

Board of Directors Meeting Highlights
Held on January 19, 2017 at 9:00 AM
at the MRF Board Room



New Controller

On behalf of the Bluewater Recycling Association, it is my pleasure to announce that after serving the Association for the last 26 years Matt has retired.

Matt was hired by the Association, in 1994, after an incredibly successful career in corporate management where he led the development of a local construction company into a multi-million dollar multi-national corporation.

We were fortunate to have him on our team. His hunger for success and more responsibilities were immediately harnessed when he was promoted to Vice-President. His financial responsibilities were quickly expanded into leading our Mars Environmental division, human resources, and sales of commodities.

Matt is joining his wife Anne who retired last year. They plan on splitting their time between their condo in Florida and their home near Sarnia. Both are avid golfers and will take full advantage of their new schedule. Their family was also recently expanded with the arrival of their first grandchild, which is bound to take up some of that new found free time.

We wish Matt and his family a long, and healthy retirement. We thank him for his dedication and commitment.

It is my pleasure to announce that effective Tuesday December 6th, Michelle Courtney joined the Association as our new Controller.

Michelle comes to us from the Exeter area with nearly 10 years of experience in financial management, holding progressive positions. While she worked for the local firm of PTMG LLP on track to become partner, her aspirations were always with the private sector where she could make real operational contributions. Having served as our auditor in the past, she was familiar with our operations making her extra keen to make the change when opportunity came.



Michelle has Bachelor of Business Administration from Wilfrid Laurier University. She is a Chartered Professional Accountant with a Chartered Accountant designation. Michelle and her husband Kyle have two beautiful sons and they are both adept hockey players.

She may be reached at 519.228.6678 extension 224 or michelle@bra.org

Waste Diversion Transition Act, 2016 and the Resource Recovery and Circular Economy Act, 2016 Now in Effect

In November, the Ontario Government proclaimed the Resource Recovery and Circular Economy Act, 2016 and the Waste Diversion Transition Act, 2016, enacted by the Waste-Free Ontario Act, 2016. This framework is intended to help us move towards a circular economy, which will increase resource recovery and reduce waste in Ontario.

Upon proclamation, the legislation came into effect and the Waste Diversion Act, 2002 was repealed. In addition, new regulations for existing diversion programs under the Waste Diversion Transition Act, 2016 came into effect.

Waste Diversion Ontario has now been overhauled to become the Resource Productivity and Recovery Authority (the Authority). The Minister has appointed the initial board for the Authority.

In the coming weeks the government will be posting to the Environmental Registry a draft Transitional Operating Agreement between the Minister and the Authority. At that time, the public will be invited to provide comments.

In the near future, the ministry will release the proposed Strategy for a Waste-Free Ontario: Building a Circular Economy for further consultation prior to finalizing it. The proposed strategy will address comments received on the draft version that was posted in November 2015. The strategy, once finalized, will serve as a roadmap to shift Ontario toward a circular economy.

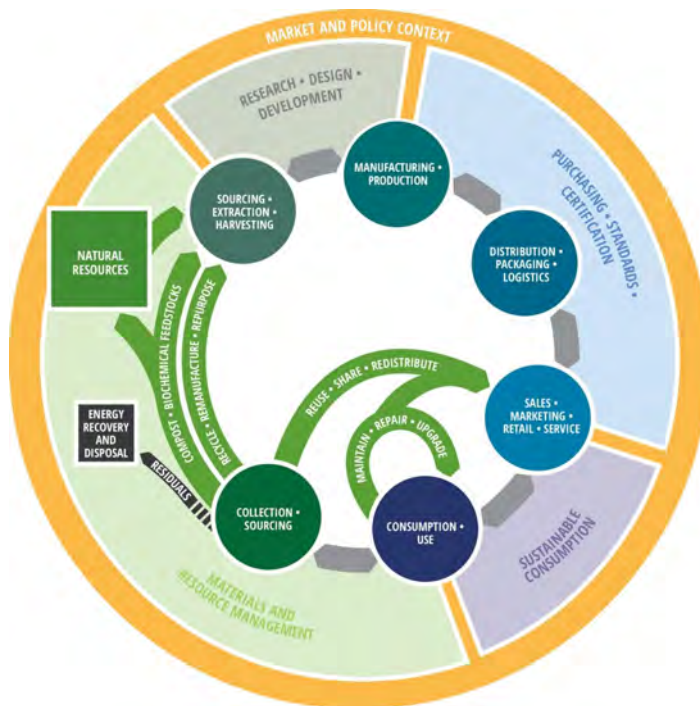
Transitioning Ontario's Blue Box to Extended Producer Responsibility

By 2014, 4.9 million Ontario households were receiving Blue Box collection of paper products and packaging (PPP) and a further 209,000 households had access to recycling depots. The Blue Box and PPP recycling in general are cherished Ontario institutions.

For the past 14 years, Ontario's Waste Diversion Act 2002 (WDA) has required producers to support the Blue Box through "shared responsibility"—that is, producers whose products result in PPP must fund 50 per cent of net municipal recycling costs of delivering Blue Box PPP recycling.

Consistent with the concept of extended producer responsibility (EPR), the recently enacted Resource Recovery and Circular Economy Act will shift the onus for delivering Blue Box recycling from Ontario municipalities to producers.

As producers attempt to comply with regulated recycling targets, the commercial relationships between municipalities and service providers (private collectors and material recycling facilities) will now be reformed (and in some cases assumed by producers).



This policy shift comes with a caution. As stated in the most recent mandate letter issued by the Premier of Ontario to the Honourable Glen Murray, Minister of Environment and Climate Change, “the transition of the Blue Box program and the revised role of municipalities will not negatively impact Ontarians’ experience with and access to Blue Box services.”

As such, the success of EPR for PPP in Ontario will require achieving four key objectives:

- Seamless transition to full EPR: Ensure uninterrupted collection services for Ontario residents;
- Minimize marketplace disruption: Avoid disruption of existing municipal contracts and ensure a continued open and competitive market;
- Minimize disruption to management of municipal and private sector capital assets: Provide a pathway to transition that allows reasonable management of assets over a defined horizon;
- Afford producers with self-determinacy consistent with their increased responsibility and consistent with the provincial interests as described in the Resource Recovery and Circular Economy Act 2016.

