²⁴
- BC Used Oil Management Association. *Used oil can be refined again and again: 2017 Annual Report*²²⁵
- BC Used Oil Management Association. *Used oil can be refined again and again: 2016 Annual Report*²²⁶
- BC Used Oil Management Association. *Used oil can be refined again and again: 2015 Annual Report*²²⁷
- BC Used Oil Management Association. *We've collected over 500 million litres of oil to date: 2014 Annual Report*²²⁸
- BC Used Oil Management Association. *One drop can change everything: 2013 Annual Report*²²⁹
- BC Used Oil Management Association. *2012 Annual Report*²³⁰
- BC Used Oil Management Association. *A single drop can change everything: 2011 Annual Report* ²³¹
- Alberta Recycling Management Authority. *2018/2019 Annual Report (standard version)*²³²
- Alberta Used Oil Management Association²³³
- Saskatchewan Association for Resource Recovery Corp. *Annual Report 2018: Drop in*²³⁴
- Saskatchewan Association for Resource Recovery Corp. *Annual Report 2017: next*²³⁵
- Saskatchewan Association for Resource Recovery Corp. *Make no mistake, our world is watching: 2016 Annual Report*²³⁶
- Saskatchewan Association for Resource Recovery Corp. *Twenty years of stewardship: 2015 Annual Report*²³⁷
- Saskatchewan Association for Resource Recovery Corp. *Together, we protect our environment: 2014 Annual Report*²³⁸

²¹⁸ <https://www.productcare.org/app/uploads/2018/12/NL-2017-Paint-annual-Report.pdf>

²¹⁹ <http://www.productcare.org/wp-content/uploads/2017/04/2016-NL-Annual-report.pdf>

²²⁰ <https://www.productcare.org/wp-content/uploads/2016/06/2015-NL-Annual-report.pdf> and <https://www.productcare.org/wp-content/uploads/2016/06/PCA-Newfoundland-Paint-Recycle-final-FS-2015.pdf>

²²¹ <https://www.productcare.org/wp-content/uploads/2016/03/2014-Newfoundland-Labrador-Paint-Program-Annual-Report.pdf>

²²² <https://www.productcare.org/wp-content/uploads/2016/03/2013-NL-Annual-Report-Updated-November-2014.pdf> and <https://www.productcare.org/wp-content/uploads/2016/03/Product-Care-Association-final-FS-2013-Newfoundland-Labrador.pdf>

²²³ <https://www.productcare.org/wp-content/uploads/2017/10/2012-NL-PaintRecycle-Annual-Report-Final-with-FS.pdf>

²²⁴ <https://bcusedoil.com/wp-content/uploads/2019/06/BCUOMA-2018-Annual-Report-ONLINE-v2.pdf>

²²⁵ https://bcusedoil.com/wp-content/uploads/2018/06/BCUOMA_AR_2017.pdf

²²⁶ <https://bcusedoil.com/wp-content/uploads/2018/06/BCUOMA-Annual-Report-2016.pdf>

²²⁷ <https://bcusedoil.com/wp-content/uploads/2019/07/BCUOMA-2015-Annual-Report.pdf>

²²⁸ <https://bcusedoil.com/wp-content/uploads/2019/07/BCUOMA-2014-Annual-Report.pdf>

²²⁹ <https://bcusedoil.com/wp-content/uploads/2019/07/BCUOMA-2013-Annual-Report.pdf>

²³⁰ <https://bcusedoil.com/wp-content/uploads/2019/07/BCUOMA-2012-Annual-Report.pdf>

²³¹ <https://bcusedoil.com/wp-content/uploads/2019/07/BCUOMA-2011-Annual-Report.pdf>

²³² <https://albertarecyclingreports.ca/2018/>

²³³ <http://usedoilrecyclingab.com>

²³⁴ <http://usedoilrecyclingsk.com/wordpress/wp-content/uploads/2019/04/2018-annual-report.pdf>

²³⁵ <http://usedoilrecyclingsk.com/wordpress/wp-content/uploads/2018/07/2017-annual-report-revised.pdf>

²³⁶ <http://usedoilrecyclingsk.com/wordpress/wp-content/uploads/2017/04/2016-annual-report.pdf>

²³⁷ <http://usedoilrecyclingsk.com/wordpress/wp-content/uploads/2016/04/2015-annual-report.pdf>

²³⁸ <http://usedoilrecyclingsk.com/wordpress/wp-content/uploads/2016/04/2014-annual-report.pdf>

- Saskatchewan Association for Resource Recovery Corp. *Making mother nature proud. Cleaner. Stronger: 2013 Annual Report*²³⁹
- Saskatchewan Association for Resource Recovery Corp. *Planning for growth: Annual Report 2012*²⁴⁰
- Saskatchewan Association for Resource Recovery Corp. *Green and growing: Annual Report 2011*²⁴¹
- Manitoba Association for Resource Recovery Corp. 2018 Annual Report²⁴²
- Manitoba Association for Resource Recovery Corp. 2017 Annual Report²⁴³
- Manitoba Association for Resource Recovery Corp. 2016 Annual Report²⁴⁴
- Manitoba Association for Resource Recovery Corp. 2015 Annual Report²⁴⁵
- Manitoba Association for Resource Recovery Corp. 2014 Annual Report²⁴⁶
- Manitoba Association for Resource Recovery Corp. 2013 Annual Report²⁴⁷
- Manitoba Association for Resource Recovery Corp. 2012 Annual Report²⁴⁸
- Manitoba Association for Resource Recovery Corp. 2011 Annual Report²⁴⁹
- Automotive Materials Stewardship. *2018 Annual Report*²⁵⁰
- Automotive Materials Stewardship. *2017 Annual Report*²⁵¹
- Stewardship Ontario. *2018 Annual Report – Change is Coming, We are Ready*²⁵²
- Stewardship Ontario. *2017 Annual Report*²⁵³
- Stewardship Ontario. *2016 Annual Report – Our Mosaic*.²⁵⁴
- Stewardship Ontario. *2015 Annual Report – Thinking Beyond the Box*.²⁵⁵
- Stewardship Ontario. *2014 Annual Report – Thinking Beyond the Box*.²⁵⁶
- Stewardship Ontario. *2013 Annual Report - Participation: Working Together to Recycle More*.²⁵⁷
- Stewardship Ontario. *2012 Annual Report - Partnership*.²⁵⁸
- Stewardship Ontario. *2011 Annual Report – The Circle of Sustainability*.²⁵⁹
- Société de gestion des huiles usagées. *2018 Annual Report – Keep Nature Clean*²⁶⁰
- Société de gestion des huiles usagées. *2017 Annual Report – Keep Nature Clean!*²⁶¹
- Société de gestion des huiles usagées. *Annual Report 2016 – Make every drop count!*²⁶²
- Société de gestion des huiles usagées. *2015 Annual Report – Make every drop count!*²⁶³
- Société de gestion des huiles usagées. *2014 Annual Report – A Gesture That Benefits All*²⁶⁴
- Société de gestion des huiles usagées. *2013 Annual Report – Make Every Drop Count*²⁶⁵
- Société de gestion des huiles usagées. *2012 Annual Report – Make Every Drop Count*²⁶⁶

²³⁹ <http://usedoilrecyclingsk.com/wordpress/wp-content/uploads/2016/04/2013-annual-report.pdf>

²⁴⁰ <http://usedoilrecyclingsk.com/wordpress/wp-content/uploads/2016/04/2012-annual-report.pdf>

²⁴¹ <http://usedoilrecyclingsk.com/wordpress/wp-content/uploads/2016/04/2011-annual-report.pdf>

²⁴² <http://usedoilrecycling.com/en/mb/sites/default/files/MARRC%20ANNUAL%20REPORT%202019%20-%20Hi%20Resolution.pdf>

²⁴³ <http://usedoilrecycling.com/en/mb/sites/default/files/MARRC%20ANNUAL%20REPORT%202017%20COMPLETE%20FINAL%20April%202020%2018.pdf>

²⁴⁴ <http://usedoilrecycling.com/resources/MARRC%20Annual%20Report%202016%20HIGH%20RES.pdf>

²⁴⁵ <http://usedoilrecycling.com/resources/MARRC%20ANNUAL%20REPORT%202015%20-WEB.pdf>

²⁴⁶ <http://usedoilrecycling.com/resources/MARRC%20ANNUAL%20REPORT%202014%20Final%20Version!!..pdf>

