

Questions as of July 24, 2020

#	Question	Answer
1.	How does the MCD account for differences in labour and capital needs based on the varying mix of materials across the four packaging EPR programs?	<p>The MCD Methodology is focused on measuring the impacts that materials have on a standardized conceptual MCD recycling system so that all material impacts are measured on a level-playing-field basis. As stated on Page 8 of the pre-read document, setting the fees for each program consists of three distinct sets of activities. The MCD methodology supports the second set of activities, which is to determine each material's impact on the cost of the recycling systems as compared to all other materials.</p> <p>It is the first set of activities, the process by which annual budgets are set, when provincial programs costs are determined, that accounts for differences in labour and capital needs for the varying programs. It is the third set of activities of calculating the fees, that accounts for the varying mix of material supplied and managed for each program given that Step 1 of the Four-Step Fee Methodology requires that each material's relative share of gross cost considers both its cost impact value (the MCI) and the quantities of materials supplied and managed.</p>
2.	Will there be a set of MCI values specific to each of the four jurisdictions (ON, BC, MB, SK), in order to reflect differences in material mix?	<p>No – expanding on the information above, the MCI represents a material's impact on recycling system resources defined for a standardized conceptual MCD system so there will be one Material Cost Index used by all four participating programs. As noted above, it is the first and third process that accounts for provincial differences.</p>
3.	Given that about 50% of the tonnes collected in Ontario are collected in a two-stream bin program and that BC also has a significant number of two-stream programs, what is the impact on the accuracy of the MCI?	<p>The MCI is not attempting to replicate the Ontario recycling system. This is a fundamental departure from the principles of the ABC methodology which attempted to replicate the cost of particular systems and then allocate the costs of participating study programs to materials or the commodities in which they are sorted. This resulted in different cost/tonne for each provincial program, reflecting the different mix of study programs. The MCD methodology is focused on the material and its characteristics rather than individual and varied system designs. The system design and other provincial system design differences are accounted for in process #1 illustrated above.</p>

#	Question	Answer
4.	<p>Could you indicate what the CPS assumes in terms of how cartons are prepared by consumers for recycling? Will the CPS be updated and if so, how and at what frequency?</p>	<p>As it does for all materials, the CPS assumes that Cartons are placed into the collection cart clean and dry, free of all residual product. They are not modified by the consumer before being placed with other materials in the cart, e.g. they are not densified, broken down into a 2-dimensional format or dismantled and they are not aggregated or nested. The CPS is silent on the handling of closures, i.e. caps may be on or off, but the expectation is that straws from drinking boxes would be removed from the package. The impact measurement protocols, e.g. various density measurements, exclude any materials that obviously did not conform to the CPS, e.g. if they contained residual product. The CPS is part of the MCD methodology context, specifically the system boundary conditions. While evolution of the system is expected to take place within a three to five-year timeframe, the system components and boundaries, including the CPS will be monitored annually. Updates would be guided by factors such as technological innovation and emerging technologies, consumption preferences, end market specifications, etc.</p>
5.	<p>Can you confirm how cartons are managed between the QC Manual Sort/Mixed Paper Module and the Optical Sorter Module? Are all cartons assumed to be recovered into a PSI-52 grade? Or is a proportion of cartons assumed to be recovered with Mixed Paper#54?</p>	<p>The MCD System and its boundary conditions are conceptual and standardized to all materials and jurisdictions. Using current or emerging technologies, all materials that can be, are sorted to a repurpose ready condition and all resources necessary to do this are accounted for.</p> <p>Cartons are assumed to be sorted optically and all recovered cartons are directed to the emerging Polycoat bale.</p> <p>The majority of the cartons are recovered by the primary optical sort module, Module #8.</p> <p>A portion of the cartons entering the system flow with the mixed paper stream because their characteristics are such that they cannot all be separated from the other fibre materials by the screens. This happens because they may be flattened during collection and behave like the fibre materials, or their light weight causes them to be entrained with the fibre. The portion of cartons that flow with the mixed fibre are therefore recovered in the QC Optical sort – Mixed Paper, Module #10.</p>