In 2015, more than 90 per cent of the 852,000 tonnes of residential Blue Box waste recovered was collected and/or processed by private companies. These private companies are retained through dozens upon dozens of contracts with Ontario local governments.

In addition to contracts there is a significant amount of capital deployed in Ontario dedicated to processing PPP. Consider that of the 56 processing facilities that recycled collected blue box PPP in 2015, 29 were owned and operated by private companies, 16 were owned by local governments and operated by private companies, and 11 were owned and operated by local government staff.

Municipalities often define the term of their contracts with private companies to allow for capital depreciation. For example, collection contracts often have seven-year terms because collection vehicles are generally amortized over seven years. Where processing contracts are separate from collection contracts, processing contracts can have a longer term (in some cases 10 years) to reflect the longer amortization periods for processing equipment.

These existing contracts cannot simply be assumed by producers because they are not sufficient to meet the obligations that will undoubtedly be set forth for producers under a PPP regulation under the RRCEA.

Such a regulation will likely introduce a much wider standard list of PPP to be accepted in blue box collection systems. As a result producers will likely require modifications to how certain materials are collected and recycled and will require measures to reduce contamination of collected PPP.

Introducing these new requirements is not be feasible under existing contracts without significant contractual amendments (and associated cost adjustments) irrespective of whether the contracts are assigned to producers or whether producers’ new requirements are layered over municipal administration of the contracts.

Accordingly, the most efficient means to transition to EPR is for producers to assume responsibility to deliver PPP collection (either through contracts with municipalities or directly with private companies) and recycling as existing municipal contracts expire. In the interim, producers would continue to fund municipalities whose contracts have not yet expired based on shared responsibility.

Having producers assume full responsibility as existing contracts expire is a practical, predictable, step-wise approach to transitioning from shared to full producer responsibility that:

- Allows contracts between municipalities and private companies to continue without disruption, financial penalties, or risk of litigation until their natural expiry;
- Provides an increase in producer self-determinacy commensurate with an increase in producer responsibility;
- Provides predictability for management of municipal and private sector assets;
- Provides predictability for both municipalities and producers when developing budgets, planning activities, and making necessary preparations for the pending changes;
- Continues household collection without interruption; and,
- Incrementally moves Ontario’s Blue Box waste management system to full producer responsibility and a circular economy while minimizing the turmoil that would result from implementing EPR abruptly.

This is a very general outline of a proposed approach to transitioning from shared responsibility to EPR for PPP. Before the province could regulate such an approach many operational details would need to be collaboratively resolved by producers and Ontario municipalities.

How Demographics and Technology Explain the Evolving Tonne, Why Blue Box Materials are Changing, and What Technology has to Do About It

Blue Box materials are changing, and have been since 2008 or earlier—on that we all agree. We even have a name for what is going on: The Evolving Tonne. This term refers to the fact that the Blue Box mix has less paper and more plastic than it used to and this changing mix is causing havoc for collection and processing systems, and well as for markets where it is increasingly hard to meet market specifications.



The reasons for The Evolving Tonne? A combination of:

- Demographics
- The Internet/smart/handheld devices
- Our changing lifestyles and demand for convenience

Millennials, which combine all three.

First, let’s recap on what is happening to Canadian demographics, and how these influence what is in the Blue Box:

Canadians are getting older, living longer, and more are living alone. Over 65s currently account for 11 per cent of the Canadian population and this is expected to double over the next 20 years as Baby Boomers (those born 1945 to 1963) get older. An older person living alone wants convenient packaging, re-sealable packaging, and products in small portion packaging. This leads to higher volumes of smaller packaging in MRFs. Re-sealable packaging is typically in stand-up pouches (SUPs), which are not recyclable. And smaller packages are a nuisance in MRFs. One MRF operator told me he used to get 20,000 rejects an hour. Now he gets 120,000. This means a lot more material he receives ends up in residue rather than as valuable recyclables sent into the market.

Canadian households are smaller for a host of reasons—fewer children, first marriage later, divorce, voluntarily single, more Canadians are living alone or with one other person, 61 per cent of Canadian households are one or two-person households. This means people don't spend time cooking big family meals (no one there to eat with), so Canadians eat a lot more take-out food and prepared meals than they used to.

Two-worker families. Two-worker families mean no one has time to shop and cook, again leading to an increased demand for take-out food and pre-prepared meals, all of which come in extensive packaging.

Millennials are the demographic born between 1980 and 2000, so are 16 to 36 now. We all know lots of them. In fact, we have 9.5 million millennials in Canada alone. Collectively, Millennials are the largest global demographic, and they get a lot of attention from marketers. Millennials love convenience, love their smart devices, and are digital natives. They feel a personal connection to their preferred brands—"what does my brand say about me?"

Millennials live with (sleep with) their smart devices and get their news online, but not from newsprint newspapers. They are snackers (average four snacks per day) and like individualized, individually packaged snacks. They don't cook. They like mostly good quality take-out food. Predictions are that over time 10 to 30 per cent of meals will be hand-delivered rather than cooked at home. They purchase a lot online (which leads to more packaging). They live with their parents but seek high quality reliable products that speak to their goals for social economic status.

The Internet (has changed everything). We are in the midst of the most fundamental technology change of our time—the Internet, which has effectively changed everything. We can order goods online. They are delivered to our home in cardboard boxes. We can read news online and not buy a paper newspaper. We can order food online and it will be delivered to our home... yes, again, in lots of packaging.

The growth in pouches. The stand-up pouch has been a very successful package that has really taken off in the last few years. It has great barrier properties, is re-sealable, and can display beautiful graphics. It is lighter for transportation and takes up less space than traditional packaging for some products. The growth rate for this package is anticipated to be 4 to 5 per cent per year. The problem is, it is not yet recyclable as it is a multi-layer package that combines different materials.

How the Blue Box mix is changing

When you put all this together – technology change, demographics, lifestyle trends and a demand for convenience – it leads to a world where newsprint newspapers are in decline, although online versions of newspapers survive, convenient single serve or re-sealable packaging use is increasing rapidly, and there is a significant increase in packaging from Internet shopping deliveries. This combination presents significant challenges for MRF operators.