²⁴⁷ <http://usedoilrecycling.com/resources/file/Manitoba/MARRC%20Annual%20Report%202013.pdf>

²⁴⁸ <http://usedoilrecycling.com/resources/file/Manitoba/MARRC%20ANNUAL%20REPORT%202012-%20WEB.pdf>

²⁴⁹ <http://usedoilrecycling.com/resources/file/Manitoba/Annual%20Report%202011-WEB%20Lo%20Res.pdf>

²⁵⁰ <http://www.automotivematerialsstewardship.ca/wp-content/uploads/2019/06/AMS2018.pdf>

²⁵¹ <https://www.automotivematerialsstewardship.ca/wp-content/uploads/2018/06/2017AMS-Annual-Report.pdf>

²⁵² <https://stewardshipontario.ca/wp-content/uploads/2019/06/SO2018.pdf>

²⁵³ <https://stewardshipontario.ca/wp-content/uploads/2018/06/SO-2017-Annual-Report.pdf>

²⁵⁴ https://stewardshipontario.ca/wp-content/uploads/2017/06/2016_SO_AnnualReport.pdf

²⁵⁵ https://stewardshipontario.ca/wp-content/uploads/2015/09/2015_SO_Annual_Report.pdf

²⁵⁶ http://stewardshipontario.ca/wp-content/uploads/2015/09/2014_SO_Annual_Report_WEB.pdf

²⁵⁷ <http://2013.stewardshipontario.ca/wp-content/uploads/2014/06/stewardship-ontario-digital-annual-report-2013.pdf>

²⁵⁸ http://stewardshipontario.ca/wp-content/uploads/2013/06/SO_2012AR_WEB.pdf

²⁵⁹ http://stewardshipontario.ca/wp-content/uploads/2013/01/SO_2011_AR_WEB_2.pdf

²⁶⁰ <https://soghu.com/wp-content/uploads/SOGHU-2018-Annual-Report.pdf>

²⁶¹ <https://soghu.com/wp-content/uploads/SOGHU-2017-Annual-Report.pdf>

²⁶² <https://soghu.com/wp-content/uploads/soghu-2016-annual-report.pdf>

²⁶³ <https://soghu.com/wp-content/uploads/rapport-annuel-2015-e.pdf>

²⁶⁴ <https://soghu.com/wp-content/uploads/annual-report-2014-en.pdf>

²⁶⁵ <https://soghu.com/wp-content/uploads/2013-annual-report.pdf>

²⁶⁶ <https://soghu.com/wp-content/uploads/2012-annual-report.pdf>

- Société de gestion des huiles usagées. *Annual Report 2011 – Make Every Drop Count*²⁶⁷
- Atlantic Used Oil Management Association. *2018 Annual Report – Keep Nature Clean!*²⁶⁸
- Atlantic Used Oil Management Association. *2017 Annual Report – Keep Nature Clean!*²⁶⁹
- Atlantic Used Oil Management Association. *2016 Annual Report – Make Every Drop Count!*²⁷⁰
- Atlantic Used Oil Management Association. *2015 Annual Report – Make Every Drop Count!*²⁷¹
- Atlantic Used Oil Management Association. *2014 Annual Report – A Gesture That Benefits All*²⁷²

²⁶⁷ <https://soghu.com/wp-content/uploads/2011-annual-report.pdf>

²⁶⁸ https://nb.uoma-atlantic.com/wp-content/uploads/sites/2/22-19.05.29-UOMA_Rapport-Annuel_2018_E_v9b-Frank-FINALE2-apres-impression.pdf

²⁶⁹ <https://nb.uoma-atlantic.com/wp-content/uploads/sites/2/2017-UOMA-Atlantic-annual-report.pdf>

²⁷⁰ https://nb.uoma-atlantic.com/wp-content/uploads/sites/2/SOGHUOMA_Rapport-Annuel_2016_E.pdf

²⁷¹ https://nb.uoma-atlantic.com/wp-content/uploads/sites/2/SOGHUOMA_Rapport-Annuel-2015-E.pdf

²⁷² https://nb.uoma-atlantic.com/wp-content/uploads/sites/2/Soghuoma_NB-Annual-Report-2014-E.pdf

Appendix B – Detailed List of KPIs and Metrics Reported in Tire Stewardship and EPR Programs in Canada

KPIs and Metrics Reported for BC's Tire Program, 2018	
Collection	- number of tires collected and delivered to a processor, by tire category: passenger & light truck, medium truck, large agricultural, logger/skidder, total - number of tires collected by tire type by regional district - recovery rate (%) by tire category and total (# of units collected / # of units sold 5 years prior to reporting year) - total collection rate (%) (total # units collected / total # units available for collection) - number of tires collected at collection events - recovery rate target In BC's 2016 annual report, 'recovery rate' was calculated as # of units collected / # of units sold. This changed in 2018 and is now calculated by taking total # units collected in reporting year / total # of units sold 5 years prior to reporting year. <i>"A study commissioned by the Ministry of Environment and Climate Change Strategy in 2017 supported the option of redefining Recovery Rate for products that have a greater than 1 year lifespan. In 2017 TSBC engaged its audit firm to research the factors that influence the Recovery Rate. The report was finalized in 2018 and concluded that with a robust collection system in place, the factors impacting the difference between sales and collection are the long-term life of a tire, tires sales trends (winter tires, new car sales / vehicle registrations) and to a lesser degree the export of used tires for reuse. This confirmed that the Recovery Rate as currently defined for a product with a life span beyond 1 year is not appropriate for tires. As a result, TSBC's recent Stewardship Plan submission, approved by the Ministry on December 7, 2018, TSBC proposed a change to the definition in order to establish a more meaningful measure, an objective of the Ministry for all stewardship programs. The Recovery Rate for tires is now defined as the actual number of scrap tires collected in the reporting year/ divided by the actual number of new tires sold 5 years prior."</i>
Accessibility	- number of collection events and their locations and dates - number of collection sites - collection site target - total number of Return to Retailer locations
Awareness	- percent of population aware of where to take scrap tires for safe disposal - percent of population aware of where to go to find information on safe disposal locations - awareness targets for both of the above
P&E	- number of grants awarded to communities throughout BC - number of stewards that participated in the BC Recycles annual Ambassador Tour - number of communities visited throughout the Ambassador Tour - number of community events attended as part of the Ambassador Tour and approx. number of consumers reached as a result - number of retailers visited as part of the Ambassador Tour - retailer satisfaction level with scrap tire collection services (average score out of 10)
Financial	- revenue: advance disposal fees, investment income (from cash equivalents, from fixed income securities and equities, management fees) - expenses: program incentives, program management, communications and education, community grant program, professional fees, board expenses & travel - assets: cash, accounts receivable, investments, intangible asset - liabilities: accounts payable and accrued liabilities - net assets: unrestricted, restricted, program reserve - change in net assets beginning of year to end of year - cash flows: amortization of intangible asset, realized loss (gain) on sale of investments, unrealized loss (gain) on investments, proceeds from sale of investments, purchase of investments, purchase of intangible asset, net cash - number of operational months in reserve
Other	- annual targets for percentage allocation of total tonnes of scrap tires (i.e. all rubber, steel, and fibre) processed and shipped; targets for recycling, energy recovery, and landfill - percentage allocation of total tonnes of scrap tires (i.e. all rubber, steel, and fibre) recycled, sent to energy recovery, and sent to landfill

	• sales by tire category (units sold): passenger & light truck, medium truck, large agricultural, logger/skidder, total • number of processing sites and locations • number of legitimate collection complaints received from registered retailer and scrap tire generator sites • number of consumer complaints • waste audit results for select Regional Districts: % of tires in waste stream
--	--

