Board of Directors Meeting Highlights
Held on September 20, 2018 at 9:00 AM
at the MRF Board Room

Bluewater Recycling Association

RPRA sets 2019 Blue Box Steward Funding Obligation

The Resource Productivity and Recovery Authority (RPRA) has set the 2019 Blue Box Steward Funding Obligation at $126.4 million. The Blue Box Steward Funding Obligation is the total amount that stewards must pay to municipalities for the Blue Box Program.

Despite strong, long-standing documented protests from municipal governments, RPRA has again used a theoretical model of municipal costs as a key input into the calculation of the Obligation. This model discounts verified municipal costs for 'inefficiency' under the "Cost Containment" heading. This deduction from reported verified costs from the datacall has increased to $23.8M from $15.8M last year. We have continued to advocate for payment to be calculated as per the decision in the 2014 Arbitration between AMO/City of Toronto and Stewardship Ontario where municipalities were paid 50% of our net verified cost from the Datacall (i.e. actual municipal costs). RPRA (formerly WDO) used the Arbitrator's method in 2015 to determine the Steward Obligation. If the Steward Obligation had been calculated this year using the Arbitrator's method it would have been $131.2M – a difference of $4.8M.

Attached below is a summary of the Steward Obligation calculation from RPRA:

2019 Steward Obligation (2017 Data Year)	
Reported Gross Cost	**$355,134,163**
Plus 55% of InKind Linage	$2,156,414
Less Non-Obligated	-$221,770
Less Cost Containment	-$23,800,135
Total Gross Cost	**$333,268,672**
Less 3 Year Average Revenue	-$95,697,012
Plus 100% of Prior Year Adjustments	$865,415
Total Net Costs	**$238,437,075**
50% of Net Costs	$119,218,537
Plus Steward Cost Containment	$7,153,112
2019 Steward Obligation	**$126,371,650**

AMO, Toronto, RPWCO and MWA will be reviewing RPRA's decision on the Obligation to determine if a formal dispute process should be invoked.

Blue Box Program Update

Transitioning the Blue Box program to full producer responsibility remains a key priority for municipal governments.

As you know, Stewardship Ontario did not submit the amended Blue Box Program Plan to then Minister of the Environment and Climate Change. In light of the concerns raised with the Plan by a broad range of stakeholders, Stewardship Ontario instead requested further time to re-work the Plan.

We have met with Stewardship Ontario several times to discuss some of the operational items that needed to be resolved. An area of focus has been terms and conditions for collection contract standards.

Additionally, the Municipal Resource Recovery and Research Collaborative (M3RC) has continued to work on a regulatory framework for paper products and packaging under the Resource Recovery and Circular Economy Act, 2016 (RRCEA). A draft framework will be made available early this fall for feedback.

WEEE Update

As a reminder in February 2018, then Minister of the Environment and Climate Change issued direction to Ontario Electronic Stewardship to wind-up the Waste Electrical and Electronic Equipment (WEEE) Program on June 30, 2020. We are in the process of drafting comments on the new regulation for municipal feedback. More information will be provided shortly.

It is our understanding that some producers may be advocating that the government rescind this wind-up letter as they see no concerns with the current program. Municipalities remain committed to ensuring all of these programs are transitioned to the RRCEA as soon as possible to ensure better oversight, increase efficiencies and improve outcomes.

Used Tires

The Used Tire Program continues on-target to wind-up on December 31, 2018 with the new regulation coming into force on January 1, 2019. The RPRA Registry is now operational and PROs and producers have begun to register. Here are the timelines for registration:

Activity	Deadline
Tire producers must register with the Authority and pay the required registry fee.	August 31, 2018
PROs are required to register and pay the required registry fee within 30 days of being retained by a producer. PROs are encouraged to register in advance of producers so that a producer can identify its PRO when the producer registers.	
Service providers, including tire collectors, haulers, retreaders and processors, must register with the Authority. Service providers will not pay registry fees in 2018.	October 31, 2018
Producers must report: • The collection sites in their system • The tire haulers, retreaders and processors in their tire collection or management system	November 15, 2018

AMO will be establishing a webinar in September to allow the various PROs to provide municipalities with information on what to expect under the new framework.

MHSW Update

As a reminder, in April 2018, then Minister of the Environment and Climate Change issued direction to Stewardship Ontario to wind-up the Municipal Hazardous or Special Waste Program (MHSW) on December 31, 2020. AMO is in the process of drafting comments on the new regulation for municipal feedback. More information will be provided shortly.

In the meantime, we encourage staff from rural and smaller municipalities to provide feedback to the Local Authority Services (LAS) Rural Household Hazardous Waste Survey that went live last week. Responses from this survey (https://www.surveymonkey.com/r/CXZQ66F) will assist them in building the research for their feasibility study. For more information, please contact Nicholas Ruder at nruder@amo.on.ca.

Demand the Right

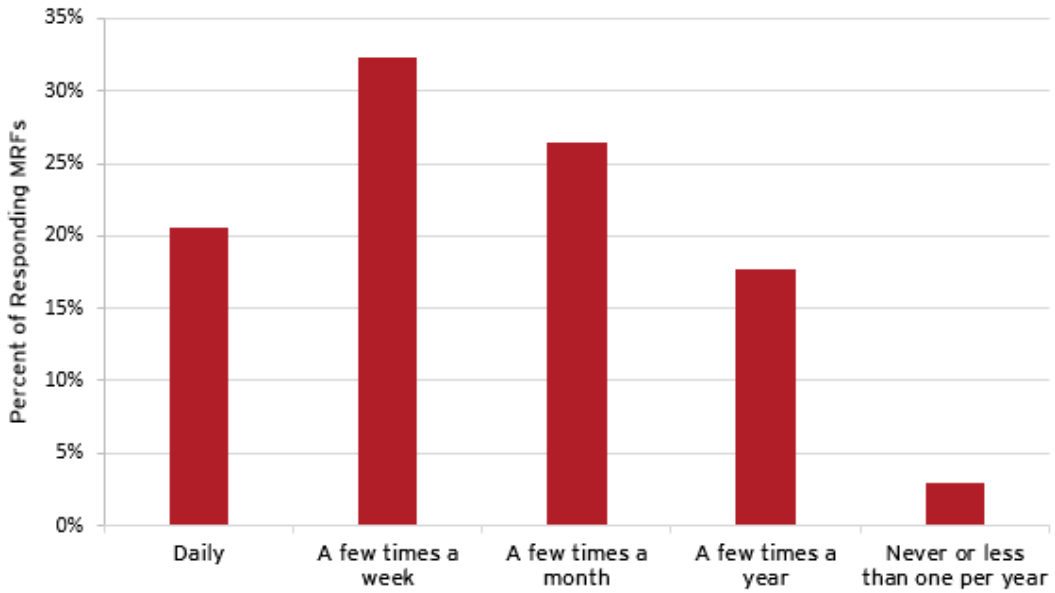
As part of the last legislative session, a private member's bill was put forward titled Bill 16, Respecting Municipal Authority Over Landfilling Sites Act, 2018. Essentially the legislation provides municipalities with the ability to reject proposed landfills' expansions or new landfill developments within their boundaries. Over the last few months, it is our understanding that ~80 resolutions have been approved by municipalities supporting this ability and each of the parties was asked their position during the election (http://www.ingersolltimes.com/2018/05/29/campaign-for-municipal-say-in-landfill-approval-is-taking-hold-and-has-support-of-pc-leader).

We are looking at how this item is aligning with other municipal interests. It is not clear how the new government might address this issue but we will keep you updated as we have discussions with them.

EREF Study Suggest That Needles Are Regularly Observed At Mrfs.

Over half of survey respondents (53%) reported seeing needles daily or a few times a week.

Reported Frequency of Needle Observations at MRFs



Needlestick injuries are a serious risk to waste industry workers, especially in MRFs where sorting recyclables on picking lines and similar activities can put employees in contact with sharps and, as a result, blood borne pathogens. Historically, exposure to these materials and the rate of incidences associated with them at MRFs has not been well documented, though it has been suggested anecdotally in the industry that the rate has increased in recent years.

The Environmental Research & Education Foundation (EREF) and the Solid Waste Association of North America (SWANA) conducted a joint research project to determine and address the issue of needlestick injuries at Material Recovery Facilities (MRFs) in the United States and Canada.

CIF Explores Curbside Contamination Reduction in Barrie

Curbside contamination consists of unsolicited materials (e. g., a running shoe in the Blue Box) and solicited materials that are too contaminated to process (e. g., newspaper soaked in motor oil). Contamination in single-stream and two-stream collection systems creates processing challenges at the MRF and increases disposal costs, resulting in higher program costs. By contrast, minimizing contamination in loads delivered to a MRF helps reduce processing costs and improves the marketability and revenue for sorted recyclables.

The study undertaken in the City of Barrie included the following steps.