How MRF Operators Adapt to Evolving Tonne

MRF operators have been watching as printed paper declines and multi-layer packaging increases over the last seven or eight years. As each new trend emerges, MRF processing equipment evolves to address the challenge—more optical sorters, screens, and other technologies to separate one material from another and clean up material mixes for market, but there is a lag of a few years between the time material mix changes are noticed and equipment design catches up.

All we know for sure is that the Blue Box mix is changing constantly, and will continue to change, and we need to learn to adapt rapidly to these on-going changes.

Ontario Plans Its Zero-Waste Future

The draft Strategy for a Waste-Free Ontario: Building the Circular Economy is down to its final strokes. An earlier draft was subject to public comment from November 26, 2015 to February 29, 2016, both online and through public meetings. The final draft has now been released for public comment until January 30, 2017.

The strategy, if adopted, may put an end to a tortuous process to fix Ontario's broken waste diversion system. Governing legislation (Bill 151, the Waste-Free Ontario Act, 2016) to replace the failed Waste Diversion Act, 2002 is now in place, mandating a transition to a system that makes producers individually (not collectively) responsible for the management of their products at end-of-life. Its underlying principle is that no resources will be wasted, Ontario will generate zero-waste and there will be no greenhouse gas emissions from the waste sector.

Even environmentalists concede, however, that zero-waste is at best an aspirational goal, not an achievable target, and the strategy describes zero-waste Ontario as “a visionary goal [emphasis added] that provides the guiding principles needed to work toward the elimination of waste.”

The strategy sets targets that are hard in both senses: fixed and difficult to achieve:

- 30% diversion by 2020
- 50% diversion by 2030
- 80% diversion by 2050.

The scale of that challenge can be weighed against the objective set by the Canadian Council of Ministers of the Environment (CCME) in 1990: to reduce waste by 50% by 2000. Only Nova Scotia met that challenge. Today, Ontario diverts only 25% of its waste, a percentage that has not moved perceptively in a decade.

The strategy describes 15 specific courses of action meant to accomplish those goals. They include the shift to producer responsibility. The shift may be transparent to consumers, but not to municipalities and the waste industry. Industry funding organizations (IFOs) that have subsidized municipal curbside recycling and other diversion programs will be disbanded. Producers and municipalities will work together to manage waste, with producers picking up all of the cost.

In practice, it is likely that organizations like the old IFOs will be reconstituted in some form to manage the process, but the responsibility to comply will remain with producers.

One element of the new strategy that will be noticed by consumers, if acted upon, is landfill bans. The strategy calls on Ontario to implement landfill bans in order to direct materials to markets rather than disposal. Landfill bans were among the most effective policies implemented by Nova Scotia in its quest to meet the CCME's 2000 waste diversion goal. They have not been widely adopted elsewhere.

Among the early candidates for disposal bans, according to the strategy, are food and organic wastes, materials designated under existing waste diversion programs, beverage containers, corrugated cardboard and some paper materials, and fluorescent bulbs and tubes. The strategy doesn't contemplate the implementation of disposal bans before 2021-2022.

The strategy will also challenge the already testy relationship among municipalities, producers and the waste management industry. The strategy describes the three as partners in the solution, but the partnership has always been a rocky one. It's a partnership likely to be tested even further during the transition period as the parties debate service requirements, cost, leadership and the fate of assets left stranded under the new system.

EPA, The Recycling Partnership release curbside recycling report

Key findings from the report show that multiple factors support successful programs.

The U.S. Environmental Protection Agency (EPA) and national nonprofit The Recycling Partnership, Falls Church, Virginia, have completed a study on the state of curbside recycling in the U.S. in 2016, with the report, "The 2016 State of Curbside Report" available at <https://therecyclingpartnership.app.box.com/s/i0wvvano7hi3dr3ivqyv689y4zzo583l2>.

The report provides analysis of key curbside recycling attributes that influence performance, notably:

- offering recycling wherever trash pickup is available;
- using carts to collect recyclables; and
- having robust engagement from municipal recycling program managers.

Characteristics of curbside recycling programs that were evaluated include container type, collection frequency, municipal solid waste (MSW) tip fee level and material mix. A number of other variables also were evaluated.

Key findings from the report show that not just one program characteristic supports successful programs. Instead, many attributes combine to support strong recovery of bottles, cans, containers and paper. Annual pounds per household collected was the key performance indicator used to measure program performance. Of the 465 geographically dispersed cities researched, the average was 357 pounds per household per year with an average MSW tip fee of \$47 per ton.

According to the report, the cities represented in the study include at least three incorporated areas in each state, other than Alaska and Hawaii; 250 of the largest cities in the country by population; and each state capital. At least 20 percent of the homes eligible for curbside service are represented in each of the 10 EPA Regions. The study represents 28 percent of U.S. homes that could potentially receive curbside recycling service, and represents a selection of communities reflecting the diversity of curbside program attributes.

Cody Marshall, technical assistance lead for The Recycling Partnership, says, "Entering into this research, our goal was to simply evaluate common attributes of high-performing programs, but the findings go far beyond that. Recent research by the state of North Carolina's Department of Environmental Quality shows that there is roughly 800 to 1,000 pounds of recyclables available in the household each year. There are great opportunities to recover more of that material across the country. This curbside report points to strategies that lead to higher recovery and clearly more resources need to be made available to local governments to unlock their full potential."

When evaluating programs with higher-than-average recovery (more than 400 pounds per household per year), common themes quickly took shape, The Recycling Partnership says:

- 100 percent of these programs had some type of public action that influenced curbside recycling;
- 96 percent were single-stream programs;
- 93 percent collected automatically, and
- 83 percent of those high-performing communities were using carts.

Auditor General's Annual Report

Auditor General Bonnie Lysyk released her 2016 report on Nov. 30. It includes audits examining the following areas of interest to the waste management sector, which fall under the mandate of the Ministry of the Environment and Climate Change (MOECC):

Environmental Approvals

A significant number of companies and organizations may be operating without the proper environmental approvals, including as many as 130 waste management-related facilities, such as one waste removal company, which, the report notes, was storing more than 600 bags of asbestos waste without an approval.

More than 200,000 approvals issued over 15 years ago, including 115 waste approvals, have not been updated to meet current environmental standards or to reflect the approval holder's current operations.

The Ministry has no policy that sets review deadlines for Environmental Compliance Approvals.