KPIs and Metrics Reported for SK's Tire Program, 2018	
Collection	• number of tires collected during the year, by tire type (PLT, MTRK, AG, OTR I, and OTR II) • recovery rates (%) with and without New Vehicle Sales included in the calculation (units collected / units sold) • No longer reports on number of tires collected through Household Hazardous Waste Days or number of registered bike retailers, which accept scrap bicycle tires • No longer reports on number of bicycle tires that have been collected since program inception
Accessibility	• number of participating R2R retailers
Awareness	N/A
P&E	N/A
Financial	• breakdown of revenue generated by new tire sales by tire type (% and as % of total revenue) • overview of operating expenses as a percentage of revenue for the year (% spent on processing; % on collection; % on administration) • revenue: tire recycling fees, interest • cost of sales: recycling fee commission, collectors, marshaling yard, processors, truckers • program expenses: advertising, bank charges and interest, computer, conferences, consulting, Directors remuneration, insurance and licenses, meeting expenses, membership fees, office equipment, office rent, office supplies, postage, printing and publications, professional fees, salaries and benefits, special projects, telephone, travel • assets: cash; accounts receivable; prepaid expenses • liabilities: accounts payable and accruals; goods and services tax payable • cash flows: cash received from retailers; cash received from SSTC; cash paid for service expenses; cash paid for salaries and benefits
Other	• number of tires sold, by tire type (PLT, MTRK, AG, OTR I, OTR II, and New Vehicle Tires) and as percent of annual sales • number of contracted collectors • number of retailers audited • processing inventory (lbs): opening inventory at processing facilities (tonnes), received tire volume from program (tonnes), tire volume recycled (tonnes), and closing inventory at processing facilities (tonnes) • tonnes of material produced from scrap tires (shred, crumb, waste steel manufacturer products) and as % of total • number of members that make up the Board of Directors and the groups that are represented

KPIs and Metrics Reported for Manitoba's Tire Program, 2018	
Collection	• tonnes of material collected • kilograms collected per capita • percent of material recovered • overall recovery rate (%)
Accessibility	• percent of residents with collection site access • number of registered year-round collection sites • number of communities and First Nations registered with Tire Stewardship Manitoba
Awareness	• percent of the population aware of the program and what happens to their scrap tires and tubes
P&E	• number of scholarships awarded and their value (\$) • community grants: dollars spent on community and market development projects (and number of those projects) • tire recycling innovation grants: dollars distributed in funding and number of projects that received it • number of community events attended by TSM's <i>Be Tire Smart Community Relations Team</i>, and how many people (approx.) were attracted to those events
Financial	• revenues: steward fees, investment income (loss) • expenses: processing incentives, collection incentives, municipal storage incentives, manufacturing incentives, community demonstration grants, public education program, special projects, advertising and communications, administration and corporate • expenses per tonne of material collected: recycling costs per tonne; general and administrative costs per tonne; stewardship costs per tonne; and total program costs per tonne • total annual expenses

	- assets: cash, interest receivable, prepaid expenses, current investments, long term investments, capital assets - liabilities: accounts payable and accrued liabilities - stabilization reserve - addition/(draw down) from previous year - cash flows: net operating surplus (deficit), amortization of capital assets, interest receivable, accounts receivable, accounts payable and accrued liabilities, prepaid expenses
Other	- number of board members - composition of advisory committee - generation: tonnes of material sold - markets (percent of total products processed and manufactured in Manitoba): % crumb/manufactured; % cut/fabricated; % aggregate - number of jobs created and \$ of economic activity created as a result of the program

KPIs and Metrics Reported for Ontario's Tire Program, 2018	
Collection	- No longer reports on target and actual number of audits completed by service provider type (i.e. collector, hauler, processor, RPM, and steward). - average open rate of quarterly stakeholder newsletters and quarterly consumer newsletters - number of consumer newsletter subscribers - number of email campaigns/communications sent out to program participants/stakeholders - reduction rate and target (%) by tire type - collection rate and target(%) by tire type - reuse rate and target (%) by tire type - recycling rate (%) by tire type - recycling efficiency rate (%) by tire type - diversion rate (%) and target by tire category (PLT, MTRK, and OTR) - tonnes of tires collected, by tire category (PLT, MTRK, and OTR) - tonnes of tires delivered from haulers to registered processors, by tire type and destination (i.e. in –province deliveries, out of province deliveries, processor cull (-ve), and total deliveries) - number of tires collected since program inception - number of tires in stockpiles across Ontario that have been cleaned up from number of sites
Accessibility	- number of collection sites, by type (i.e. garages, municipal waste management sites, tire retailers, mass merchants, other private collection sites, and total) - collection site targets, by site type (i.e. garages, municipal waste management sites, tire retailers, mass merchants, other private collection sites, and total) - number of collection events and amount of tires (in tonnes and units) collected as a result
Awareness	- percent of respondents aware of the program - percent of respondents that agree that the program is successful in recycling used tires to create innovative green products - percent of respondents ready to consider using products made from recycled tires in their homes and/or garden and landscaping projects, and percent of respondents who've already made the switch and purchased a product made from recycled tires
P&E	- No longer reports any quantitative P&E metrics like it did in 2016, for e.g.: - number of earned media impressions - number of grants awarded and total amount of funding - number of impressions resulting from various outreach activities - number of views of promotional videos on YouTube and number of Instagram impressions - number of Facebook posts, number of Tweets, and number of user comments, likes, shares, and impressions - number of Twitter followers and Facebook followers - number of page views on rethinktires.ca, % of those that were new visitors to the site, average session duration - number of consumer shows at which OTS exhibited - number of stops on RethinkTires Roadtrip - number of consumers (approx.) that OTS was able to engage and educate in one-on-one, direct communications - number of tire safety demonstrations
Financial	% reduction in tire fees since program inception - revenue: steward fees, tire steward fee penalties - expenses: operational costs broken down by research and development, manufacturing incentive, transportation incentive, processor incentive, collection allowance, promotion and communication costs; administration costs broken down by program management, professional fees, office and general, bad debt, and write-off of HST input tax-credit

	- assets: cash, trade accounts receivable, prepaid expenses, capital assets - liabilities and net assets: accounts payable and accrued liabilities, other liabilities, deferred leasehold inducement, unrestricted net assets, internally restricted net assets (operational reserve fund, market development fund, stabilization reserve fund) - net assets balance beginning of year, interfund transfers, net assets balance end of year - cash flows: amortization, amortization of deferred lease inducement, loss on disposal of capital assets, trade accounts receivable, prepaid expenses, accounts payable and accrued liabilities, other liabilities, purchase of capital assets, cash beginning and end of year
Other	- generation: tonnes of tires supplied on the market, by tire category (PLT, MTRK, and OTR) (as well as target) - tonnes available for collection - processor inventory carryover from previous year - material available for recycling - material losses and disposal - tonnes of tires reused and retreaded, by tire category (PLT, MTRK, OTR)²⁷³ - In-province Tire-Derived Product production: tonnes of on-road tires and off-road tires (separately) produced into TDP1 (95% minus 20 mesh, free of steel), TDP2 (80% minus 8 mesh, free of steel), TDP3 (minus ¼" sieve, free of steel), TDP4 (fabricated products such as blasting mats, etc. must utilize at minimum 75% of the tire by weight), TDP5 (primary shred used as tire derived aggregate or as a feeder stock for crumb rubber production) - Out of province TDP production: tonnes of on-road tires and off-road tires (separately) produced into TDP5 - end use by residual type (fluff, steel/metal, other): amount recycled/reused, amount disposed, and % of total residuals sent to either end-use²⁷⁴ - tonnes of TDP used in Ontario recycled products, by product type: moulded, extruded, calandered, total - percent increase in the number of Recycled Product Manufacturers and domestic crumb procurement since program inception

KPIs and Metrics Reported for Quebec's Tire Program, 2017-2018	
Collection	weight (tons) of scrap tires processed
Accessibility	N/A
Awareness	N/A
P&E	N/A
Financial	program costs
Other	N/A

KPIs and Metrics Reported for New Brunswick's Tire Program, 2018	
Collection	- number of tires collected - recovery rate (%)
Accessibility	N/A
Awareness	N/A
P&E	N/A
Financial	- program revenues - program costs broken down into following categories: scrap tire processing; salaries and employee benefits; general and administrative; communication and translation; amortization of capital assets
Other	- number of tires sold - number of registered tire retailers - members of the Board and terms of office - number of times the Board met during the year, and dates and locations of those meetings - level of attendance of directors at Board meetings (overall percentage, as well as number of meetings attended by Board member) - number of members in Executive Committee - number of dealer audits performed

KPIs and Metrics Reported for Nova Scotia's Tire Program, 2018	
Collection	- total number of tires (passenger tire equivalents) collected - total recovery rate (%)