1. Material was collected in a routine manner on a typical two-stream blue box route with the regular driver (Normal Sort).
2. Material collected was sorted and weighed to determine contamination present in fibre and container streams during normal operations. On average the collection vehicle was stopped for 19 seconds at each home.
3. At a later date on the same route and with the same driver, the driver applied additional effort to leave contamination at the curb. On average, stop time increased from 19 seconds to 52 seconds (Additional Sort).
4. Material collected was again sorted and weighed to determine contamination present following the additional sorting effort at the curb. Driver performance was monitored to ensure diligent sorting efforts.

Study findings are summarized below:

Findings	Normal Sort	Additional Sort
Stop time (wheels stopped)	19 seconds	52 seconds
Total contamination set-out1	13.7 % (by resident)	10.8% (by resident)
Contamination after sort at curbside	9.3 % (as received at MRF)	5.2 % (as received at MRF)
Contamination removed by driver (%)	4.40%	5.60%

1If the driver had collected everything

While it is acknowledged that material composition can vary significantly from week to week even on the same route, it is clear that significantly increasing the time available to remove contamination has only a minor overall impact on reducing the level of contamination present at the curb. Removal of contamination from the fibre stream was far more effective than from the container stream. This finding is reasonable given the lightweight and complex packaging used for food and beverages.

Study findings demonstrate that a gain of only 1.2% (5. 6% – 4. 4%) was achieved by more than doubling the time spent sorting at each stop. The additional time spent sorting would significantly increase curbside collection costs.

It is concluded that additional curbside sorting is not a cost-effective strategy to reduce contamination and residue levels at MRFs.

The study findings suggest a standardized program coupled with an appropriate level of curbside due diligence and investment in more robust sortation systems in MRFs may ultimately prove to be the most cost effective strategy rather than trying to achieve artificially low curbside contamination levels. As municipalities and contractors work to adjust to new market expectations, perhaps this is the time to start thinking about what our expectations are of drivers at the curb within the challenging time constraints they currently endeavour to operate under.

Industry Stakeholders Reject Idea of Dual Stream Shift

MRF Summit attendees cited concerns about major system changes, including confusing residents and disrupting existing collection systems.

During a MRF Summit at WASTECON 2018 last month, more than 170 industry stakeholders gathered to gauge whether there was interest in moving away from single stream recycling.

WASTECON is the Solid Waste Association of North America's largest event. This year's conference was held in Nashville.

During the summit discussions, attendees cited concerns about major system changes, including confusing residents and disrupting existing collection systems. According to a Resource Recycling report, the majority of single stream programs use automated trucks, whereas dual stream programs largely use non-automated vehicles. And the automated collection factor brought up some safety implications.

Debates pitting single-stream versus dual-stream recycling have gained steam in recent months. But in a recent gathering of key stakeholders, the consensus was to stick with single-stream systems.

The forum was one of several group discussions at the MRF Summit hosted at WasteCon 2018 last month. Together, breakout groups made up a session titled "Facing the Music – Are We All Listening to Different Tunes?" After the three concurrent discussion sessions, members of each reported on their results to the wider audience.

Facilitated by Nat Egosi of RRT Design & Construction and Michael Timpane of Resource Recycling Systems (RRS), one breakout group sought to gauge whether there was widespread interest in moving away from single-stream recycling. The topic has received more attention in recent months, including in multiple Resource Recycling articles, as communities try to weather the downturn in recycling markets.

Their conclusion? The group responded with "a unanimous no,"

Vietnam Declines To Issue Permits

Vietnam has seen a major increase in plastics imports this year, but last month, the government there announced it would no longer grant new licenses for waste material imports, according to state media.

The move came shortly after a press conference held by customs officials in the country during which they described backlogs at ports and growing volumes of stalled containers of recyclables.

The country's scrap plastics industry is reeling from the import restrictions. A handful of media reports covered a recent meeting of the Vietnam Plastic Association, where industry representatives expressed major concerns over the recent reduction in import volumes.

Company officials described the shortcomings in domestic collection, which make domestically sourced material harder to use. They also noted quality requirements have increased and that imports have not been able to meet the new demands.

According to notes from another recent Vietnamese government press conference, officials are "also expected to suggest a reduction in the volume of waste imports and a waste import ban in the future."

Thai Scrap Ban Permanent

Two months after Thailand enacted an immediate prohibition on scrap plastic and e-scrap imports, the country's government has released its longer-term plans.

Thailand has experienced a massive increase in scrap material imports this year, particularly on the plastics side, after many exporters in other countries lost the ability to sell that material into China. When the Thai government took action to stem the influx in June, it also stated that the country would be looking at a long-term policy to permanently ban e-scrap and scrap plastics from import.

Now, that policy appears to be taking shape. The Nation, a Thai news outlet, recently reported on a meeting between a handful of regulatory agencies, at which the long-term ban was discussed. According to the report, the agencies passed a resolution that will completely ban scrap plastic imports within two years.

"I have no doubt that the recycling of plastic waste and used electronic parts are profitable businesses at the moment," Natural Resources and Environment Minister General Surasak Kanchanara said, according to The Nation. "Some business operators may make a lot of profit from the recycling industry, but what will the country gain from their prosperity when our environment becomes polluted and the people suffer?"

Thai plastics recycling companies are concerned that the two-year period is too short a time period for implementation, according to the report. Their concern suggests that, despite the June prohibition, scrap plastic is still entering the country. Industry representatives have noted that imported scrap plastic is of higher quality than domestically generated material, and they say it is cheaper as well.

But the environment minister stated that continuing to import plastic loads will prevent developing a domestic scrap plastics collection system and that without action, "the already-severe waste problem in the country could aggravate."

According to Thai customs data, the country imported 757 million pounds of scrap plastic from January through June, substantially higher than the 118 million pounds it imported during the same period in 2017.

Taiwan To Regulate Imports

Like other Southeast Asian nations, Taiwan has seen a large increase in scrap material imports this year. But unlike other countries, Taiwan has had a fairly unregulated scrap import system.

But more government attention may be coming, according to the Taipei Times.

The newspaper reported on a Taiwanese news conference held by that country's Environmental Protection Agency on Aug. 13, during which the large-scale import influx was discussed.

According to Taiwanese trade statistics reviewed by Resource Recycling, Taiwan imported 433 million pounds of scrap plastic from all countries during the first half of 2018, up from 171 million pounds during that period in 2017.

According to the newspaper report, officials at the conference explained that "domestic firms do not need to apply for government approval to import waste plastics and paper, because they can be used as industrial materials, but with the increasing volumes, the quality has degraded, while prices for domestic recycled waste have plunged."

To remedy the growing problem, the Taiwan Environmental Protection Agency drafted regulations that will restrict imports.

Under the proposed changes, local firms can only import scrap plastics that originate from their own overseas production processes, the agency said, adding that nothing should be mixed with "other waste." Importers will also need to have proper licensing to bring in material. Scrap plastic imports would be greatly reduced.

City Of Victoria Pushing For B.C.-Wide Ban On Disposable Plastic Packaging

Victoria introduced its ban on single-use plastic bags at store checkouts on July 1. Shops have until the end of the year to use existing stock.

Victoria is asking the province for a province wide ban on disposable plastic packaging.

“If the province takes a leadership role, each municipality doesn’t have to spend time working through developing their own bylaws,” said Victoria Mayor Lisa Helps.

The city’s resolution on plastic packaging is one of seven Victoria has put to the annual Union of B.C. Municipalities conference, which begins in Whistler on Sept. 10.

“Victoria has been on the leading edge in Canada in terms of the nature of our bylaw but our hope with the UBCM resolution is that that the province can take up the charge,” said Helps.

Victoria banned single-use plastic bags at store checkouts on July 1. Shops have until the end of the year to use existing stock.

Victoria’s ban was intended to try to reduce the approximate 17 million plastic bags that end up annually at the area’s landfill — but “taking care of the environment is a provincial issue,” she said.

The single-use plastics resolution asks the province to work with local governments and retailers, noting Victoria worked with industry for two years before the introduction of its bylaw. “Unrestricted use of disposable plastic packaging is inconsistent with the values of British Columbia residents,” says the resolution, which cites any type of disposable single-use plastic packaging.

Saanich is drafting a report on the next steps toward considering its own ban single-use plastic bags, based on the Victoria model.

On June 8, Prince Edward Island passed legislation to prohibit businesses from handing out single-use plastic bags — a law that resembled the plastic-bag bylaw in Victoria, said the Retail Council of Canada. The law comes into effect next year.

Victoria’s ban was upheld by the B.C. Supreme Court after a challenge by the Canadian Plastic Bag Association which argued the city does not have jurisdiction under the Community Charter to prohibit businesses from providing plastic bags to their customers — suggesting it’s an environmental regulation that needs provincial approval.

Chile Bans Plastic Bags

On August 3rd, Chile officially promulgated the “Prohibition of Plastic Law”, forbidding all supermarkets and shops in the country to provide plastic bags to customers. Chile will thus become the first country in Latin America to comprehensively ban merchants from supplying plastic bags to shoppers. Chilean President Piniella sent out environmentally friendly bags to pedestrians in the center of the capital Santiago to celebrate the official promulgation of the “Prohibition of Plastic Law”.