Average Review Times for Environmental Compliance Approvals

Type of Approval	2011/12		2012/13		2013/14		2014/15		2015/16	
	# of Approvals	Avg. Review Time (Days)	# of Approvals	Avg. Review Time (Days)	# of Approvals	Avg. Review Time (Days)	# of Approvals	Avg. Review Time (Days)	# of Approvals	Avg. Review Time (Days)
Waste Disposal Sites	38	336	33	204	18	281	24	456	27	375
Waste Management Systems	170	61	142	59	42	126	35	197	40	156

The Environment Ministry's monitoring and inspection efforts are not sufficient. As an example, the Auditor General notes that in the last five years, 20% of hazardous waste-related inspections identified emissions in excess of environmental standards (~ 830 of the 4,147 inspections).

Operators that register their activities on the Environmental Activities and Sector Registry (EASR) are rarely reviewed or inspected. In fact, of the 89 non-hazardous waste transporters reviewed, 42% did not comply with one or more of the operational requirements.

The Ministry only recovers 20% of the cost of delivering the approvals program.

Financial security is not required for many high-risk activities. As an example, the Auditor General notes the Ministry does not always require financial security from hazardous waste transporters, which, she says, are likely to spill environmental contaminants.

Financial security amounts are often insufficient or uncollected, including in the waste management sector, according to the Auditor General.

Environmental Assessments

Projects with greater risk are not always thoroughly assessed, including small landfills (e.g. less than 100,000 m³), which the report notes only require a streamlined assessment even though they typically pose just as much risk as a large landfill. The Ministry's efforts to streamline approvals have been hampered by a lack of resources and direction.

Climate Change

The relatively small reduction of 3.8 megatonnes of greenhouse gas emissions is expected to cost businesses and individuals in Ontario about \$8 billion over the next four years.

Ontario has no plan to achieve its renewable gas goal. The Auditor General notes, based on information from the Biogas Association of Canada, that the "required capacity" of renewable natural gas to achieve the initiative's goal of a 1-megatonne emissions reduction "is 500 times more than what is currently available."

Environmental Commissioner of Ontario's Annual GHG Progress Report

Environmental Commissioner Dianne Saxe released her 2016 Annual GHG Progress Report on Nov. 22. The report cautions the government in several areas related to cap-and-trade, which starts on Jan. 1, 2017, as well as the roll-out of initiatives included in the province's Climate Action Plan next year. The ECO again raised her concerns about the efficiency of landfill-gas-capture systems, but provides little detail or evidence to support her claims.

Turning Trash Bins Into Hotspots For Info And Money

Ten solar-powered, Internet-of-Things (IoT) enabled, revenue-generating trash bins have been rolled out in a new pilot project on Orchard Road in Singapore.

Known as Bigbelly bins for their ability to compact and hold up to eight times more trash than regular bins, the ones deployed in the pilot project have been customized to include solar panels on their tops to power their operations.

The bins are also fitted with sensors that can measure the amount of resistance from trash when compacting, calculating how much extra rubbish it can hold. Once full, they are able to send a message to cleaners or operators that they need to be emptied.

The bins also come with an odour-masking function and block out rain and air from entering, making the trash less unpleasant.

Another key highlight of the Bigbelly bins and a boon to local merchants is the receptacles functioning as free Wi-Fi hotspots and advertising platforms.

Users within a 30m radius of a bin can connect to the Wi-Fi network and log in by following the provided instructions. On top of being able to surf the Internet, users will also be able to see special offers and discounts offered by Orchard Road retailers, which pay to have their promotions featured.

Smart Litter Bins Transform The Waste Industry

A number of technology companies are developing smart technologies to help make waste collection more efficient. Over the last few years, Enevo, a Finnish company have been fitting waste bins with sensors to determine when they need to be emptied.

Implementing these sensors into bins allows the waste management companies to operate far more efficiently and only empty the bins when they need to be emptied - the fleet managers can plan their routes based on the information received from these sensors.

Enevo's sensors are already in waste bins across Belgium and The Netherlands and are currently being installed in Washington DC. In such congested cities, it is vital that the waste collection services are operated as efficiently as possible and the technological transformation of waste collection will allow for this better operation.

Update On Municipal Compensation For The Ontario Tire Stewardship Program

AMO, MWA, OWMA, RPWCO and the City of Toronto met with the Resource Productivity & Recovery Authority and Ontario Tire Stewardship on Dec. 19 to discuss the current collection funds that are being withheld from a number of municipalities. At present OTS has placed 204 Municipal Collection Allowance claims on-hold (111 relating to the July-September period, 93 to the April-June period) due to not having the supporting documentation provided as required under the Collector Agreement. OTS staff are continuing to review Municipal concerns regarding their ability to provide this information, and whether alternative validation methods may be appropriate. Based on this review OTS will be assessing the reasonableness of releasing this on-hold with a decision due by the end of February 2017, and modifying the supporting documentation requirements for Municipal Collectors.

All parties at the meeting agreed that a standard (policies, protocols and practices) should be in place in order for municipalities to receive a collection incentive. The goal is to prevent potential fraudulent activity by ensuring materials are local, not received from businesses or other commercial sources and quantities reported are accurate and verifiable. The parties agreed to develop a practical risk-based approach with the intent to reach an agreement by Spring of 2017. Some of the potential items discussed included:

- Policies to restrict commercial drop-offs, to allow access to local residents only, and limit the number of tires dropped off at one-time.
- Education to inform residents of the policies.
- Staff procedures to ensure policies followed such as employee oversight of drop-offs.
- Record keeping including license plate and video surveillance.
- Documenting outbound shipments through scale tickets or tire counts.

Over the next few months, AMO, MWA, OWMA & RPWCO will collectively be reaching out to members to find an appropriate balance in what is being required of collection sites based on the associated risk. This includes a discussion around potentially scaling requirements and applying de minimis.

Automotive Materials Stewardship's ISP Effective Date is April 1, 2017

The Resource Productivity and Recovery Authority (the Authority) has determined that April 1, 2017 will be the effective date of Automotive Materials Stewardship's (AMS) Industry Stewardship Plan (ISP) for the following automotive materials: Oil Containers, Oil Filters, and Antifreeze.