²⁷³ Not clear if this is reported in units or tonnes

²⁷⁴ Not clear if this is reported in units or tonnes

Accessibility	number of Enviro-Depot locations
Awareness	n/a
P&E	Not specific to tire program: - number of visits to website - number of new visitors to website through the awareness campaign - number of views of awareness campaign videos - number of lesson plans downloaded per month - number of Nova Scotians educated about waste
Financial	- total revenues - all other financial metrics are not specific to the tire program (i.e. they combine financial information for paint and beverage container programs)
Other	- number of participating tire retailers - avoided landfill space (cubic meters) as a result of recycling tires (and its equivalency in terms of Olympic-sized pools) - GHGs avoided (tonnes/year) as a result of recycling tires (and its equivalency to removing X number of cars from NS roads each year) - number of jobs (full-time equivalent) created as a result of the tire recycling programs, and income earned from those jobs - annual cost savings from avoided municipal curbside collection costs and avoided landfill costs, resulting from recycling tires - amount (\$) of funding provided for municipal enforcement activities (not specific to tire program), number of FTE jobs sustained by this funding, number of audits, inspections, and proactive compliance visits sustained by this funding, and number of offence tickets issued

KPIs and Metrics Reported for Nova Scotia's Tire Program, 2018	
Collection	- total number of tires (passenger tire equivalents) collected - total recovery rate (%)
Accessibility	number of Enviro-Depot locations
Awareness	n/a
P&E	Not specific to tire program: - number of visits to website - number of new visitors to website through the awareness campaign - number of views of awareness campaign videos - number of lesson plans downloaded per month - number of Nova Scotians educated about waste
Financial	- total revenues - all other financial metrics are not specific to the tire program (i.e. they combine financial information for paint and beverage container programs)
Other	- number of participating tire retailers - avoided landfill space (cubic meters) as a result of recycling tires (and its equivalency in terms of Olympic-sized pools) - GHGs avoided (tonnes/year) as a result of recycling tires (and its equivalency to removing X number of cars from NS roads each year) - number of jobs (full-time equivalent) created as a result of the tire recycling programs, and income earned from those jobs - annual cost savings from avoided municipal curbside collection costs and avoided landfill costs, resulting from recycling tires - amount (\$) of funding provided for municipal enforcement activities (not specific to tire program), number of FTE jobs sustained by this funding, number of audits, inspections, and proactive compliance visits sustained by this funding, and number of offence tickets issued

KPIs and Metrics Reported for PEI's Tire Program, 2018	
Collection	- tonnes of tires collected - tonnes of tires shipped off the island for recycling and/or as a fuel source
Accessibility	n/a
Awareness	n/a
P&E	n/a
Financial	- total revenues - tire collection costs - tire disposal costs

	all other financial metrics are not specific to the tire program (i.e. they combine financial information for other stewardship programs)
Other	n/a

KPIs and Metrics Reported for Newfoundland's Tire Program, 2018	
Collection	- number of tires collected and diverted from waste disposal sites (approx.) during year and since program inception - tonnes of tires processed into TDA for future use in civil engineering projects in the province
Accessibility	number of collection sites
Awareness	
P&E	Not specific to tire program: - number of presentations, workshops, and consultations delivered by MMSB - amount (\$) of funding provided to regional waste management authorities and other recipients - number of users to have visited RethinkWasteNL.ca
Financial	- revenues: tire fees - total expenses, public education expenses, costs relating to the tires stored for purposes of undertaking the TDA demonstration project - all other financial metrics are not specific to the tire program (i.e. they combine financial information for other stewardship programs)
Other	composition of Board of Directors (number of employees, female and male)

Appendix C – Detailed List of KPIs and Metrics Reported in Electronics Stewardship and EPR Programs in Canada

KPIs and Metrics Reported for EPRA's Electronics Stewardship Programs, 2018	
Collection	- metric tonnes of electronics collected - kg/capita collected - QC: metric tonnes of electronics collected for reuse; metric tonnes collected for recycling, total tonnes collected (recycling + reuse), kg/capita collected (recycling + reuse)
Accessibility	- Number of collection sites - BC, QC, NL, NB: % of population within 45 minutes (rural) or 30 minutes (urban) of an EPRA drop-off centre - SK: % of population within 50 kms (rural) or 30 minutes (urban) of an EPRA drop-off-centre - MB: % of population within 50 kms (rural) or 15 minutes (urban) of a EPRA drop-off centre - NS and PEI: % of population within 30 kms (rural) or 30 minutes (urban) of an EPRA drop-off centre
Awareness	% of population aware of how to recycle end-of-life electronics in an environmentally friendly way - number of manufacturers, retailers, and other industry stewards registered with the program
P&E	n/a
Financial	- Revenue: environmental handling fees, interest - Expenses: processing; collection; transportation, warehousing, and storage; and quality assurance sampling and recycler audits; consumer awareness and communications; administration; government fees (MB, QC, NS, PEI, NL, NB) - Total program cost per tonne - Assets: cash and cash equivalents, accounts receivable, short-term investments, prepaid expenses, long-term investments, capital assets - Liabilities and net assets: accounts payable and accrued liabilities, Effectiveness & Efficiency Fund, contingency reserve, invested in capital assets, unrestricted - Changes in net assets: balance (beginning of year), excess of revenue over expenses, interfund transfers, invested in capital assets, balance (end of year) - Cash flow
Other	List of Board of Directors and staff

Additional KPIs and Metrics Reported for BC's Electronics Stewardship Program, 2018	
Collection	Total tonnes of electronics collected; total kilograms collected per capita; kilograms collected per capita by Regional District
Accessibility	- Number of collection sites - Number of collection events % of population covered by collection sites
Awareness	% of population aware of how to recycle end-of-life electronics in an environmentally friendly way - Number of manufacturers, retailers, and other industry stewards registered with the program
P&E	- Types of media used to communicate/promote; date promotion was done; what it consisted of (e.g. interview, press release, etc.) - Number of impressions (circulation/viewership)
Financial	Total program costs per tonne; Operational costs per tonne; Administrative costs per tonne
Other	- In the annual report it says that starting in 2019, they will also report on the following: <i>"the results of local government waste composition studies identified in kg per capita of program material and the total amount of batteries from each of the studies"</i> - Number of regulated electronic products supplied into the province - Number of verified processors (including names and locations) - Mass balance results or material end fate: - average % of materials requiring further processing; - average % of materials going to energy-from-waste facilities; - average % of materials going to landfill - Volume (as % of material stream) of specific materials/components shipped to approved destinations by primary processors and the qualitative information on processing methods and end fate of these materials/components (leaded glass, plastic, ferrous metals, mixed metals, wood, circuit boards, wires/cables, copper, aluminum, copper yokes, batteries, ink/toner cartridges, glass, mercury lamps, ethylene glycol, landfill, dusts, other)

Additional KPIs and Metrics Reported for Ontario's Electronics Stewardship Program, 2018	
Collection	- total metric tonnes of electronics collected - kg/capita collected - total tonnes collected since program start (2009) - number of devices (approx.) diverted from landfill since program start (2009) - tonnes of display devices collected - tonnes of desktop and portable computers collected - tonnes of printers & peripherals collected - tonnes of floor-standing devices collected
Accessibility	- number of special events (public/municipal and non-municipal) - number of OES round-ups - number of permanent municipal collection sites - number of permanent non-municipal collection sites % of population that lives within 10km, 25km, and 50km of an OES collection site % of population that lives within 10km, 25km, and 50km of a generator collection site - total accessibility
Awareness	% of population aware of the program (total and by age category [18-34, 35-54, and 55+]) - number of participating manufacturers, retailers, and other industry members (includes stewards and sub-remitters)
P&E	- number of impressions by advertising medium: radio advertising, Earth Month print advertising, Regional print advertising, and Out of Home (TTC Stations & Go Train) - Recycle Your Electronics website: total visits (sessions) during the year; number of unique visits (users) in a month; number of pageviews; bounce rate; average time spent on site; visits YoY % +/-, unique visits YOY % +/- - OntarioElectronicsStewardship.ca: total visits (sessions) during the year; number of unique visits (users) in a month; number of pageviews; bounce rate; average time spent on site; visits YoY % +/-, unique visits YOY % +/- - number of actions and brand impressions resulting from integrated advertising campaign % increase in web traffic after Marquee collection events, and total number of tonnes collected at these events
Financial	- total program costs - total program costs per tonne; operating costs per tonne; administration costs per tonne; promotion & education costs per tonne - revenue: steward fees, investment - direct operating costs: material management - other expenses: shared promotion & education, Waste Diversion Ontario administration and program delivery, program delivery and administration - assets: cash, investments, accounts receivable, prepaid expenses, capital assets - liabilities and net assets: accounts payable and accrued liabilities, invested in capital assets, contingency reserve - total fees remitted by stewards
Other	- tonnes of display devices sent to processors and recycling efficiency rate (%) - tonnes of desktop and portable computers sent to processors and recycling efficiency rate (%) - tonnes of printers & peripherals sent to processors and recycling efficiency rate (%) - tonnes of floor-standing devices sent to processors and recycling efficiency rate (%) - kilograms of material reused/refurbished by material type for computer monitors, display devices, desktop computers, portable computers, computer peripherals, desktop printing/copying/multi-function devices - number of service providers by type: OES collectors; transportation companies; OES primary processors; OES reuse refurbishers; consolidation companies; suppliers, special services, and re-packers - number of reviews conducted or in progress by service provider type - number of downstream reviews conducted or in progress by service provider type - number of default issues by service provider type - number of suspensions by service provider type - number of display devices, desktop and portable computers, printers and peripherals, and floor-standing printing/copying devices sold into the market - number of companies notified since program start - number of companies notified during the year - number of units reported by stewards - number of active remitter/sub-remitter agreements - number of cancelled remitter/sub-remitter agreements - number of new remitter agreements - number of new sub-remitter agreements - number of steward self-managed EEE units