Starting from August 3rd, 2018, supermarkets, shopping malls and department stores nationwide will be allowed for a six-month grace period. According to the “Prohibition of Plastic Law”, small and medium-sized micro-businesses will be given a two-year grace period, during which two plastic bags can be supplied to each shopper. Effective August 3rd, 2020, plastic will be comprehensively "banned” in Chile.

Korea Effectively Bans Plastic Bags

In order to comprehensively solve the problem of rejecting discarded plastics, the Ministry of Environment of Korea will implement a 40-day legislative notice on the relevant legal amendments since August 2, and will comprehensively ban the use of disposable plastic bags in shopping malls and supermarkets from the end of the year, transforming from "prohibiting the free use" to the "completely banning it". More than 11,000 supermarkets and more than 2,000 large-scale shopping malls will only provide customers with garbage bags with measurements, empty paper boxes and green shopping bags in the future.

New Zealand, Comprehensively Banned The Use Of Disposable Plastic Bags.

According to a report of Singapore's "Lianhe Zaobao", New Zealand announced on the 10th that it will gradually ban the use of disposable plastic shopping bags in 2019, and take a "meaningful step" to reduce pollution.

New Zealand Prime Minister Ardern pointed out that New Zealand uses "hundreds of millions" of disposable plastic bags every year, most of which will eventually harm marine life. If there is no change, it means that by 2050, there may be more plastic than fish in the ocean.

She said: "We have to manage garbage more intelligently. This is a good start... We are gradually phasing out disposable plastic bags to better care for the environment and protect New Zealand's reputation for cleanliness and environmental protection."

It is known that 41 countries around the world have adopted taxation measures to curb the use of disposable plastic bags, including Ireland and South Africa.

Ocean Plastics-Eating System On Its Way To World's Biggest Waste Hotspot

The Ocean Cleanup system has been deployed 1200 nautical miles off the shore of San Fransisco, reports Dutch inventor Boyan Slat. The 24-year old came up with the solution he claims will get rid of 90% plastic waste swirling around in the 'Great Pacific Garbage Patch' by 2040.

"System 001" developed by Dutch eco-pioneer Boyan Slat is currently en-route from the San Francisco Bay to the world's largest marine waste hotspot situated halfway between Hawaii and California. The floating system is being towed by the vessel Maersk Launcher, which will remain at the final destination as an observation post for several weeks.

The Great Pacific Garbage Patch contains an estimated 1.8 trillion pieces of plastic, and covers an area twice the size of Texas. According to Slat, the first plastic will be collected and returned to land within 6 months after deployment.

‘This will mark the first time that free floating plastic will have been successfully collected at sea,’ he comments. The Ocean Cleanup plans to recycle the material into high-end products and use the proceeds to help fund its future clean-up missions.

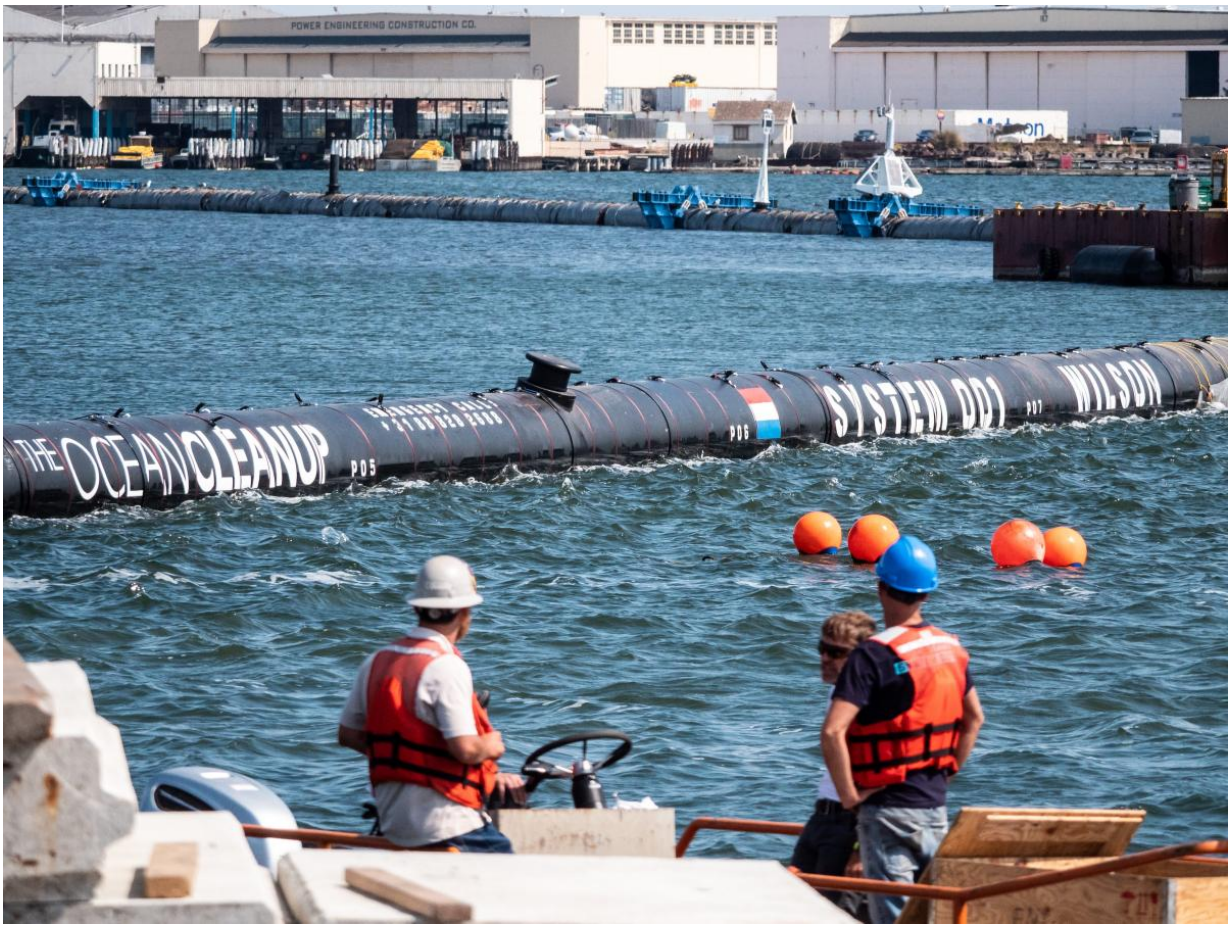
The young entrepreneur explains that a secondary goal is to collect performance data to improve the design for later deployments. For instance, the system is equipped with solar-powered and satellite-connected sensors, cameras and navigation lights to communicate the position of System 001 to passing marine traffic, and enable extensive monitoring of the system and the environment.

The Ocean Cleanup aims to scale up to a fleet of approximately 60 systems focused on the Great Pacific Garbage Patch over the next two years. Slat believes that the full fleet can remove half of the plastic in the area within five years’ time.

Finally deploying the waste collection system is ‘an important milestone’, Slat realises. ‘But the real celebration will come once the first plastic returns to shore. For 60 years, mankind has been putting plastic into the oceans; from that day onwards, we’re taking it back out again,’ he said at the San Francisco ceremony.

System 001 consists of a 600-meter-long (2000 ft) U-shaped floating barrier with a three-meter (10 ft) “skirt” attached below. Slat emphasises that the system is designed to be propelled by wind and waves, allowing it to ‘passively catch’ plastic debris. Due to its shape, the debris will be funnelled to the center of the system. Moving slightly faster than the plastic, the system will act ‘like a giant Pac-Man’, skimming the surface of the ocean.

More than US$ 20 million has been invested by various parties to kick-start development of the system. Boyan Slat first came up with the idea in 2013, when he was 18 years-old and was studying at Technical University Delft in the Netherlands.



Plan To Eliminate Waste Presented To UK Government

A UK university and a group of bottled water and soft drink manufacturers have presented a report to the British government that aims to eliminate plastics packaging waste from the value chain by 2030.

The independent report, which was developed by The University of Cambridge Institute for Sustainability Leadership (CISL) and the Future of Plastic Packaging Working Group*, is said to be the first of its kind and is set out to encourage other industries and countries to create their own systemic roadmaps and visions to eliminate plastics packaging waste.

Eliot Whittington, director of policy at CISL, said: “It is clear that the bottled water and soft drinks sectors are showing commitment to finding a solution to the plastics packaging waste problem and are grappling with the real challenges of doing so.

“The report we have released today with leading companies from these sectors aims to provide a clear, strategic and ambitious roadmap for transformation of their value chain in the UK, enabling real impact and action on this problem and spurring the sector forward into a new way of operating. We are now seeking to convene working groups to deliver on the four pathways set out in the report and encourage organisations and experts interested in eliminating plastics packaging waste to join them.”