On April 1, 2017, the management of AMS materials will transition from the current MHSW Program ("Orange Drop") operated by Stewardship Ontario to the new program operated by AMS.

On August 10, 2016, the WDO Board approved the Automotive Materials Stewardship (AMS) ISP to manage automotive materials (antifreeze/antifreeze containers, oil filters, and oil containers). The implementation date should be no sooner than January 2017 to provide sufficient time for all transition issues to be addressed.

Product Care Association is the Industry Stewardship Organization that operates the WDO Board-approved Industry Stewardship Plans for paint, and pesticides, solvents and fertilizers ("ReGeneration" Programs).

SodaStream Canada is the Industry Stewardship Organization that operates the WDO Board-approved Industry Stewardship Plan for their proprietary carbon dioxide (CO2) cylinders.

Why The City Of Surrey Is No Longer Picking Up Glass Recyclables Curbside

City of Surrey says it's cheaper to skip picking up glass recyclables curbside

Why can't you leave glass recyclables curbside anymore in Surrey?

Are you living in Surrey and feeling a little jealous of people in neighbouring municipalities who are able to put their glass recyclables out with the cardboard and plastic? The city says forcing people to drive their glass to the depot is actually the more environmentally friendly option.



The province amended regulations in 2011 to prevent glass from being collected together. Glass breaks and the shards contaminate the other recycling. Multi-Material BC, the non-profit funded by industry to manage recycling in BC, will not accept recycling from municipalities if glass is mixed in. Cities either take payment from MMBC to use their crews or contractors to collect the materials or they can have MMBC hire a contractor to do the collection. Most municipalities have chosen the payment.

Cities like Vancouver have solved the problem by putting out bins just for glass. Vancouver uses recycling trucks with compartments, so this was fairly easy to do. Surrey has compaction trucks. All of the recycling is loaded into one bin, which is mechanically put in the truck and compacted.

Manager of Operations Rob Costanzo admits having to take glass to the recycling depot can be inconvenient, but he says there are advantages to Surrey's system. "We can collect significantly more material. We're significantly more efficient. Our costs are significantly lower for collection on the basis that a truck can be out on the road all day collecting recyclables and not have to go back and forth to the recycling processing facility to unload that material and time is money."

He says the city spent about \$12.5-million for waste collection when it used the more manual, separate bin system. That cost dropped to \$9.5-million with their current, more automated system.

But it's not just a cost-saving advantage according to Costanzo. He says they have been able to cut the number of trucks they use from 32 to 18 and that has environmental benefits. "A significant savings in terms of the sheer costs of collection, but also the wear and tear on our roads because these are heavy vehicles driving on local roads... and also the significant savings in fuel and the impact to the environment."

Costanzo says they're looking into what it would cost to retrofit their trucks with some kind of compartment to allow drivers to pick up glass at curbside once or twice per month.

All-Electric Chinese Trucks Emerging In U.S.



Few North American fleets will have heard of BYD (Build Your Dreams) trucks, but the all-electric vehicles created by a company headquartered in Shenzhen, China are securing domestic orders. The company even enjoys financial backing from financial sage Warren Buffet, who invested US \$230 million in BYD eight years ago. BYD VP truck sales Andy Swanton said BYD has already

taken orders for about 150 trucks, and, he added, "we expect to kind of double that next year. We want to be up to 1,000 by 2020."

The new vehicles range from a shunt truck — 27 of which have already been ordered by San Bernadino, California Associated Governments for use in rail yards and some California distribution centres -- to a Class 8 truck, and a sanitation vehicle now being produced with Wayne Engineering of Cedar Falls, Iowa.

This class 8 has a purported range of 100 miles.

The 3.9-ton sanitation truck has a 160-kilometer range after a 2.5-hour charge. The manufacturer says haulers can expect a 58% drop in operating costs with that, and notes the truck will produce zero tailpipe emissions and minimal noise pollution.

"This truck represents a new era in waste management, one of the last remaining sectors untouched by green energy and electrification," Stella Li, president of BYD Motors, said at the truck's launch event in Phoenix, Arizona.

At the heart of a BYD truck is a proprietary lithium ion phosphate rechargeable battery. Transversely mounted motors are integrated with the drive axle, regenerative braking prolongs battery life and reduces brake wear, and "Vehicle-to-Grid (V2G) technology" lets the truck deliver power back into the grid, a load, or another vehicle.

BYD's fully electric trucks will be designed and manufactured in Lancaster, California. The sanitation bodies will be installed at Wayne Engineering plants in Phoenix and Cedar Falls. The lineup launched at the Advanced Clean Transportation Expo in Long Beach, California this May included:

The BYD T9 Class 8, which employs BYD's first purpose-built batter for vehicle electrification. BYD claims a range of 160-plus kilometers;

The BYD T7 trucks come with a 23,600-pound Gross Vehicle Weight Rating and 200-kilometer range;

The BYD T5 is designed for longer routes and sports a 16,100-pound Gross Vehicle Weight Rating. The T5 batteries reportedly deliver 250 kilometers of all-electric range. The T5 can be designed as a refrigerated box, stake bed, or with a bucket, depending on the application;

The BYD Class 6 step van offers a 160-kilometer range and is designed for urban deliveries. This was developed specifically for UPS under a joint venture

Finally, the all-electric forklift charges fully in one or two hours, and that's after running two full shifts.

Plans For Diesel Bans Are Spreading

The cities of Paris, Mexico City, Madrid, and Athens will have stopped the use of diesel cars and trucks by 2025, the mayors of those cities announced at a conference in Mexico. And you can expect others to follow suit soon.

Germany has decided to ban the sales of all internal combustion engines by 2030. After that time, only zero-emission vehicles will be allowed on the market according to RoadandTrack.com. The ban was first introduced in October.

The resolution was passed in Germany's Bundesrat, the nation's legislative body representing the 16 German states, with across-the-aisle support.

Early reports say the ban will follow a series of tax incentives designed to hasten the replacement of internal combustion engines with alternative fuels and modes of transport.

The European Union had earlier come out with a recommendation to ban the sale of new internal-combustion-powered vehicles but the EU has no legislative power. Germany, however, is the largest and most influential member of the EU, so there's a good likelihood other countries will follow its lead.