	• total kilograms of WEEE self-managed (kg recycled, kg reused/refurbished) • number of notification mailers sent out to stewards (obligated vs. non-obligated) • number of compliant audits in progress • number of compliant audits performed • number of outstanding filers • number of late filers • number of outstanding notification mailers issued since program inception • percent weight reduction of TVs (from CRT console to LCD and LED type screens)
--	--

Appendix D – Detailed List of KPIs and Metrics Reported in Paint Stewardship and EPR Programs in Canada²⁷⁵

Additional KPIs and Metrics Reported for BC's Paint Stewardship Program, 2018	
Collection	- number of tubskids (or tubskid equivalents) of paint collected by Regional District - number of tubskids (or tubskid equivalents) of paint aerosols collected by Regional District - approximate residual recovery volume (Litres) for paint (non-aerosol) - approximate residual recovery volume (Litres) for paint aerosol - approximate container capacity volume (Litres) for paint (non-aerosol) - approximate container capacity volume (Litres) for paint aerosol - paint recovery rate (amount of product collected (residual recovery volume) / amount of product sold) - paint aerosol recovery rate (amount of product collected (residual recovery volume) / amount of product sold) - collection volume target - paint reuse target - recycling of latex paint target - metal and plastic container recycling target
Accessibility	- number of collection sites added - collection site changes (site name and location of new collection sites, as well as depots that were closed) - total number of collection sites as of year end, by type (i.e. paint-only, paint plus) - total number of collection sites by regional district - number of collection events, their date and location - collection site targets
Awareness	percent of BC adults aware of a program to recycle paint and HHW
P&E	Not specific to paint program: - number of unique visitors to the program website; number of visitors to the collection site finder - number of events attended
Financial	financial metrics are not specific to the paint program (i.e. they combine financial information for paint and other HHW)
Other	- paint (non-aerosol) sales (litres) - paint (aerosol) sales (litres) - environmental handling fees by paint category and container size - end-of-life product management: percent of paint collected that was reused through the Paint Exchange program; percent of latex paint that was recycled back into paint and coating products or used as a raw material in the manufacturing of concrete products; percent of alkyd paint and latex paint that was sent to energy recovery; percent of latex paint that was sent to landfill; percent of metal paint containers recycled; percent of plastic paint containers recycled; percent of #5 plastic containers sent to energy recovery; percent of paint aerosol residuals sent to energy recovery; percent of paint aerosol containers recycled

Additional KPIs and Metrics Reported for Saskatchewan's Paint Stewardship Program, 2018	
Collection	- number of tubskids of paint collected - number of tubskids of paint aerosols collected - residual volumes of water-based paint collected (Litres) - residual volumes of solvent-based paint collected (Litres) - total paint collected (Litres) - total paint recovery rate (%) (product collected / product sold)
Accessibility	- number of SARCAN collection depots - number of participating retail locations that act as additional collection sites - number of collection events
Awareness	percent of residents aware that they can recycle household paint in the province
P&E	- number of visitors to program website - number of page views - number of searches for recycling locations

²⁷⁵ No annual report is available for Quebec

	- number of depot locations at which screen ads were run and how many impressions were generated - results of digital advertising (umber of impressions and clicks) - number of events participated in by the ambassador team
Financial	- total PaintRecycle revenue - expenses: program operations; program administration; education, public awareness, and communications - surplus/deficit - cumulative surplus (reserve)
Other	- total paint sales (Litres) - amount (Litres) of paint taken for reuse by members of the public through the Paint Reuse Program, broken down into water-based paint and solvent-based paint - amount (Litres) of latex water-based paint recycled back into paint - amount (Litres) of solvent-based (alkyd) paint and paint from paint aerosols that was blended with other fuels and sent for energy recovery - amount (Litres and number of drums) of solvent-based (alkyd) paint that was incinerated - amount (Litres) of water-based paint that was solidified and sent to landfill - tonnes of metal containers recycled - tonnes of plastic containers recycled - tonnes of total containers recycled

Additional KPIs and Metrics Reported for Manitoba's Paint Stewardship Program, 2018	
Collection	- residual recovery volume (Litres) of paint (non-aerosol) - residual recovery volume (Units) of paint aerosol - paint recovery rate (%) - paint aerosol recovery rate (%)
Accessibility	- number of collection sites by type (paint only, lights only, both paint and lights, and full HHW) and by retail or private/municipal - number of collection events, their date and location - number and location of direct pick-ups
Awareness	percentage of residents aware of the program
P&E	Not specific to tire program: - number of visits to program website; number of visitors to the collection site finder - number of attendees at presentation given by PCA representative at MARR Annual General Meeting - number of people who attended a PCA sponsored bus tour - number of municipal representatives that PCA had in-person or teleconference meetings with
Financial	financial metrics are not specific to the paint program (i.e. they combine financial information for paint and other HHW)
Other	- paint sales (Litres) - paint aerosol sales (Units)

Additional KPIs and Metrics Reported for New Brunswick's Paint Stewardship Program, 2018	
Collection	- number of tubskids of paint collected - residual paint volume (Litres) - number of aerosol drums collected - residual aerosol paint volume (Litres) - total residual paint volume (Litres) - recovery rate (%) (paint collected / paint sold) - number of tubskids of paint collected by region - number of aerosol drums collected by region - number of paint containers processed - number of non-program containers processed, and % of total - total containers processed - tonnes of metal paint containers collected and recycled - tonnes of plastic pails (HDPE 2) paint containers collected and recycled - tonnes of plastic (polypropylene) paint containers collected and recycled
Accessibility	- number of collection sites - collection site changes since previous year (number of sites added and/or closed) - number of collection events, their locations and dates - number of collection sites participating in the Paint Reuse program
Awareness	- percent of consumers aware of the program - awareness target

P&E	- number of page views on program webpage; number of page views on collection site finder page - radio and print advertising stats - digital advertising results (number of impressions and clicks) - number of collection site visits made by a PCA representative for the purpose of providing in-person support, delivering informational brochures, and provide any necessary training.
Financial	- total revenues - expenses: processing, transportation, administration, collection, communications, regulatory - surplus/deficit - accumulated surplus
Other	- total paint sales (litres) - amount of paint shipped to processor: number of tubskids of paint, residual paint volume (L); number of aerosol drums; residual aerosol paint volume (L); total residual paint volume (L) - amount of paint processed: number of tubskids of paint, residual paint volume (L); number of aerosol drums; residual aerosol paint volume (L); total residual paint volume (L) - percentage of paint collected that was reused, recycled, dispose of in a landfill, recovered for energy, contained, or otherwise treated or dispose of - amount of paint (Litres) that was given away through the Paint Reuse program - amount of latex paint (Litres) recycled, and as % of total paint recycled - amount of alkyd paint (Litres) recycled, and as % of total paint recycled - amount (Litres) of alkyd paint and paint from aerosols that were blended with other fuels and sent for energy recovery - amount (Litres) of non-recyclable latex sludge/solid which were solidified and disposed in landfill - amount (Litres) of paint incinerated - number of brand owners registered under the program