The key actions and aspirations include a commitment from producers to make all bottled water and soft drinks packaging from 100 per cent recyclable or reusable material and aim for at least 70 per cent recycled material by 2025, and for producers and Government to investigate the optimal material for future plastics packaging to eliminate plastics waste, while ensuring the lowest overall environmental impact.

The report also suggests that research be conducted into consumer behaviour to support recycling ambitions towards achieving a ‘circular economy’ for plastics packaging, and for the government to create a consistent nationwide recycling system and reinvest revenue from new policies into UK recycling, sorting and reprocessing capacity.

The roadmap provides a timeline for working towards the goal of transitioning towards a more circular economy for plastics soft drinks packaging, where plastics packaging use is reduced wherever possible and otherwise is reusable or recovered and recycled.

Many Good Reasons for Liquid Dairy to Switch to PET Packaging

Globally, the use of PET as a packaging material is expected to continuously grow within the liquid dairy sector. Traditionally packaged in carton or HDPE containers, liquid dairy products bottled in PET are forecasted to grow by 4.4 per cent in the period from 2018 to 2020. With 13.7 billion package units today, PET-packaged products are estimated to reach 14.9 billion units worldwide in 2020. The adoption of PET started in Europe nearly 20 years ago and has been deployed worldwide now, for chilled and ambient distribution drinks, for UHT milk, flavoured milk, or soy milk. The trend is even bigger around on-the-go formats than around family formats. In fact, the bottle sizes up to 500 ml represent more than two thirds of those PET packages, meaning 8.3 billion units in 2018, projected to reach 9.6 billion units in 2020.

When packaging liquid dairy products like white milk, flavoured milk, enriched milk, plant milk, soy milk, or drinking yogurt, multiple variables can influence their quality, including microorganisms, light, oxygen, and temperature. The PET growth can be credited especially to this packaging material's 100 per cent recyclability, its excellent barrier properties and its neck and cap tightness that ensures food safety. Moreover, from transparent to opaque solutions, PET packaging alternatives can ensure top product protection and quality, while delivering the expected shelf life without need for aluminium foil for a more sustainable business.

For instance, LSDH France launched its UHT white milk in PET bottle without aluminium foil in 2007. In Brasil, Jussara switched its UHT white and flavoured milk production from carton to PET, for family and on-the-go bottle formats. Later on, this Brazilian company also launched a range of on-the-go, lactose-free products. In China, the world's number one liquid dairy producer, Yili has released its six-month-shelf-life premium drinking yogurt in PET bottles.

It is important to highlight that PET barrier solutions ensure product safety across the supply chain, with good oxygen barrier properties, 15 to 30 times higher compared to monolayer and three-layer HDPE (High Density Polyethylene). Regarding light protection, this is achieved through different preform manufacturing technologies and their light blocking capabilities. One of them is the injection of monolayer preform, using a standard injection tool system, mixing PET material with master batch from various suppliers. The other one is the multi-layer preform, which can be produced using either over-moulding or co-injection technologies. Those barrier solutions are adjustable in terms of additives and weight according to product recipe, bottle size, and the desired extended shelf life to be achieved.

For any product type or package format released on the market, PET packaging gives the opportunity to attract consumers with great brand differentiation, due to the bottle design freedom offered by the Injection Stretch Blow-Moulding (ISBM) technology and by the inherent and geometric properties of the PET raw material itself. Round or square, asymmetric or with specific handling, its high marketing potential opens up virtually unlimited possibilities to design whatever premium or affordable package. While providing a unique communication platform for brands – that are increasingly using labels or the container itself to engage with their consumers – PET bottles are also allowing users to see the content inside, thanks to their transparency. Easy to open and handle, it is a functional and convenient type of package leading to a great consumer experience.

As market demands are quickly changing, shifting from standard bottle size towards smaller packages, PET offers sheer endless possibilities to enhance production flexibility with simple and easy changeovers on the production line, while refreshing the brand of a complete bottle family from large to on-the-go formats to answer every need. Sidel can help in designing a unique and ergonomic bottle in line with dairy brands' requirements. We can evaluate PET bottle strength and performance across the supply chain: through laboratory tests under real production and supply-chain conditions, we determine the most suitable packaging designs, PET barrier solutions, sizes, shapes, caps, and filling volumes.

In this industry, production flexibility is particularly key in terms of product recipes, bottle formats and shapes, cap and label applications: all of that without compromising on high line efficiency over time. Low- and high-acid products can be bottled on the same Sidel Aseptic PET packaging line, from 0.2-litre to two-litre formats. Bottles can be sealed with standard flat caps or sport caps from 28 mm to 38 mm, including the possibility to add specific over-caps, to further differentiate the bottles. To ensure a

reliable and efficient production, the line is designed to offer maximum flexibility with reduced downtime for product changeover s, and a simple three-hour cleaning and sterilization period between bottle-to-bottle productions.

Working as a versatile marketing tool, the PET bottles offer many possibilities when it comes to decoration. On top of roll-fed labels or sleeve labels, a complete sleeve covering the cap can also be used, as such increasing the communication-facing surface. The same bottle shape can be customized with different cap colours and label decorations, in order to easily multiply the SKUs with minor changes in the production process. Adaptable to niche markets or mass production, the Sidel Aseptic PET complete lines are optimized from low- to high-speed outputs, with a range spanning from 10,000 to 60,000 bottles per hour, according to the forecasted production volumes.

Starting from a raw material perspective, PET is the most affordable plastic available on the market, with prices that remained quite stable over the past ten years. In the PET market, the offer exceeds the demand and preform suppliers are available worldwide, both aspects contributing to a competitive supply chain.

It is also notable that the right-weighting potential in PET bottles is huge, as the water industry largely demonstrated. For example, the average weight of a one-litre PET bottle for UHT milk is 24 g, whereas a HDPE bottle for the same application weighs between 28 and 32 g, with no possibility for lightweighting. With the good neck and cap tightness, the sealing does not require aluminium foil; consequently dairy manufacturers have less raw material and less equipment to acquire. Using no water and almost no chemicals, the Sidel Aseptic Combi Predis globally contributed to save seven billion litres of water and 57,000 tons of PET, while producing a staggering 46 billion bottles.

Quantifying Environmental Benefits Of Recycled Plastic

Researchers have calculated substantial upsides from making products out of recycled PET, HDPE and PP instead of prime plastics.

For example, using RPET may generate half the greenhouse gas emissions (GHG) of virgin plastic, according to preliminary data released by Franklin Associates. The reductions may be even greater for recycled polyolefins.

APR on Aug. 21 held a webinar to unveil preliminary results from the research. Initiated about 18 months ago, the project involves updating and expanding on PET and HDPE research Franklin Associates released in 2010. For the 2018 update, Franklin Associates, a division of Eastern Research Group, also looked at recycled PP for the first time.

The research investigated GHG emissions from “cradle to gate,” including collection, transportation, sorting and processing into flake or pellet. Franklin Associates didn’t attempt to study impacts associated with manufacturing finished products because of the wide variety of products made from plastics and their varying environmental impacts.

Bev Sauer, senior project manager estimated that if a food and drink packaging manufacturer ditches virgin plastic in favor of “solid-stated” RPET pellet, it would cut GHG emissions by about half (solid-stated means the plastic has been decontaminated for food contact and its intrinsic viscosity boosted). “And for HDPE and PP, it’s looking like the savings are even greater, in the range of 65 to 70 percent,” Sauer said.

The most important part of the analysis was collecting data from plastics reclaimers, Sauer said. Her company gathered detailed information from seven PET reclaimers, five HDPE reclaimers and three PP reclaimers.

The work found that the majority of greenhouse gases generated within the recycling chain come via the reclaimers. For food-contact PET, nearly 90 percent of their gases were associated with reclaimer operations. For HDPE and PP pellet, 70 to 75 percent were generated by the processing steps. PET was higher because of the additional environmental impacts from the decontamination steps, she said.

Lego Wants to Completely Remake Its Toy Bricks (Without Anyone Noticing)

At Lego, petroleum-based plastics aren't the packaging, they're the product — and the bricks making up these dinosaurs have barely changed in more than 50 years.

In its research lab, though, Lego is trying to refashion the product it is best known for: It wants to eliminate its dependence on petroleum-based plastics, and build its toys entirely from plant-based or recycled materials by 2030.

The challenge is designing blocks that click together yet separate easily, retain bright colors, and survive the rigors of being put through a laundry load, or the weight of an unknowing parent's foot. In essence, the company wants to switch the ingredients, but keep the product exactly the same.

Consumers worldwide have voiced growing alarm about the impact of plastic waste on the environment, and increasing numbers of companies are trying to use packaging materials that are recyclable or otherwise less polluting. Coca-Cola, for instance, plans to collect and recycle the equivalent of all the bottles and cans it uses by 2030. Unilever, the consumer goods giant, says all its plastic packaging will be recyclable or compostable by 2025. Others, like McDonald's and Starbucks, are doing away with plastic straws in their outlets.