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		Therefore, Cartons have the combined mechanical sorting impacts from utilizing the resources of both these modules.
6.	What is an Emerging Grade and why has the MCD not used the ISRI Grade 52, which is a recognized grade?	<p>To be repurpose ready, a material must be “prepared to meet the specification of an entity that will repurpose it without further sorting beyond general cleanup of prohibitive and undesirable materials using commercially available equipment that is not generally employed in MRFs.” The repurpose ready commodity specified for each material was determined through a standard set of criteria applied to all materials.</p> <p>The criteria considered the standard industry practice that either meets an established repurpose ready commodity specification (e.g. ISRI grade 52) or uses an emerging industry practice that meets an emerging repurpose ready commodity specification when the predominant practice is declining. An emerging repurpose grade is one that has been successfully implemented in commercial applications.</p> <p>Recently, the predominant industry activity has been to sort cartons (ISRI grade 52 - aseptic and gable top) from other polycoat materials, but as pressure to repurpose other polycoat materials increases as well as the prevalence of optical sorting targeting all polycoated paper material, this sort is being displaced and mills are accepting the polycoat mix.</p>
7.	Can you clarify the difference between Paper laminates and Polycoated Paperboard, and clarify which is included and which is excluded using examples (i.e. frozen food trays, cold drink cups)?	<p>Polycoated Paperboard includes coated paper packaging used to package frozen foods such as ice cream and other food products and polycoated hot and cold drink cups. These are included for collection and sorting and repurposing in the MCD System.</p> <p>Paper Laminates includes packaging in which paper is the main component, and which may include metalized foil, wax or plastic coating, and other coated paper. They are typically flexible packaging and may include multi-layer bags with a poly-film, kraft or other paper layers in packaging. They are not included for collection, sorting and repurposing in the MCD System, but they still are assigned cost impacts according to their characteristics. As they are not repurposed, they would not share in the revenue in Step 2 of the Four-Step fee setting methodology.</p>

#	Question	Answer
8.	Can you provide the Relative Impact Factors (RIF) and Cost Factor (CF) values associated with all the material categories under the different modules?	We agree that understanding cartons' relative impacts in each of the relevant modules could be helpful to Carton Council and its members to understand where cartons' highest cost impacts may reside. However, providing you with RIF and CF values will not provide the kind of meaningful information you're seeking. Instead, CSSA recommends that a meeting be arranged with Carton Council and its interested members, sometime over the next couple of months, when CSSA can take you through in some depth how cartons behave in the various modules that make up the MCD conceptual system. Such a meeting is sure to foster an interesting and fulsome discussion.

Questions as of July 22, 2020

#	Question	Answer
9.	Why are aluminum cans called "used beverage container"? Could they be called "aluminum beverage container" to avoid confusion?	The MCD category 'Used Beverage Containers' is used to reflect the ISRI Scrap Circular Specification grade called "Baled Aluminum Used Beverage Can (UBC) Scrap" or Baled UBC for short. Because this grade can only be comprised of aluminum beverage cans, and not any other aluminum containers, the project team thought it was important to model the category name after the ISRI specification. However, given the potential for confusion and the fact that only one other MCD material category refers to materials in their post-consumer format, i.e. Used Beverage Containers (UBC) and Old Corrugated Cardboard (OCC), we will take into consideration your suggested name change going forward. As noted in the presentation deck, we will be initiating a full review of Material Categories in our next harmonization project and will do so at that time.
10.	In appendix E, UBCs (aluminum cans) are marked down as "manual, primary and secondary" sorting. Aren't aluminum cans sorted with an eddy current?	Yes. You will note that Appendix E identifies both Used Beverage Containers and Aluminum Foil and Other Aluminum Containers as the only two materials that utilize the 'Electromagnetic Sort' module. This is module #9 in the MCD system. You are correct that this is also referred to as sorting by 'eddy current'.

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		<p>However, while not practiced in all MRFs, the predominate practice for repurposing and gaining value from aluminum packaging from recycling systems in North America is to sort used beverage containers from other aluminum packaging. This requires a secondary manual sort. Because of the tendency of aluminum used beverage containers to flow with other materials because of their light weight and because of their tendency to change shape (flattened, and therefore may go over the fibre screen in the MCD System), additional quality control sorting activities are required not only to ensure that used aluminum beverage containers are recovered to the degree specified by the MCD System, but also to ensure other materials can meet their specifications for repurposing. This additional sorting ensures that AL UBC satisfies Guiding Principle #4 – for it and other materials to become ready to be repurposed. For additional context, the electromagnetic/eddy current sort associated with AL Used Beverage Containers represents less than 10% of its MCI value whereas the secondary sorting and QC related sorts, just over 10%.</p> <p>The major contributor to this material’s MCI value is related to the Collection module (collection truck) where approximately 50% of its MCI value is assigned. In this module, the UBC has the 3rd highest MCDI (Module Cost Differentiation Index) value because UBC has a low compacted density relative to other materials, thus it takes up relatively more space in the collection vehicle and has a higher impact on this significant module.</p>
11.	<p>Most members expected glass packaging to be higher on the material cost index due to its abrasiveness and damage to equipment. Why is it so low on the material cost index?</p>	<p>When considering each of the Cart,-Collection, Infrastructure and Storage modules, which together represent approximately 75% of the MCD system costs, Glass has the highest density. In the Cart Module its density is second only to Magazines, Catalogues and Directories. Its high density means a lower impact on the resources of these modules relative to other materials.</p> <p>In addition, the MCD system is designed to deliver on the guiding principles outlined in Section 7. To adhere to these principles, including consideration of ‘emerging trends’, the MCD system’s design includes a Glass Separation module</p>