Additional KPIs and Metrics Reported for Nova Scotia's Paint Stewardship Program, 2018	
Collection	- amount of paint collected: number of tubskids of paint collected; residual paint volume (L); number of aerosol tubskids collected; residual aerosol paint volume (L); paint reuse volume (L); total residual paint volume (L) - amount (L) of latex paint recycled, and as % of total - amount (L) of alkyd paint recycled, and as % of total - recovery rate (%) (residual recovery volume / sales) - weight (metric tonnes) of metal containers collected and recycled - weight (metric tonnes) of plastic pails (HDPE 2) collected and recycled - weight (metric tonnes) of plastic paint cans (polypropylene) collected and recycled
Accessibility	number of collection sites
Awareness	percentage of residents aware of the program
P&E	- number of page views on program website - number of unique visitors to website - number of searches for recycling locations using the collection site locator - number of locations that ran screen ads - digital advertising results (number of impressions and clicks)
Financial	- total revenues - expenses: processing, collection, administration, communications, transportation - surplus/deficit
Other	- total paint sales (Litres) - amount of paint shipped to processor: number of tubskids, residual paint volume (L), number of aerosol tubskids, residual aerosol paint volume (L), total residual paint volume (L) - amount of paint processed: number of tubskids, residual paint volume (L), number of aerosol tubskids, residual aerosol paint volume (L), total residual paint volume (L) - amount of paint reused through Paint Reuse Program (L, and as % of total paint managed) - amount of paint reused through Paint Recycling (L, and as % of total paint managed) - amount of paint sent for energy recovery (L, and as % of total paint managed) - amount of paint sent to landfill ((L, and as % of total paint managed)

Additional KPIs and Metrics Reported for PEI's Paint Stewardship Program, 2018	
Collection	- amount of paint collected: number of tubskids, residual paint volume (L), number of aerosol drums, residual aerosol paint volume (L), paint reuse volume (L), total residual paint volume (L) - recovery rate (paint collected / paint sold) - weight (tonnes) of metal containers recycled - weight (tonnes) of plastic pails (HDPE 2) recycled

	- weight (tonnes) of plastic paint cans (polypropylene) recycled - amount (L) of latex paint recycled, and as % of total - amount (L) of alkyd paint recycled, and as % of total
Accessibility	number of collection sites
Awareness	n/a
P&E	- number of page views on program website and number of unique visitors - number of searches for recycling locations using the collection site locator - number of newspaper columns providing details on paint recycling - number of presentations given by IWMC staff (not specific to paint) - digital advertising results (clicks and impressions) - number of blog posts and times viewed
Financial	- total revenues - expenses: collection, transportation, processing, communications, regulatory, administration - surplus/deficit, accumulated surplus/deficit
Other	- total paint sales (L) - amount of paint shipped to processor: number of tubskids, residual paint volume (L), number of aerosol tubskids, residual aerosol paint volume (L), total residual paint volume (L) - amount of paint processed: number of tubskids, residual paint volume (L), number of aerosol tubskids, residual aerosol paint volume (L), total residual paint volume (L) - amount (L) of alkyd paint and paint from paint aerosols sent for energy recovery (and as % of total) - amount (L) of paint sent for incineration (and as % of total) - amount (L) of non-recyclable latex sludge/solid sent to landfill (and as % of total) - environmental handling fees by paint container size

Additional KPIs and Metrics Reported for PEI's Paint Stewardship Program, 2018	
Collection	- reuse rate target (%) - reuse rate (%) - amount (L) of paint given away to consumers through Paint Reuse program - recovery rate target (%) - recovery rate (%) - amount of paint collected: number of tubskids, residual paint volume (L), number of aerosol drums, residual aerosol paint volume (L), paint reuse volume (L), total residual paint volume (L) - percentage of waste paint collected by collection site type (green depot, retailer, collection events, local government waste facilities) - number of tubskids collected at collection events, by location - weight (tonnes) of metal containers collected and recycled - weight (tonnes) of plastic pails (HDPE 2) collected and recycled - weight (tonnes) of plastic paint cans (polypropylene) collected and recycled
Accessibility	- collection site target - number of collection sites - number of collection sites participating in the Paint Reuse program, and as % of total collection sites
Awareness	percent of residents aware of a recycling program for paint in the province
P&E	- number of page views on program website and number of page views on collection site finder page - number of unique visitors to website - digital advertising results (number of impressions and clicks) - number of residents that attended events where Product Care promoted paint recycling
Financial	- total revenues - expenses: collection, transportation, processing, communications, regulatory, administration - surplus/deficit - accumulated surplus/deficit
Other	- total paint sales (L) - amount of paint processed: number of boxes of paint, residual paint volume (L), number of aerosol drums, residual aerosol paint volume (L), total residual paint volume (L) - amount (L) of latex paint processed, and as % of total - amount (L) of oil based paint processed, and as % of total - amount (L) of oil-based paint and paint from paint aerosols sent for energy recovery - amount (L) of non-recyclable latex sludge/solid sent to landfill - amount (L) of paint sent to incineration - percent of paint by disposal method (reuse [Paint Reuse Program], reuse [Paint Recycling], landfill, energy recovery)

Appendix E – Detailed List of KPIs and Metrics Reported for Used Oil Stewardship and EPR Programs in Canada

KPIs and Metrics Reported for BC's Used Oil Program, 2018	
Collection	- Amount of product collected: used oil (L), filters (units), containers (kg), and used antifreeze (L) - Capture rate (%) for used oil, filters, containers, and used antifreeze - Amount of product collected by regional district (total and per capita)
Accessibility	Number of return collection facilities by community
Awareness	Percentage of consumers that are aware there is a recycling program in BC for BCUOMA managed products.
P&E	Number of kilometres driven by the brand ambassador team and number of facilities and communities visited
Financial	- Current assets (cash, accounts receivable, short-term investments, prepaid expenses), property and equipment, long-term investments - Current liabilities (return incentives and return collection facilities incentives payable, accounts payable and accrued liabilities) - Net assets (unrestricted, internally restricted, invested in property and equipment) - Revenue: environmental handling charges, investment income, interest and other income, registration fees - Program costs: return incentives and return collection facilities incentives; communications and public relations; depot infrastructure; consulting; legal fees; management and administration contracts; technology support and investment; compliance reviews; bad debt expense - Administrative costs: management and administration contracts; office and general expenses; rent; financial audit fees; board expenses; legal fees; amortization
Other	- Sales of used oil (L), filters (units), containers (kg), and antifreeze (L) - Amount of product consumed in use: used oil (L), antifreeze (L) - Amount of product repurposed: used oil (L), antifreeze (L) - Amount of product available for collection: used oil (L), filters (units), containers (kg), and used antifreeze (L) - Percentage of oil and antifreeze that was collected from commercial generators vs. consumers - Number of generators - Number of grants approved and processed for equipment, structures, or Seacans - Number of community round-up events that received funding support - Percentage of consumers that believe that the products collected in the program are being managed in a safe and environmentally responsible manner - End fate for products collected: - percent of used oil reused vs. recycled - percent of antifreeze reused - percent of oil filters recycled vs. sent to waste to energy facilities - percent of containers recycled

KPIs and Metrics Reported for Saskatchewan's Used Oil Program, 2018	
Collection	- Collection rates (%) for used oil, antifreeze, filters (calculated on both unit and kg basis), and containers (measured on a kg basis only) - Collection targets (%) for used oil, antifreeze, filters, and containers - Amount of product collected: used oil (L), used antifreeze (L), filters (units and kg), containers (L and kg)
Accessibility	- Number of year-round collection points - Number of EcoCentres
Awareness	N/A
P&E	- Number of commercials aired over the radio - Number of times SARRC's advertisements were aired on the province's TV networks, and number of viewers reached - Number of readers reached by print advertising - Number of visitors to SARRC's website, and % of those who were looking for their nearest collection point - Number of impressions reached by SARRC's digital campaign and number of interactions (clicks/views) - Number of phone calls received by SARRC - Number of car shows and community events attended by the Saskatchewan Waste Reduction Council, on behalf of SARRC - Number of oil retailers and municipality officers visited
Financial	Current assets: cash and cash equivalents, accrued interest receivable, accounts receivable