The toymaker's highly automated manufacturing facility is a picture of clock work. At a mammoth factory more than 500 yards long, machines arranged in rows melt plastic pellets into a molten paste and press them into molds. A few seconds later, a batch of colored bricks pops out, and is deposited into driverless carts, taken to be stored for shipment. Each day, the facility churns out about 100 million "elements," the term Lego uses for the bricks, trees and doll parts it sells.

Lego — the company's name is a contraction of the Danish words for "play well" — traces its roots back to the early 1930s, when a carpenter named Ole Kirk Kristiansen began making and selling handsome fire engines and other wooden toys.

By the 1950s, he was experimenting with plastic bricks. His son Godtfred began marketing the distinctive little blocks not just as toys, but as a building system that could be expanded and passed on to later generations. Bricks that date back to 1958 are still compatible with current products, according to Lego.

Today, the company sells its wares worldwide and has secured partnerships with film franchises like Batman and Star Wars to market not just themed brick sets, but movies and video games featuring Lego toys. It brought in 7.8 billion kroner, or about $1.2 billion, in profit last year, making it larger than its American rivals Mattel and Hasbro. The Kirk Kristiansen family, which still controls Lego, was paid a $1.1 billion dividend.

But more and more children are using mobile devices for entertainment, pitting Lego not just against toy makers but against technology and gaming companies like Activision Blizzard, Microsoft and Sony. That has put the company under pressure. Lego said last year that it would cut 1,400 jobs after its revenue and profit both fell for the first time in a decade.

Its heft, however, brings with it a substantial carbon footprint. Lego emits about a million tons of carbon dioxide each year, about three-quarters of which comes from the raw materials that go into its factories.

Lego is taking a two-pronged approach to reducing the amount of pollution it causes. For one, it wants to keep all of its packaging out of landfills by 2025 by eliminating things like plastic bags inside its cardboard packaging.

It is also pushing for the plastic in its toys to come from sources like plant fibers or recycled bottles by 2030.

The problem with that target, though, is that virtually all of the plastic used worldwide — including that molded by Lego into toy bricks — is created from petroleum.

Currently, Lego mostly uses a substance known as ABS, short for acrylonitrile butadiene styrene, a common plastic also used for computer keys and mobile phone cases. It's tough, yet slightly elastic, and also has a polished surface.

To wean itself off products like ABS, Lego has begun an exhaustive search for new, sustainable materials.

It is investing about 1 billion kroner and hiring about 100 people to work on these changes. Technicians methodically test promising materials to see whether they can take a whack without breaking, or survive a hard pull. They are checked to see if they withstand the heat of a Saudi Arabian summer, and take on the bright color palette that Lego bricks are famous for. The company's bricks may look simple, but they are made with incredible precision.

Company researchers have already experimented with around 200 alternatives. Among them, Ms. van der Puil said, was a substance called PLA, one of the few bio-based plastics that are readily available. Lego is also already using polyethylene made from sugar-cane husks in flexible pieces like dragon wings, palm trees and fishing rods, but these constitute only 1 percent to 2 percent of its output, and the material is too soft for the company's toy blocks.

Most test materials, both bio-based and recycled, have so far fallen short. Some bricks made with the new materials have broken, leaving sharp edges that could injure a child, or have popped out with ugly, muddied colors. Others have on occasion produced misshapen or pockmarked bricks.

The search for a substitute for petroleum-based plastic could yet take years of work, Mr. Brooks acknowledged. Still, executives argue that, as a company that models itself as a de facto educator as much as a profitable enterprise, it has little option but to keep trying.

Starbucks Tries To Save 6 Billion Cups A Year From The Trash ... With Help From Mcdonald's

You go to the coffee shop and take your coffee to go. You enjoy your drink, then throw the paper cup in the trash. Or do you put it in the recycling? It's confusing.

A lot of us — people everywhere — are using to-go cups these days.

"A recent report said that there are 600 billion cups — billion with a 'b' — that are produced and sold globally on an annual basis. So that's a lot," says Christy Slay with The Sustainability Consortium.

Starbucks alone says it contributes 1 percent of those disposable cups: That's an estimated 6 billion cups a year.

To help reduce those numbers, Starbucks and McDonald's are launching a three-year project to build a better cup: one that's both fully recyclable and compostable.

Here's the big problem with the paper ones you get there and in other coffee shops. They look like paper, but they actually have a thin layer of plastic on the inside.

That plastic coating keeps the cups from leaking. Problem is, it also makes the cups really hard to recycle, and only a few facilities in the world can do it. These cups also can't be composted.

A few companies have already rolled out compostable coffee cups. But Dylan de Thomas with The Recycling Partnership says there's a problem with those cups too. Typically they're compostable in industrial settings, so not your backyard compost that you and I might have, but at fairly technically advanced composting facilities.

The goal of the plan recently rolled out by Starbucks and McDonald's is to build a paper cup with a plant-based biodegradable liner, a cup that would be more easily compostable and/or recyclable.

Starbucks is calling it a "moon shot" for sustainability, and the coffee giant and McDonald's are also dangling $1 million dollar prize to anyone else who can figure it out.

But even with these companies' vast resources, it's proving to be a really big challenge. Starbucks has already tried out 13 prototypes in the past year.

Starbucks currently gives people a 10 cent discount in the US for bringing their own cup. Paglia says the coffee giant needs to flip that around and charge extra for a disposable one. He says that's the only way to really change our behavior.

The company has been trying that out in the UK.

Christy Slay says if you buy to-go coffee even a few times a week and bring your own cup, "that could have a large impact. If you do that over multiple years, you're talking about a lot of cups."

So as Starbucks and McDonald's work toward their "moon shot" cup, in the near-term, most agree that bringing your own might be the best solution.

Will Carlsberg's Beer Packaging Solution Stick?

Danish beer brand Carlsberg has come up with a novel way to reduce up to 76% of plastic packaging used in multi-packs. Their solution is simple yet effective; glue.

Overpackaging has been a problem for many years now. Especially in the alcohol industry, which was worth approximately US$ 40 billion last year. Analysts believe that secondary packaging market (boxes, multipacks, tubes etc.) will grow at a 'healthy' 5.3% during the forecast period 2017-2025.

So why not embrace the 'less is more' mindset? That's exactly what Carlsberg is doing. The beer brand explains that its fitting called "Snap Pack"completely replaces traditional plastic packaging wrapped around Carlsberg multi-packs with a glue. This substance sticks the cans together like Lego blocks until the consumer removes one from the pack.

The Snap Packs have launched on a trial basis in the UK and Norway this month, says Carlsberg's sustainability director Simon Boas Hoffmeyer. Further rollouts are scheduled for 2019.

Once the packaging solution has been adopted in Carlsberg's 11 global markets, the brewer's plastic packaging waste will be reduced by more than 1200 tonnes a year. 'This is the equivalent to 60 million plastic bags', Hoffmeyer notes.

He adds that the glue should placed into recycling bins alongside the cans, rather than separated.

Norfolk Tops Up Recycling Firm

Norfolk County approved an emergency payment this week to its recycling contractor.

HGC Management recently informed the county that the market for recyclable materials has taken a serious downturn. It's to the point where achieving profitability is a struggle.

Tuesday, Norfolk council agreed to an emergency payment of $50,000. Mayor Charlie Luke noted there is a 90-day exit clause in Norfolk's contract that either party can trigger at any time. Luke said HGC provides good service and that the county wants to keep it on board.

Chris Baird, general manager of public works, said the recycling market is challenging now that China – the main buyer of recyclable materials from North America – has tightened up the rules on what it will accept. Baird added that prices for specific commodities such as cardboard have softened considerably.

China has raised the bar because of recent concerns over the environmental impacts of processing recyclables. China also insists that shipments are clean and free of impurities.

County clerk Andy Grozelle noted that Norfolk's $50,000 payment is the maximum council can make now that it has entered a lame-duck phase. Norfolk council's spending power has been curtailed significantly now that one-third of incumbent council members are about to retire. Provincial regulations prevent municipal councils from making major expenditures once they reach this lame-duck threshold.

Canada Fibers Ltd Seeks Damages From City Of Hamilton

Canada Fibers Ltd. (CFL) has filed a statement of claim with the Superior Court of Ontario asserting damages arising from breach of contract by the City of Hamilton. CFL's decision to file the claim follows over 12 months of negotiations with Hamilton staff that culminated in a recommendation by the City's staff proposing measures to resolve the breach and end the dispute.

Unfortunately, Hamilton City Council has rejected the compromise recommended by staff and made it necessary for CFL to seek a remedy in the courts. CFL said in a press release that it will not be making any further statements concerning the action while it is being heard by the Superior Court.

Canada Fibers Ltd. operates recovery facilities in Canada. Since starting as a Toronto-based paper brokerage in 1990, Canada Fibers now owns and/or operates 13 MRFs in Ontario, serving both municipal and commercial customers.

Emterra Facing More Non Compliance Fines

The fines are adding up as Emterra, the company that picks up trash in Niagara Region, continues to be plagued by delays.

During a recent region's public works committee meeting, members discussed the chronic problems the company has had this summer picking up garbage and recycling.