According to the German periodical Der Spiegel, Germany wants to reduce carbon dioxide emissions by as much as 95% by 2050.

The mayors of Mexico City, Paris, Madrid and Athens say they will offer incentives for alternative modes of transport, including walking and cycling.

In their statements, the mayors cited World Health Organization statistics that suggests approximately 3 million deaths every year can be linked to outdoor air pollution.

According to the BBC's environmental analyst Roger Harrabin, "the diesel ban is huge."

"Carmakers will look at this decision and know it's just a matter of time before other city mayors follow suit," he is reported as saying. "There is already a rush to improve electric and hydrogen cars and hybrids. That will now become a stampede."

Nikola Motor Pulls Wraps Off Zero-Emissions Truck

Nikola Motor Co. has shown artist renderings of its revolutionary cabover for months at its website Nikola.com, but on Dec. 1 company founder and CEO Trevor Milton pulled the wraps of the real thing – an all independent-suspension electric-drive cabover using current generated by a hydrogen fuel cell. And the only emissions from this high-performance heavy truck tractor is a little water.

Water is the by-product from the power generated by combining the hydrogen with oxygen in the air, in the proton exchange membrane (PEM) fuel cell that is directly charging the lithium-ion storage batteries.

One of the highly attractive parts of Milton's Nikola vision is customers will pay nothing at the pump.



New Mattress & Box Spring Recycling Program

North Perth will be introducing a new Mattress & Box Spring Recycling Program in 2017.

To increase the capacity of the Elma Landfill site, North Perth will use the services of Recyc-Mattresses to recycle mattresses and box springs brought to the landfill.

Beginning in 2017, there will be a \$10 fee per mattress or box spring brought to the Elma Landfill.

The Mattress & Box Spring Recycling Program will extend the life of the Elma Landfill by approximately 5 years.

Bale Wrap No Longer Accepted at Elma Landfill Jan. 1/17

Farmers and businesses are encouraged to contact Switch Energy Corp. directly to have collection bags mailed to them and bagged bale wrap picked-up from their farm or business.

Switch Energy offers this service with a pay-as-you-go fee. For each new pouch of 15 collection bags, customers will receive by mail an invoice for \$60.00. This fee entitles customers to continue receiving farm pick-up from Switch Energy. Bags must be tied and not exceed 40 pounds and cheques should be made payable to Switch Energy Corp.

Visit Switch Energy's website for more information on their Bale Wrap Program at <http://www.switchenergycorp.com/Default.aspx> or contact them by phone at (519) 524-0193.

Denmark: Supermarket Selling Expired Food Opens Second Branch



It may be past its sell-by date, but for many Danes it's a tasty proposition: surplus food being sold in a Copenhagen supermarket has proved so popular that a second store has been opened.

After launching in the district of Amager earlier this year, the Wefood project attracted a long queue as it opened a second branch in the trendy neighbourhood of Nørrebro, this month.

[...]Selling expired food is legal in Denmark as long as it is clearly advertised and there is no immediate danger to

consuming it. "We look, we smell, we feel the product and see if it's still consumable," project leader Bassel Hmeidan said.

All products are donated by producers, import and export companies and local supermarkets, and are collected by Wefood's staff, all of whom are volunteers. The store's profit goes to charity.

Prices are about half of what they would be elsewhere, but even its biggest fans would struggle to do their weekly shop here. The products available depend on what is available from donors, resulting in an eclectic mix that changes from day to day.

Food waste has become a hot topic in recent years, with initiatives ranging from a French ban last year on destroying unsold food, to a global network of cafes serving dishes with ingredients destined for the scrapheap.

British-based The Real Junk Food Project opened the country's first food waste supermarket in a warehouse near Leeds in September. With a greater focus than its Danish peer on feeding the poor, the UK project urges customers to simply "pay as they feel".

New solution for recycling of rare earths

United States: Researchers at the University of Pennsylvania in the USA have developed a process that could enable the efficient recycling of rare earth metals from compact fluorescent light bulbs.

‘Everybody’s heard of blood diamonds - but maybe people haven’t heard of blood cobalt or tantalum or lithium,’ says project leader Eric Schelter, associate professor in the university’s School of Arts & Sciences’ chemistry department. The recycling innovation is ‘huge’, he argues, because mining and purifying rare earths is not only expensive and labour-intensive but also has a ‘devastating’ effect on communities and the environment.



The novel recycling method can be extended to all rare earths. First, a series of hundreds of fluid chambers are hooked up in parallel with two fluids flowing past one another, one of which is aqueous and acidic while the other is organic. The dissolved metals are extracted between the immiscible solutions.

This process is repeated thousands of times and chemically filters apart the elements. The new approach is said to minimise the amount of waste generated as well as time and energy requirements.

The team’s research paper focused on the pairing of europium and yttrium, with scientists able to recycle rare-earth metals from compact fluorescent light bulbs.

Their findings have been published in the Proceedings of the National Academy of Sciences.

Is Apple out of tune with recycling?

Apple's new wireless headphones could become a real recycling problem in the next couple of years, according to electronics dismantling expert Kyle Wiens of iFixit.

The devices, retailing for US\$ 159 and nicknamed AirPods, have miniscule lithium-ion batteries secured with ‘a waterfall of glue’ that make recycling ‘very difficult’, according to Wiens. In his teardown report, he jokingly writes: ‘Nurse, hand me the scalpel.’ The AirPods cannot simply be thrown into a shredder - unlike their wired counterparts - because they could catch fire during the process, it is argued.

Considering how the brand has become something of an electronics trendsetter, he foresees a billion of these gadgets could be coming forward for recycling in around 10 years from now. An estimated 1.4 billion pairs of iPhone and iPod headphones have been sold thus far.



Apple has said it will set up a take-back scheme to recover used AirPods although the specifics of the recycling process remain unknown.

Whirlpool Introduces At-Home Food Waste Recycler

The Zera recycler is designed to turn food waste into fertilizer within 24 hours.

Whirlpool Corp., Benton Harbor, Michigan, announces the release of the Zera Food Recycler, a kitchen appliance that turns food waste into fertilizer. The Zera system— from WLABs of Whirlpool Corporation, the company's innovation incubator—debuted at CES 2017 in Las Vegas Jan. 5 to 8 and is available for pre-orders on Indiegogo.