#	Question	Answer
		<p>(Module 6) and this module’s impact is fully attributed to Glass and represents approximately 20% of its overall MCI value. Further, as you note, Glass does have abrasive and damaging characteristics (what we call ‘Impeding and Damaging Characteristics’). In Module 17, the ‘Abrasive’ module, Glass assumes almost 90% of the cost impacts of this module. Steel containers and AL UBC are attributed 8% and 4% respectively.</p> <p>The Impeding and Damaging Characteristics module for abrasiveness, Module 17, represents just less than 5% of the MCD system cost, i.e. a significant cost for primarily one material, such that its MCDI reflects just less than 50% of the value of glass within the MCI. Thus, it’s MCDI respects both the impact and the cost so that high impacts on low cost modules are not overstated. This, of course, works both ways and ensures that materials with low impacts on high cost modules such as the Cart, Collection and Infrastructure Modules are not understated.</p>
12.	<p>Some members have questioned why PET water bottles and PET beverage bottles are high on the material cost index above cartons, PP containers and PVC. Could you let me know why PET bottles rank where they do, so I can communicate that back to CBA members?</p>	<p>While PET beverage and water bottles are regarded as highly recyclable within recycling systems because they are numerous and have a relatively high value, the cost impacts of PET bottles are higher than cartons, PP containers and PVC. This is primarily because of their generally lower density (higher impact since they take up more space), in the Cart,- Collection and Infrastructure modules, which together make up over 70% of the MCD System cost. Moreover, like PP, PVC and Cartons, PET water bottles tend to be misdirected and flow with other materials such as mixed paper and therefore require additional QC sorting to ensure recovery and to ensure all materials meet repurpose specifications. The light weight of water bottles results in a higher impact in these related QC sorting activities.</p>
13.	<p>Although MCD’s purpose is not to address STINO, what is CSSA doing to address STINO and e-commerce packaging?</p>	<p>You are correct that MCD does not address STINO nor e-commerce but both issues are important and complex and are addressed through various initiatives. We’ll address each separately.</p>

#	Question	Answer
		<p>STINO (Stuff That is Not Ours): STINO is a term that we use to describe things like non-obligated materials that resemble obligated materials that find their way into the Blue Box (e.g. bound books and packaging-like product) as well as materials that are supplied by non-obligated producers (e.g. Magazines shipped direct to the resident from out-of-province and out-of-province companies selling products and their associated packaging directly to residential consumers) or materials from producers below the de minimis thresholds. In addition, we include contaminants as STINO – things such as plastic toys and other non-targeted materials.</p> <p>The approaches to managing STINO will differ for each PPP program and are influenced both by the regulatory environment as well as the level of control the stewardship program has over the recycling system itself. Where the program has control of the collection service standards and composition data such as Recycle BC, the program actively works with its collection partners to reduce contamination. You can read examples of the success of these initiatives on page 24 of the Recycle BC 2019 Annual Report.</p> <p>e-Commerce: This is a global challenge and CSSA is actively researching solutions to the e-Commerce problem (mainly associated with out of province vendors selling and shipping directly to residential consumers). We have undertaken a three-part research project on the impact of e-commerce on EPR programs and potential policy, financial, regulatory, and other approaches to address it.</p> <p>Phase One, a global literature review, has been completed and Phase Two and Three are expected to be completed later this year. Phase two calls for in-depth interviews with key Canadian stakeholders and Phase three will provide recommendations on how to minimize or solve the issue. In addition, we are currently completing a background report based on the Phase One research that provides eight potential approaches to address e-commerce in EPR</p>

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		programs that have been implemented or considered in Europe and the pros and cons of each approach. That report will help inform Phases Two and Three of our research project.