Waste management services director, Catherine Habermebl says last Monday, the company had 12 drivers call in sick which affected 12 routes, representing about 1,100 stops each.

She says Emterra has only completed collections, on time, seven days between the middle of March and June.

As a result the company is facing fines of more than $600,000 dollars for failing to comply with the terms of their contract which states collection must be completed by 5 pm each day.

Glass And Plastics Being Removed From Recycling Pick Up In Strathcona County

Glass and most plastics are being forced out of blue bag collection in Strathcona County as a result of tightening international recycling markets, even though it means increasing the amount of waste ending up in landfills.

As of Sept. 10, the county will no longer be accepting any glass items, styrofoam, to-go coffee cups and plastic materials — excluding hard plastic containers — in its weekly recycling collection.

This is a response to tougher restrictions on reusable materials accepted globally as spearheaded by China at the end of 2017, said Leah Seabrook, manager of waste management and community energy.

The struggle to meet new marketplace demands conflicts with the global goal to reduce landfill waste where the Strathcona County plastics will now end up.

“It’s not ideal, in the short-term there will be more materials to the landfill,” Seabrook said. “We don’t, unfortunately, have another option.”

But Seabrook said this “crisis” allows for important conversations to make long-term adjustments.

“There’s going to be some solutions that come forward to address how we handle plastics,” she said, noting that many of the county’s 98,000 residents are disappointed in the market changes. “The conversation has shifted to what can we do about it. That’s what we’re focusing on.”

An education campaign was launched in June to notify residents of the impending changes, Seabrook said, and blue bags found with unacceptable or contaminated items will be marked and not collected as of Sept. 10.

Items must be free of food, liquid and any other non-recyclable materials and Seabrook said collectors will be doing quick visual checks to determine if there are noticeable concerns before taking the bags. Glass and large packing styrofoam will only be accepted at the Broadview Enviroservice Station and will no longer be picked up because they are difficult to properly sort if broken.

Nine Dragons purchases West Virginia mill

A United States-based subsidiary of Hong Kong-based Nine Dragons Paper (Holdings) Ltd. has entered into an agreement with Montreal-based Resolute Forest Products Inc. to purchase Resolute's recycled-content bleached kraft pulp mill in Fairmont, West Virginia.

According to a press release issued by Oakbrook Terrace, Illinois-based ND Paper LLC, Resolute will receive $55 million "plus certain elements of working capital, payable in cash" for the mill. Nine Dragons says it plans to use "existing cash on its balance sheet" to fund the transaction.

"We are thrilled to add the Fairmont mill to Nine Dragons' global portfolio," says Ken Liu, CEO of ND Paper. "Our acquisition of the Fairmont mill enables us to further our U.S. and global growth, and sustains the momentum commenced by our recent acquisitions of the Biron, Wisconsin and Rumford, Maine, pulp and paper mills acquired from Catalyst Paper in [May] 2018. Not only is this transaction consistent with our long-term strategy of environmentally-sustainable papermaking, but also it further supports Nine Dragons' company-wide fiber sourcing requirements and global growth initiatives."

The Fairmont mill produces recycled-content pulp used in packaging and tissue products. Located in the northern part of West Virginia, the mill has an annual production capacity of nearly 220,000 metric tons and is one of three pulp mills in the world that produces air-dried recycled pulp, according to ND Paper.

Through the acquisition, ND Paper says it will gain access to high-quality recycled pulp and will diversify its manufacturing base. The company also says it intends to make capital investments in the mill that will "expand its current capabilities and inject growth into the West Virginia economy, particularly in the surrounding community."

Nine Dragons operates nine mills and 39 paper machines with total annual production capacity of more than 14 million metric tons. The company was established in 1995.

ND Paper says it expects to close on the acquisition by the end of October, "subject to customary closing conditions and approvals," and that it has agreed to offer employment to the Resolute mill's workers, "effective upon closing of the acquisition."

ND Paper worked in cooperation with New York-based Sonenshine Partners LLC as its financial advisor and Cleveland-based Jones Day as its legal counsel to structure the acquisition. Toronto-based BMO Capital Markets acted as the financial advisor on behalf of Resolute.

The acquisition occurred within days of another U.S. paper or pulp mill being purchased by an Asian company. In late August, China-based investment group Global Win Wickliffe LLC acquired an idled Verso Paper mill in Ballard County, Kentucky, with plans to reopen the facility by the end of 2018 after investing in equipment and technology at the facility. The mill has been idle since mid-2016.

Boston-based forest products information services provider RISI says sources have indicated to it that Global Win Wickliffe is investing on behalf of Shanying International, one of China's five largest containerboard producers. If so, the mill in Kentucky would be Shanying's first pulp and paper production facility in the United States, according to RISI.

According to a news release issued by the office of Kentucky Governor Matt Bevin, Global Win Wickliffe plans to invest about $150 million to upgrade the mill, following up on its $16 million acquisition of the facility from Verso.

Saskatoon Reveals Potential Costs For 'Pay As You Throw' Garbage Program

The City of Saskatoon is getting closer to having a pay as you throw garbage program in place as part of their plan to reduce waste headed to the landfill.

City administration is proposing changing to a bi-weekly collection of garbage and organics, with no changes to recycling programs.

While there will be several different options presented to city council, administration is recommending the city implements a three-year, phased waste-diversion rate structure.

For the smallest bin (180 litres), the cost may be $18 per month with the price staying the same over the following three years. While for a medium bin (240L), the cost would be $19.70 per month in the first year, increasing to $22.10 monthly in the second year, and $24.50 per month in the third year. A large bin (360L), may cost $22.80 per month in the first year, $29.50 per month in the second year and $36.20 per month in the third year.

Costs do not include a monthly fee of $5.65 for recycling pickup.

The option that administration is recommending is expected to cost the city $13.6 million for the green and black carts, additional trucks and implementing the program. The money would be borrowed against the waste utility, to be paid back over a 10-year period.

This option would also require the city to hire 23 new staff members, with the annual operating costs expected to increase between $10.5 million and $12.7 million above the 2019 submitted budget.

The goal of the program is to reduce waste heading to the landfill by 70 per cent over the next five years.

The city has said if action isn't taken to reduce the amount of waste currently going to the landfill, it would have to be closed and a new one opened at an estimated cost of $150 million.

These changes would apply mainly to single-family units, and not to apartment or condo buildings.

The recommendations still need to be brought forward at city council and no final decisions have been made yet. The city hopes to implement this program in 2019 and have it fully running by 2020.

Ontario to Reduce Cost of Natural Gas

Ontario Premier Doug Ford today announced the removal of the carbon tax from natural gas bills in Ontario. Removing the carbon tax from the cost of natural gas for all consumers is part of the government's promise to lower energy costs for Ontarians.

Removing the Carbon Tax from Natural Gas Pricing

The Province revoked the cap-and-trade carbon tax regulation and prohibited all trading of emission allowances effective July 3, 2018.

Bill 4, The Cap and Trade Cancellation Act 2018, which aims to repeal the carbon tax, was introduced into the legislature on July 25, 2018.

Removing the carbon tax means a reduction of approximately 3.3 cents per cubic metre on the price of natural gas for Ontario consumers.

As of October 1, 2018, natural gas bills will no longer include the carbon tax. Any overcharges for the cap-and-trade carbon tax will be refunded to customers.

Ontario families will save about $80 a year.

Small businesses can expect to save about $285 a year.

The Ontario Energy Board is expected to provide direction to natural gas utilities no later than August 31, 2018, instructing utilities to file new customer rates with the carbon tax charges removed.

How Tool Sharing Could Become A Public Utility

The Challenge: Tools and other equipment have a low frequency use, but are found in many households and therefore represent a high material intensity, underutilised and space occupying item.

The Solution: Consolidate tools from many households into one centralised 'library', giving access to the local neighbourhood on a subscription basis.

What is the unexpected benefits? The libraries have evolved into innovation hubs gathering communities of makers that share design and knowledge; as well as providing training and mentoring for local youth.

The Result: members have access to 7000+ high quality tools; an inspiring and creative workspace and de-cluttered homes.

Why peer-2-peer sharing doesn't always work

Here's one you've heard before: the average drill is used for just 13 minutes in its lifetime. Yet many of us possess our own drill. So what if you could see which tools and toys your friends and neighbours owned, and borrowed from them? It sounds great, and has been a promise of the sharing economy. However according to Ryan Dyment, Founder of the Toronto Tool Library and Sharing Depot, it doesn't quite work like that.

When most people are planning a home improvement job, they don't just need a drill. More often than not, they'll need a range of different tools and supplies. For instance, to make and install a home-made shelf you'll potentially need 10 items including a power drill, circular saw, work table, sander, tape measure, level, drill bit, screwdriver bit, safety glasses and perhaps a ladder. With a peer-to-peer model, this would mean visiting a number of different friends and neighbours, coordinating various pickups and returns, increasing the inconvenience and cumulative transactional cost.

This is one reason why the Toronto Tool Library takes a different approach. Opening its doors in 2012, the library holds an inventory of more than 7000 tools, with citizens able to borrow them according to a number of membership options.