	• Investments • Capital assets • Current liabilities: accounts payable and accrued liabilities • Net assets: invested in capital assets, internally restricted, unrestricted • Revenue: environmental handling charges, membership fees, investment income, other income • Expenses: return incentives, EcoCentre support costs, public relations and promotions, wages and benefits, professional fees, rent, office and administration, insurance, Director fees and costs, travel and meals, utilities, amortization, bank charges
Other	• Sales of used oil (L), filters (units and kg), containers (L and kg), and antifreeze (L) • Amount of product available for collection: used oil (L and %), filters (units, kg and %), containers (kg and %), and used antifreeze (L, kg and %) • Weight of filters processed • Estimated net greenhouse gas (GHG) savings for each managed product (kg CO2e savings per L for oil and antifreeze and per kg for filters and containers)

KPIs and Metrics Reported for Manitoba's Used Oil Program, 2018	
Collection	• Collection rates (%) for used oil, antifreeze, filters (calculated on both unit and kg basis), and containers (measured on a kg basis only) • Collection targets (%) for used oil, antifreeze, filters, and containers • Amount of product collected: used oil (L), used antifreeze (L), filters (units and kg), containers (L and kg)
Accessibility	• Number of year-round collection points • Number of EcoCentres
Awareness	N/A
P&E	• Number of commercials aired over the radio • Number of times SARRC's advertisements were aired on the province's TV networks, and number of viewers reached • Number of readers reached by print advertising • Number of visitors to SARRC's website, and % of those who were looking for their nearest collection point • Number of impressions reached by SARRC's digital campaign and number of interactions (clicks/views) • Number of phone calls received by SARRC • Number of car shows and community events attended by the Saskatchewan Waste Reduction Council, on behalf of SARRC • Number of oil retailers and municipality officers visited
Financial	• Current assets: cash and cash equivalents, accrued interest receivable, accounts receivable • Investments • Capital assets • Current liabilities: accounts payable and accrued liabilities • Net assets: invested in capital assets, internally restricted, unrestricted • Revenue: environmental handling charges, membership fees, investment income, other income • Expenses: return incentives, EcoCentre support costs, public relations and promotions, wages and benefits, professional fees, rent, office and administration, insurance, Director fees and costs, travel and meals, utilities, amortization, bank charges
Other	• Sales of used oil (L), filters (units and kg), containers (L and kg), and antifreeze (L) • Amount of product available for collection: used oil (L and %), filters (units, kg and %), containers (kg and %), and used antifreeze (L, kg and %) • Weight of filters processed • Estimated net greenhouse gas (GHG) savings for each managed product (kg CO2e savings per L for oil and antifreeze and per kg for filters and containers)

KPIs and Metrics Reported for Ontario's Used Oil Program, 2018	
Collection	• Amount of product collected: antifreeze (tonnes), oil containers (tonnes), oil filters (tonnes) • Target and actual collection rate (%) for antifreeze, oil containers, and oil filters • Target tonnes for antifreeze, oil containers, and oil filters
Accessibility	• Number of municipal depots • Number of automotive service locations • Number of municipal collection events
Awareness	N/A
P&E	• Number of visits made to Orange Drop's resident-facing website, makethedrop.com • Number of billboards across the province • Number of digital/social ad clicks

	• Number of impressions • Number of engagements with contest posts • Number of contest entries • Number of new social media followers
Financial	• Current assets, investments, current liabilities, net assets • Revenues: fee revenue, supply chain income, investment income • Expenses: Material management costs, program management costs, Resource Productivity and Recovery Authority, promotion and education
Other	• Number of registered stewards • Number of directors on the Board of Directors • Tonnes of antifreeze, oil containers, and oil filters available for collection

KPIs and Metrics Reported for Quebec's Used Oil Program, 2018	
Collection	• Amount of product collected: used oil (L), filters (units and kg), oil containers (L and kg), antifreeze (L), antifreeze containers (L and kg) • Collection rates (%) for used oil, filters, oil containers, antifreeze, antifreeze containers
Accessibility	• Number of collection facilities (commercial and municipal)
Awareness	N/A
P&E	N/A
Financial	• Total environmental handling charges collected for each product (\$) and return incentives (\$) • Average return incentive per quantity of product collected (\$/kg) • Incentive rates by product and zone: Used oil (\$/L), used antifreeze (\$/L), used filters (\$/kg), used oil and antifreeze containers (\$/kg), aerosols (\$/kg) • Revenues: total environmental handling charges, transfer to Eco-Peinture (aerosol), registration and renewal, investment income, management revenue, other revenues • Expenses: return incentives, process incentives, decontamination incentives, collection facilities incentives, aerosol incentive (Eco-Peinture), container segregation, advertising and communications, contributions to Recyc-Quebec, contributions to Fonds Vert, legal fees, salaries/fringe benefits/management and administration services, office and general expenses, consulting fees, compliance reviews and audits, bad debt, depreciation of fixed assets, rent, professional fees, amortization of fixed assets • Current assets (cash and cash equivalents, accounts receivable, advances to an organization, prepaid expenses, current portion of investments, investments, fixed assets) • Liabilities (accounts payable)
Other	• Amount of product sold: oil (L), filters (units and kg), oil containers (L and kg), antifreeze (L), antifreeze containers (L and kg) • Amount of product that is recoverable: oil (L), filters (units and kg), oil containers (L and kg), antifreeze (L), antifreeze containers (L and kg) • Average weight of filters marketed (kg) for both metal and cardboard filters • Average weight of filters marketed for both metal and cardboard filters as a percentage of the total • List of Board of Directors as well as members on SOGHU's Awareness Committee • Number of members • Number of collectors • Number of processors • Number of internal collectors-processors

KPIs and Metrics Reported for New Brunswick and PEI's Used Oil Program, 2018	
Collection	• Amount of product collected: used oil (L), filters (units and kg), oil containers (L and kg), antifreeze (L), antifreeze containers (L and kg) • Collection/recycling rates (%) for used oil, filters, oil containers, antifreeze, antifreeze containers • Collection/recycling targets (%) for used oil, filters, oil containers, antifreeze, antifreeze containers
Accessibility	• Number of collection facilities in each province (commercial and commission)
Awareness	N/A
P&E	N/A
Financial	• Total environmental handling charges collected for each product (\$) and return incentives (\$) • Average return incentive per quantity of product collected (\$/kg) • Incentive rates by product and zone: Used oil (\$/L), used antifreeze (\$/L), used filters (\$/kg), used oil and antifreeze containers (\$/kg), aerosols (\$/kg) • Revenues: total environmental handling charges, registration and renewal, investment income, other revenues • Expenses: return incentives, process incentives, collection facilities incentives, advertising and communications, contributions to Recycle NB, contributions to PEI Minister of Environment, management

	fees, office and general expenses, consulting fees, compliance reviews and audits, legal fees, professional fees, management fees, amortization of intangible assets • Current assets (cash, accounts receivable, advances to Recycle NB, investments, intangible assets) • Liabilities (accounts payable, advances from an organization) • Net assets (unrestricted)
Other	• Amount of oil burnt/recycled (L) • Percentage of oil burnt • Amount of product sold: oil (L), filters (units and kg), oil containers (L and kg), antifreeze (L), antifreeze containers (L and kg) • Amount of product that is recoverable: oil (L), filters (units and kg), oil containers (L and kg), antifreeze (L), antifreeze containers (L and kg) • Number of members • Number of collectors • Number of processors • List of Board of Directors as well as members on UOMA Atlantic's Awareness Committee

Appendix F – Population Data Used for Kilogram/Capita Calculations

Populations by province for the years 2015-2018, obtained through various Statistics Canada reports and used for calculating kg/cap values where these were not contained in program Annual Reports are presented in Table 28.²⁷⁶

Table 28: Populations by Province (2015-2018) Used for Kilogram/Capita Calculations