This product is the first indoor recycler in the United States that converts a week's worth of food waste into ready-to-use homemade fertilizer within 24 hours, the company says. The device conveniently fits into the kitchen, and with a simple push of a button converts household food waste into homemade fertilizer by using a combination of oxygen, moisture, heat and mixing to expedite the decomposition process.



"Zera Food Recycler brings a purposeful innovation to consumer kitchens, and delivers on an increasing demand for more environmentally-driven solutions for the home," says Jennifer Bonuso, senior director, CPG & WLABs. "We know Americans are looking for easier, more efficient ways to recycle food scraps, and the Zera system makes that possible. We're excited to bring this offering to consumers and Indiegogo is a great platform to do so, allowing us to connect with consumers in a new and compelling way."

Families are able to use the Zera system year-round regardless of the weather and can remotely operate the appliance through the Whirlpool mobile app.

The first 50 backers who ordered the Zera system through Indiegogo received the product at an initial super early bird discounted rate of \$699. Starting early summer 2017, the Zera system will be available in limited test markets through participating retail partners including TreeHouse, Austin, Abt, Glenview, Illinois, and Williams-Sonoma, San Francisco. The Zera system will also be available for purchase online at select retailer sites and on Zera.com, and will retail for \$1,199 manufacturer's suggested retail price (MSRP).

With coffee conquered, Keurig looking to booze, signs research deal with AB InBev

Coffee company has missed the mark with a cold beverage maker before, but aims to build on its technology to mix up beer, cocktails and spirits



The Vermont coffee company rose to prominence after popularizing a single-cup coffee machine, which uses individual pods known as K-Cups.

Keurig, the maker of single-cup coffee machines, says it is teaming up with beer giant Anheuser-Busch InBev to build an at-home booze maker.

The companies announced late last week they hope to create a product that could whip up beer, cocktails, spirits and mixers.

Waterbury, Vermont-based Keurig Green Mountain has tried to grow beyond coffee makers before, but came up short. It launched a Keurig Kold at-home soda maker in 2015, but the machines sold poorly and were discontinued in June after less than a year on the market.

Nevertheless, the company says it will use technology from the Kold machine to develop the alcohol maker with Belgian beer giant AB InBev, which brews Budweiser, Stella Artois and a huge range of other beers.

Both companies plan to draw from their existing research teams in New England to carry out the project.

Piles Of Uncollected Recycling Frustrate Vancouverites



Recycling is littering the back laneways of many Vancouver streets as recycling contractor Smithrite falls far behind on pickup schedule due to winter weather.

Vancouver resident Jason Lyle says the back of his house looks like a garbage dump after three weeks of missed recycling pick up.

Lyle isn't the only unhappy Vancouverite. Especially in the northeast part of the city, laneways and streets are becoming increasingly clogged with soggy and stinking recycling awaiting collection that never seems to come.

According to Multi Material B.C., the non-profit entity that took over Vancouver's curbside recycling program in October, snow and icy roads are to blame.

"We're really trying to balance the equation of making sure to get to everyone's house as quickly as we can without putting our contractor and their workers, as well as the public at risk by having trucks going down streets that are unsafe."

Smithrite, the company now responsible for curbside collection, has put extra trucks on the road the last two Saturdays in a fruitless effort to catch up, according to Langdon.

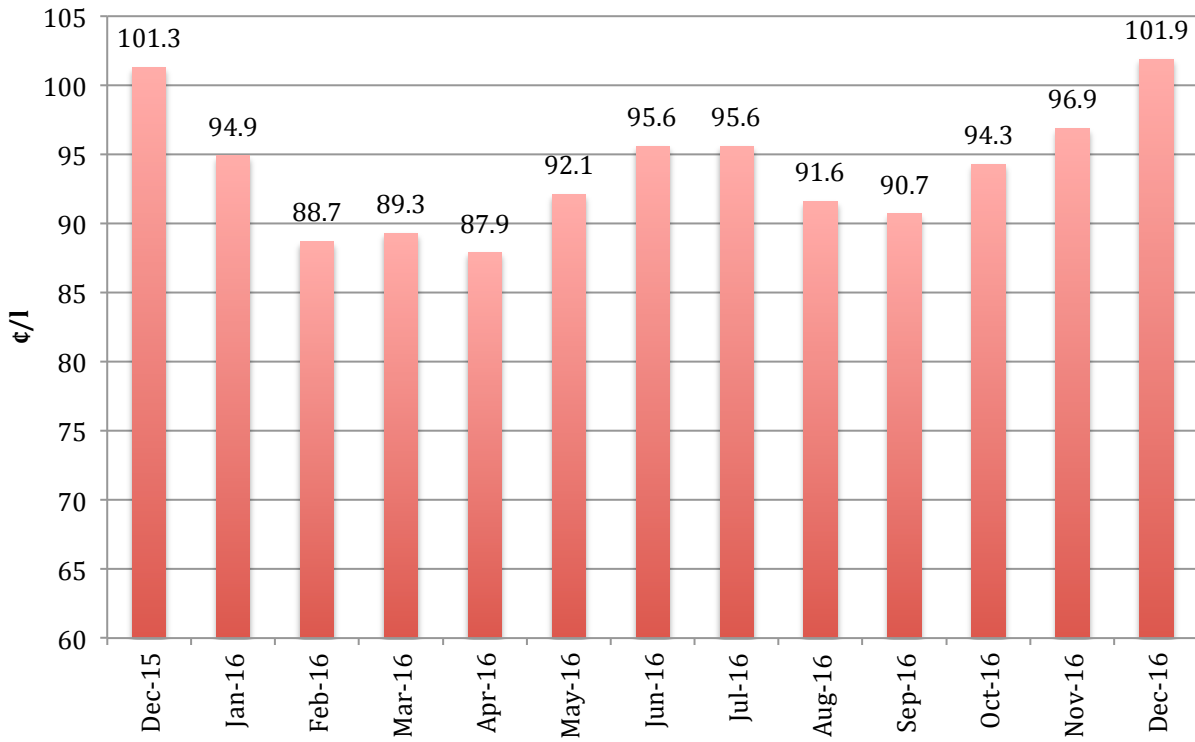
Animals are starting to get into the soggy and stinking recycling that has not been collected in weeks.