With a $55 annual membership, users can treat the tool library as one stop where they can borrow all the items they need at no extra cost, as well as all manner of nuts and bolts; staples they might need to complete their task. Higher annual tariffs, at $85 and $110, offer longer loans, waiving of fees and access to items from the sister organisation The Sharing Depot, Canada's first 'library of things'.

We encourage our members to think of it as ‘their garage’

How it all evolved

It all started when Dyment saw a video about one of the first tool libraries, which sprang up in Berkeley in the 70s. Being inspired by this model, he pitched it to his team at the Zeitgeist Movement, and a small non-profit was born.

From there, the Tool Library has inhabited different and bigger spaces, but it’s the acquisition of the tools themselves that really highlights the structural waste in the home improvement industry. After moving into an affordable basement property, the first volunteers went around the local neighbourhood looking for tools. The assumption that there were too many unused tools already was proved correct, and the inventory began to grow. Various media attention followed, which stimulated further donations, and Dyment says it got to the point where the phone was ringing off the hook with people saying “please take my tools!” Surprisingly, it wasn’t some cash incentive or discount that led to these donations, but instead the prospect of clearing space in the home, getting rid of a device that had been replaced or upgraded, or simply due to an admiration of the Tool Library vision.

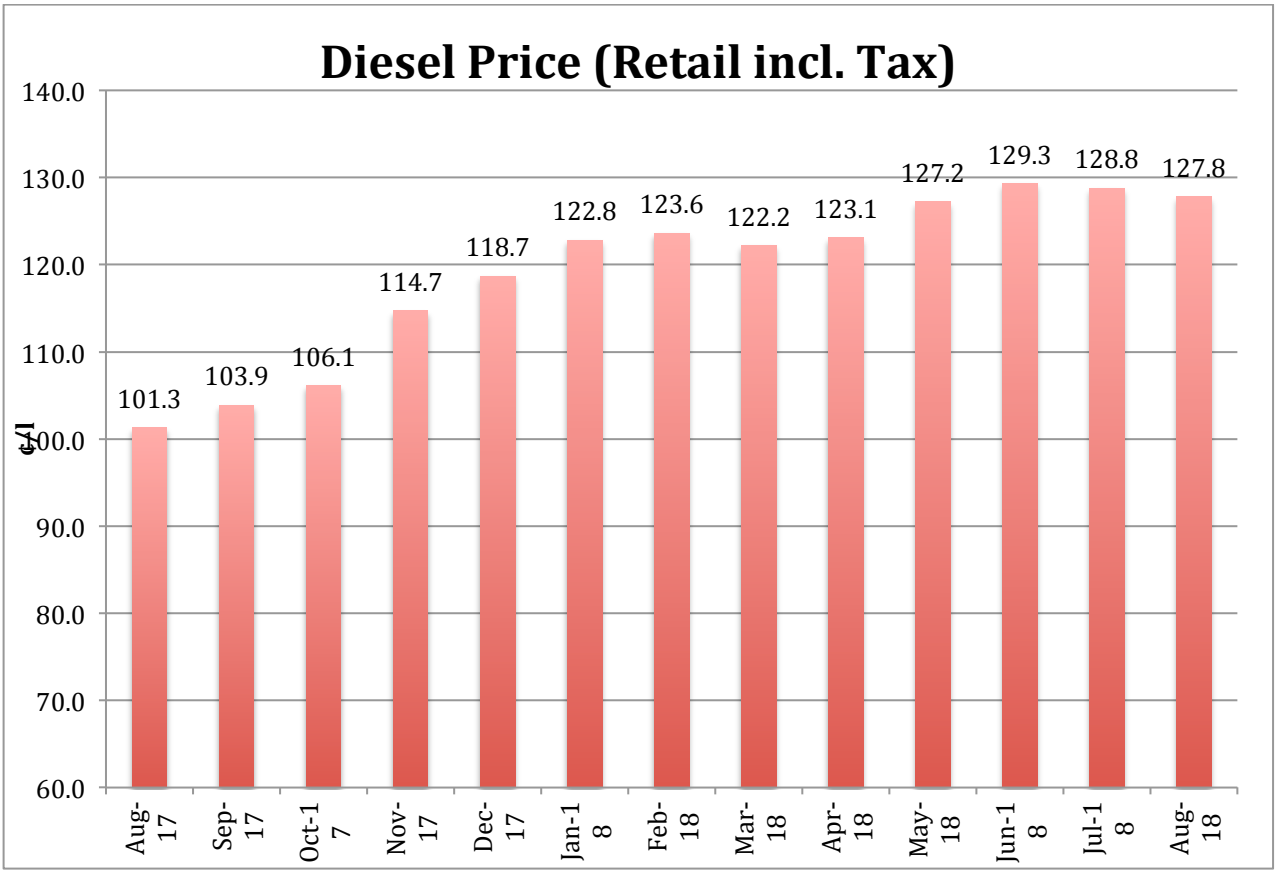
In 2016, the team opened the doors of the Sharing Depot, expanding the type of products available. Here, Torontonians can borrow camping equipment, house party supplies, board games, toys and sports equipment. There’s more to life than DIY after all, and the popularity of this new venture shows that some people aren’t that concerned about owning their toys, as well as tools.

In setting up and scaling the Tool Library, it has been a learning process to find the optimum number of tools required for a community. The team in Toronto need to ask how many jigsaws they need for their members, 80-90% of which live within a 5km radius, to find a balance between reliable availability and overcapacity. So the tool library has 15 jigsaws, and Ryan points out that this is “clearly a small sample of the drills Toronto. There are maybe 1000 times more not being used.” It’s here that the resource savings become compelling.

If we appreciate that most household tools today are vastly underused, then the other side of the coin is that the tools held in the library endure far more intensive use. Ryan explains that equipment is maintained in the ‘tool hospital’, where a crew of passionate volunteers clean, tune up or revive struggling devices. Often tools are tough to open up, tricky to diagnose and spare parts difficult to come by, but Ryan says that more often than not, the team find a solution. When a tool can no longer be put back into use, it’s disassembled and the components salvaged and stored. This in turn supports product life extension, facilitating the repair of similar equipment.

This whole process could be made easier if tools were designed to be treated in this way, and we can look to popular bike sharing schemes for examples of how shared use business models can influence product design. Bikes like those used in cities like London and Paris might not be the most attractive or high performing, but they are designed for utility and intensive use. This means they might be more durable, have fewer moving parts and require less maintenance such as oiling or puncture repair. This approach could be applied to tools too. Right now, if they need to purchase a tool, Ryan and his team simply look for a long warranty, but it’s clear that a better alternative could lie in the application of circular economy thinking at the design phase, with modularity, standardisation and documentation as just some of the opportunities.