	2015		2016		2017		2018	
	Pop (1,000's)	% of Total	Pop (1,000's)	% of Total	Pop (1,000's)	% of Total	Pop (1,000's)	% of Total
Nat'l	35,849		36,286		36,540		37,059	
NL	529	1.5%	530	1.5%	529	1.4%	525	1.4%
PEI*	147	0.4%	149	0.4%	151	0.4%	153	0.4%
NS*	943	2.6%	950	2.6%	951	2.6%	960	2.6%
NB	754	2.1%	757	2.1%	767	2.1%	771	2.1%
QC	8,260	23.0%	8,326	22.9%	8,298	22.7%	8,390	22.6%
ON	13,797	38.5%	13,983	38.5%	14,071	38.5%	14,322	38.6%
MB	1,296	3.6%	1,318	3.6%	1,335	3.7%	1,352	3.6%
SK	1,132	3.2%	1,151	3.2%	1,151	3.1%	1,162	3.1%
AB	4,180	11.7%	4,253	11.7%	4,244	11.6%	4,307	11.6%
BC	4,693	13.1%	4,752	13.1%	4,922	13.5%	4,992	13.5%
YK	37	0.1%	38	0.1%	39,628	0.1%	40,476	0.1%
NWT	44	0.1%	45	0.1%	44,936	0.1%	44,541	0.1%
NT	37	0.1%	37	0.1%	37,552	0.1%	38,396	0.1%

²⁷⁶ 2017-2018 population data obtained from Statistics Canada (<https://www150.statcan.gc.ca/n1/en/pub/91-215-x/91-215-x2018001-eng.pdf?st=kX3cKyMR>). 2012-2015 population data obtained from Statistics Canada (<http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/demo02a-eng.htm>). 2011 population data obtained from Statistics Canada (<https://www12.statcan.gc.ca/census-recensement/2011/dp-pd/hlt-fst/pd-pl/Table-Tableau.cfm?LANG=Eng&T=10>)

Appendix G – Products Accepted for Recycling in Provincial Electronics Programs

There are significant differences across Canada in terms of what types of electronics are accepted for recycling in each of the provincial programs. British Columbia's electronics recycling program is the most comprehensive, and is the only program in Canada that collects e-toys, medical monitoring and control equipment, electronic musical instruments, power tools, IT and telecom devices, among others. Ontario and BC are the only provinces that collect cell phones as part of the program, and Manitoba is the only one to collect microwaves. Of all provinces, Alberta's current program is the smallest in the scope of products accepted for recycling, although a potential Phase 2 electronics program would expand the list of designated products to include small household appliances, power tools, audio visual equipment and telecom equipment.

The general categories of electronic products accepted for recycling in different programs are presented in Table 29. Nova Scotia will be expanding its product categories effective 1st March, 2020.

Table 29: Designated Electronic Products Accepted for Recycling by Electronics Stewardship and EPR Programs in Canada (as of September 2019)²⁷⁷

Product Category	BC	AB	SK	MB	ON	QC	NB	NS	PEI	NL	YK	NWT
Desktop Computers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Large Battery-Powered Ride-On Toys	✓											
Portable Computers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Small Battery-Powered Ride-On Toys	✓											
Display Devices ≤ 29" All-in-one (AIO) computers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Display Devices 30-45" All-in-one (AIO) computers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Display Devices ≥ 46" All-in-one (AIO) computers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Desktop Printers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Floor Standing Printers	✓	✓	✓	✓	✓				✓			✓
Computer Peripherals	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Personal/Portable Audio/Video Playback and/or Recording Systems	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Electronic Toys	✓											
Home Audio/Video Playback and/or Recording Systems	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Home Theatre in a Box	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Vehicle Audio and Video Systems	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Non-Cellular Telephones and Answering Machines	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Cellular Devices and Pagers	✓			✓	✓	✓	✓	✓	✓	✓	✓	
Countertop Microwave Ovens			✓	✓					✓		✓	

²⁷⁷ EPRA. September 3, 2019 Steward Update. Available at: https://epra.ca/wp-content/uploads/2019/09/EHF_table_EN_September_2019_Final.pdf

IT and Telecom Equipment	✓											
Musical Instruments	✓											
Medical and Monitoring Equipment	✓											
Micro Toys Electronic	✓											
Time Measurement Devices											✓	
Weight Measurement Devices											✓	
Air Treatment Appliances											✓	
Garment Care Appliances											✓	
Personal Care Appliances											✓	
Kitchen Countertop Heating and Cooking Appliances											✓	
Kitchen Countertop Motorized Appliances											✓	
Kitchen Countertop Appliances For Making Hot Beverages											✓	
Small Floor Cleaning Devices											✓	
Full Size Floor Cleaning Devices											✓	

Appendix H - Light-Weighting of Electronics

The April, 2018 Benchmarking Report provided a discussion on light-weighting of electronics. Some recent updates on this topic are presented below.

Connecticut²⁷⁸

Figure 25 depicts a decrease in total weight of electronic devices collected, including televisions. Data from fiscal year 2017 and 2018 suggests a 32% reduction of older, heavier cathode ray tubes (“CRTs”) being collected in the waste stream and newer, lighter technology flat screens recycling through the program. Data from fiscal year 2018 also suggests that 1.9 million pounds, of the total televisions being collected are flat screens. This is a 22% increase from the previous fiscal year. Light-weighting is also contributing to the decreases in weight of other electronic devices collected.

- “Connecticut’s program collected a rate of 3.36 pounds per capita in fiscal 2018, which equates to an 11% decrease in weight comparing fiscal 2017 based on the CERs reports. Given the trend of product light-weighting, this rate is expectedly lower than in past years and does not meet DEEP’s (Department of Energy and Environmental Protection) state-wide goal of 4.0 pounds per capita. DEEP continues to assess the suitability of this measure and will decide whether to use it, expand it or recommend replacing it in out years. Important factors to consider include the decline of CRTs and device weight discussed in the next paragraph.”
- “Decline of CRTs and Light-Weighting”: The sale of consumer electronics containing CRTs declined to virtually zero in the early 2010s. CRTs are by far the heaviest component in the consumer electronics waste stream, so a peak and decline in the weight CRTs collected was expected. As the CRT weight alone had been about 80-85% of the total weight of electronic devices, the trend in total weight of electronics collected is expected to follow the trends with CRTs. Indeed, the weight of CRTs peaked in 2016 and has been declining annually, along with the total weight of CEDs collected. Virtually all other state programs have recorded similar collection trends in their electronics recycling programs. Another aspect of declining CRT weight is the increasing number of private programs that no longer accept CRTs. In addition, electronics are generally being manufactured to be lighter, smaller and more mobile. Consequently, future collection rates based on weight are expected to decline.”

²⁷⁸ https://www.ct.gov/deep/lib/deep/e-waste/2018_Annual_Report.pdf

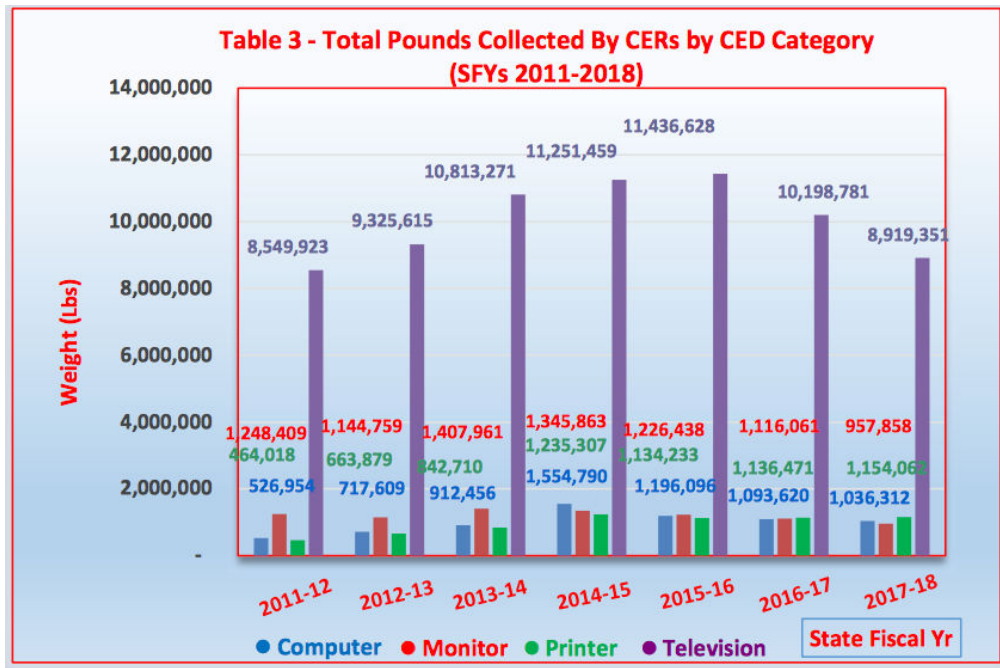


Figure 16: Reduction in Electronics Collected in Connecticut (2011-2018)