"We seem to miss [a pick up] every second or third week," he said. "When it was the City of Vancouver doing it, there was never any problem."

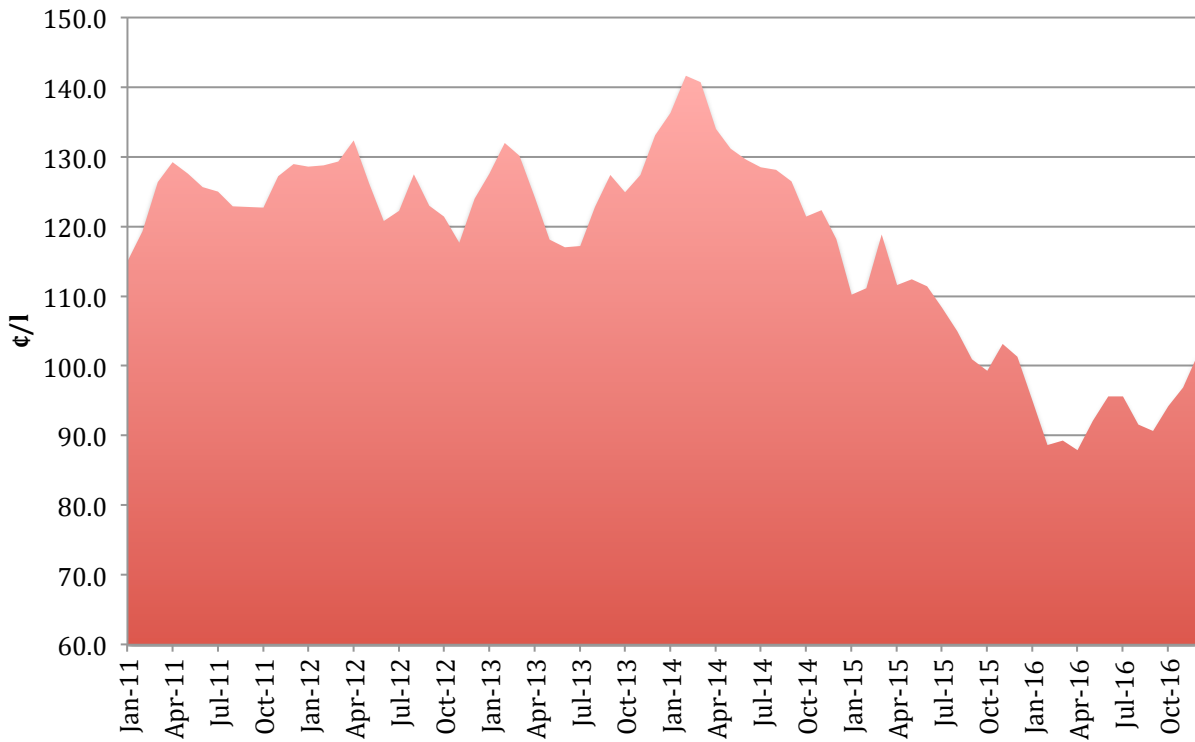
Langdon wants people to understand that the new curbside recycling system is actually saving taxpayers money.

"A lot of people express concern about their taxpayer dollars, but part of the shift to the Multi Material B.C. program is that the companies that make packaging pay for the service.

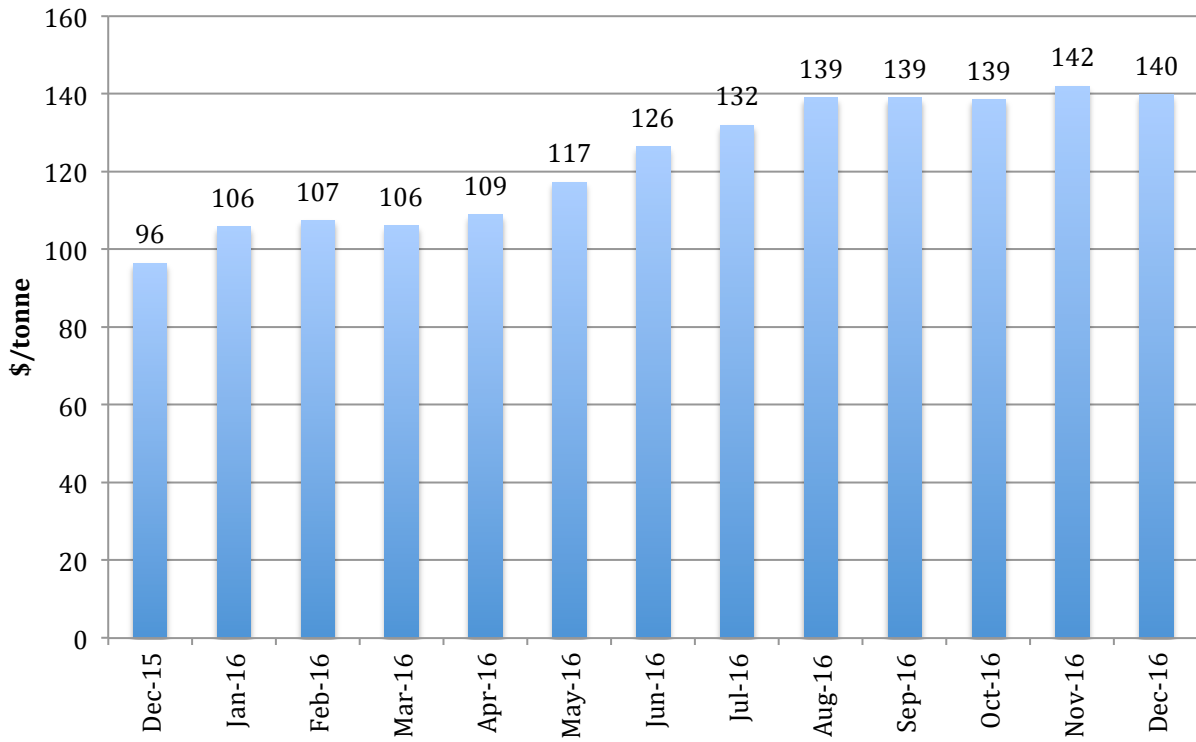
Diesel Price (Retail incl. Tax)



Diesel Price (Retail incl. Tax)



Commodity Prices



Commodity Prices