It might sound idealistic, but it’s happened before: between 1883 and 1929, for example, some 2,500 libraries were built off the back of investment from businessman Andrew Carnegie. Expanding tool libraries in this way - as a public service and therefore free to access - could have a powerful impact on the way that we make, use and share our stuff.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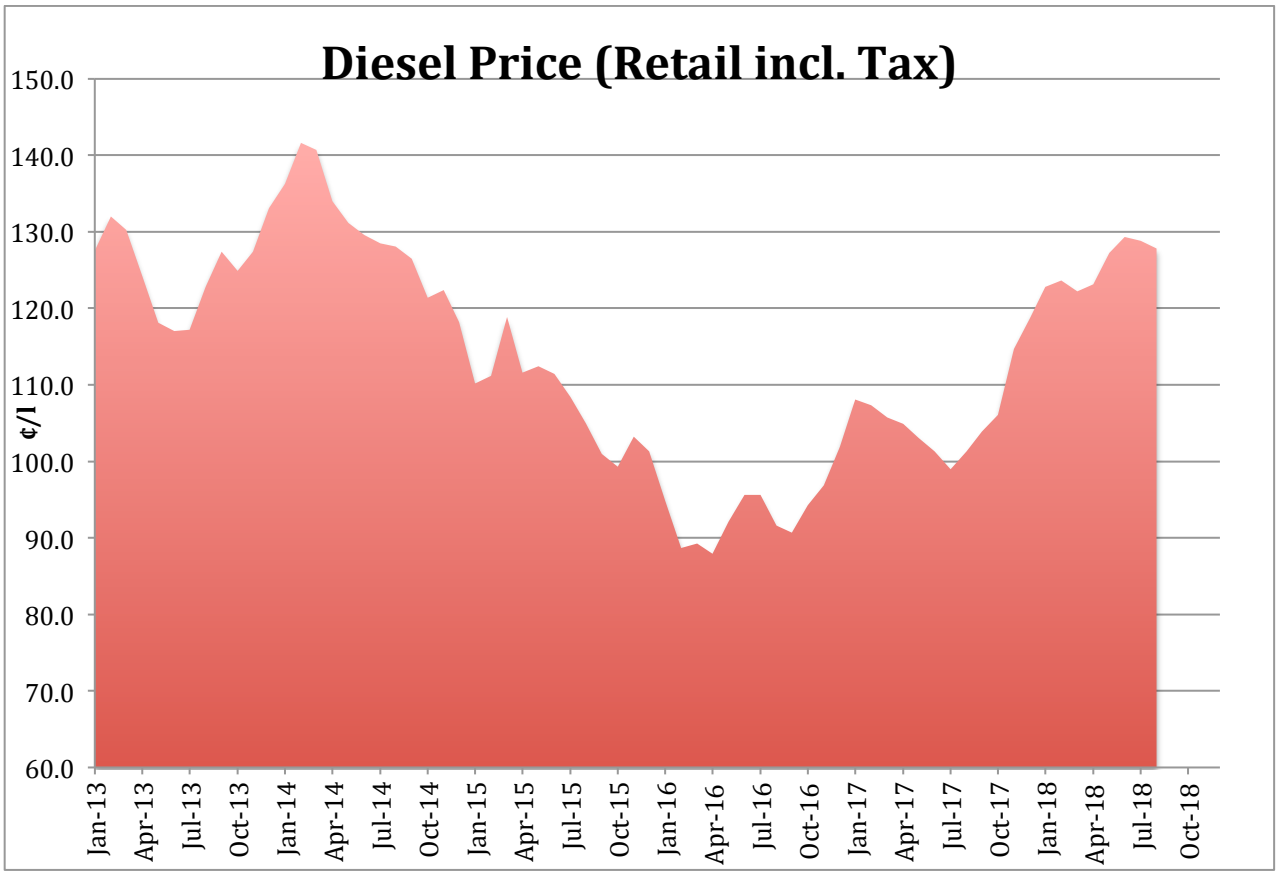
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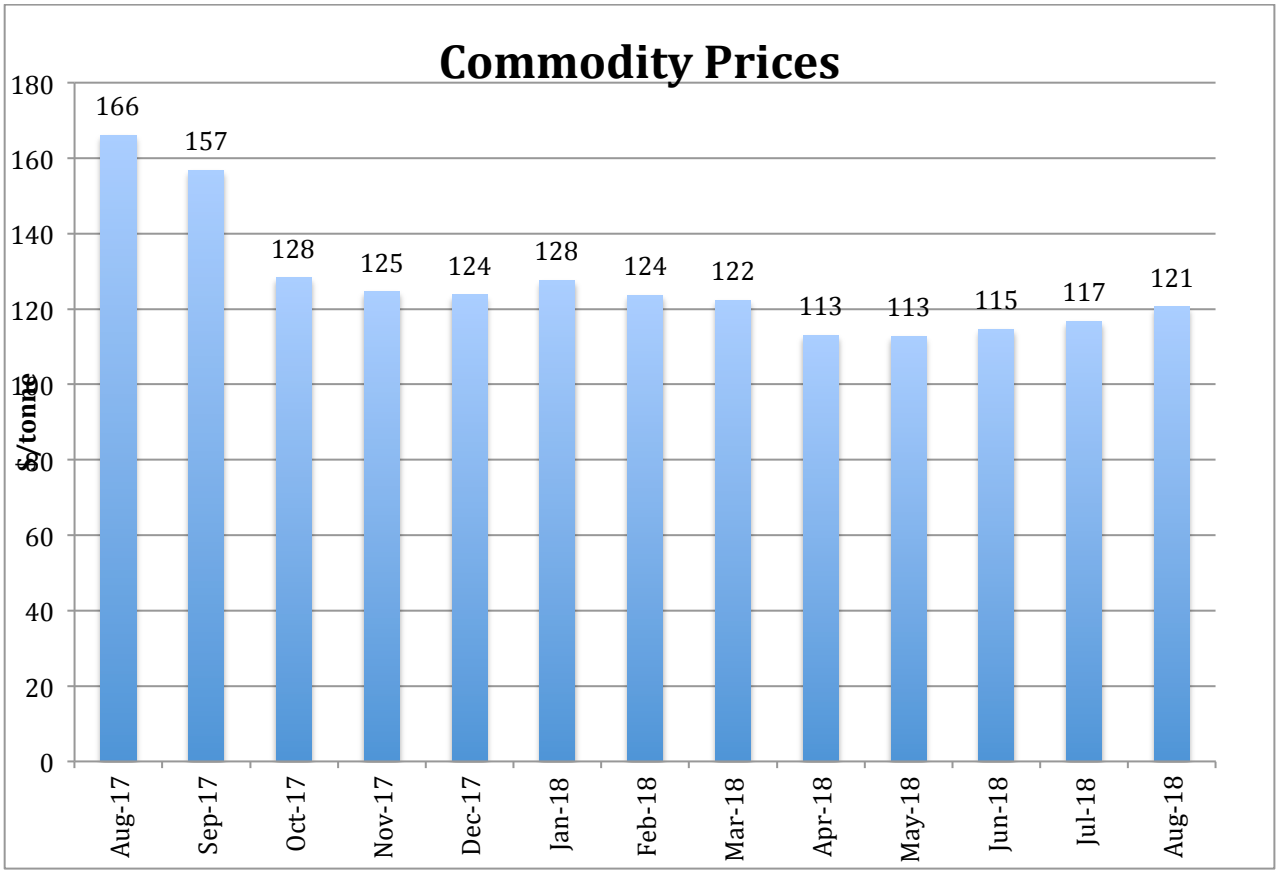
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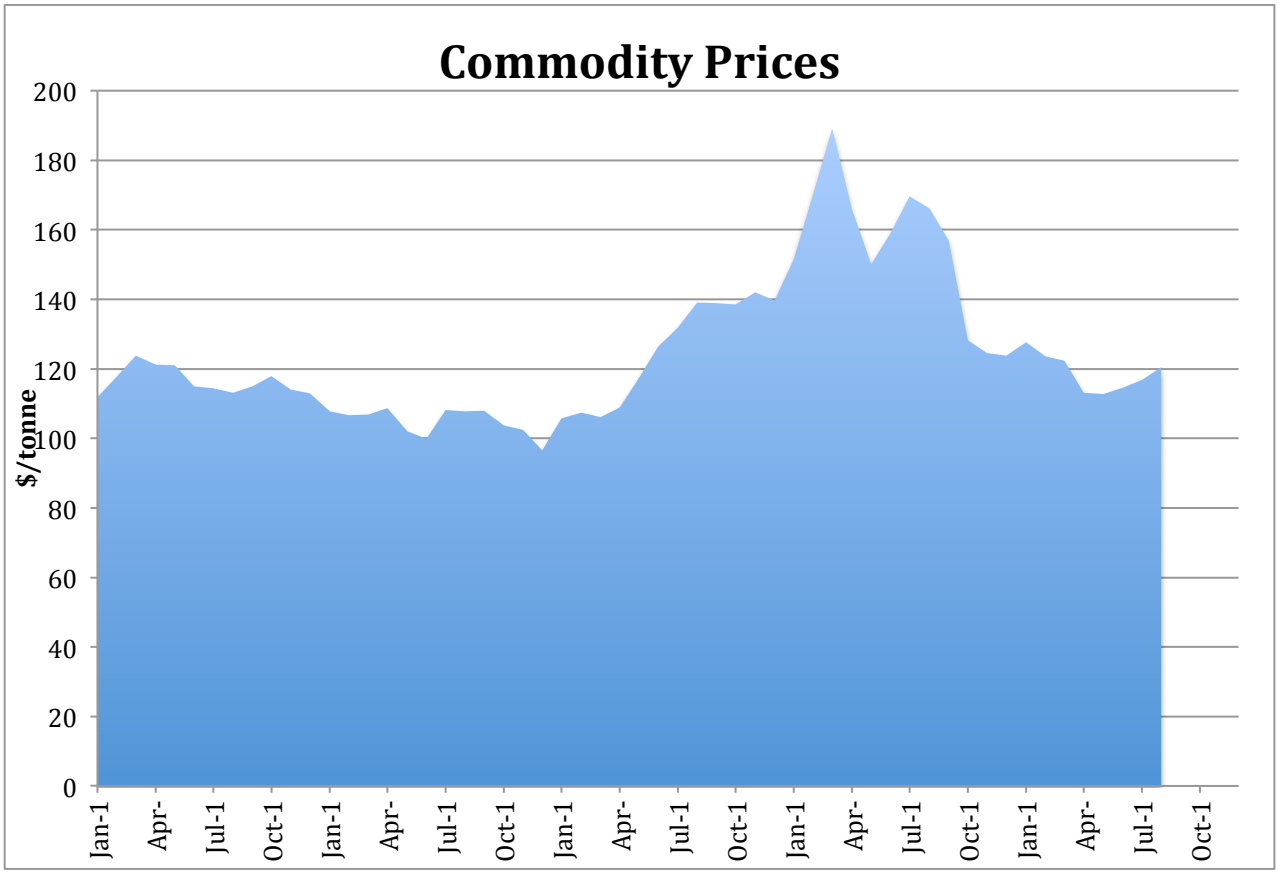
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