Questions as of July 21, 2020

#	Question	Answer
14.	Could you please provide some specifics on the MCD Methodology for pizza boxes?	<p>Pizza boxes may be covered by two MCD material categories: Large Format OCC and Small Format OCC - depending on the size of the pizza box. The reason there are two MCD categories for OCC is because its size impacts how it moves through the MRF and the resources utilized to move it from collection to preparing it to be repurposed. While two OCC material categories are important for assessing costs in the MCD model, both Large and Small format OCC map to one fee setting category in the PPP programs.</p> <p>Overall, when the impacts of Large and Small Format OCC are measured through the MCD system they are determined to have a lower than average measured impact compared to other materials. This is generally due to the material's higher than average median density reducing its impact particularly during compaction on the collection truck (a new metric measured under MCD but not measured as part of ABC). OCC also has a relatively low sorting impact – also a new measure under MCD.</p> <p>While the ranking in the MCI is relatively low, the relative value of OCC within the MCI is slightly higher than the relative value within the range of cost/tonne from past ABC studies. This is because of the measured impacts for other materials using the new metrics. For example, the impact of compaction on the utilization of truck space also benefits many other materials that are compressive, e.g. PE Film and Bags. Given that both the MCD methodology and</p>

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		<p>the fee methodologies are allocating impacts and budgets to all obligated materials on a 'relative share' basis, this means that a reduction in one material will necessarily create an increase in others.</p> <p>The relatively low MCI value of Large and Small Format OCC (versus other materials) on the MCI means a lower impact on the cost of the recycling system. However, please be aware that a lower MCI value does not automatically translate into lower fee rates as the MCI value is only one of many inputs into the fee setting methodology. The quantity of material supplied and managed also impact Step 1 of the Four-Step Fee Methodology. In addition, the fee rates for OCC will be different in different programs due to each program's unique features such as full producer responsibility versus shared cost programs, quantities supplied and collected and other factors.</p>

Questions as of July 13, 2020

#	Question	Answer
15.	<p>As I understand it, the MCI is a factor in fee setting. Going under the assumption that well-established materials with unvarying characteristic/composition will consistently have the same material impacts that were determined in the system, will the MCI then have a constant value? In line with this, should we only expect MCI changes for new materials or materials that require further research and development?</p>	<p>It is generally correct that well-established materials with unvarying characteristics and composition would have a more or less constant relative value within the MCI.</p> <p>However, we know that material characteristics and composition within a material category can vary from year to year. For example, as the form and density of PET thermoform packaging varies, this could impact the resulting MCI measurements for the PET Thermoform category. This variation would be captured in the measurements and resulting inputs to the MCI calculations. In addition, changes to the packaging and printed materials supplied by producers, such as light-weighting or material substitution would also be expected to result in some variation to inputs in the MCI calculations. While the changes are not</p>

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		<p>expected to be dramatic year over year, some minor variation should be expected.</p> <p>It is also important to recall that even when the material's value on the MCI is constant, that does not suggest that the fee rate will be constant year over year. The reason is that the MCI is one variable when calculating the material's relative share of the Gross Cost in Step 1 of the Four-Step Fee Methodology. The other variables include supply quantities, collected/managed quantities, and the program's budget.</p>

Questions as of June 30, 2020

#	Question	Answer
16.	With an aim of lowering their remittances and helping create a more efficient system, how should stewards use the MCI in decision making when it comes to packaging selection, or should they not?	The MCI provides information about the relative cost impacts of materials on the recycling system such as how much does Material A impact costs compared to Material B and at what point in the system does it have those impacts? While this is an important input to the Four-Step Fee Methodology, it pertains only to Step One of the Methodology, i.e., the allocation of gross cost. Therefore, we do not recommend that it be used as the only indicator when making packaging choices because it is only one input to fees. The goal is to provide stewards with information about these cost impacts so that they have confidence in the MCI and therefore confidence in the fees that result.
17.	The pre-read document made reference to design assumptions that all programs are based on cart or commingled" collection. Our municipality (like many others) utilizes a two stream (container/ fibre) system and the existing MRF infrastructure is designed for separate stream processing. Does this imply that all Ontario municipal programs will be transitioning from a blue box(es) system to a single stream cart-based system? If so	The MCD conceptual recycling system includes the complete set of activities and technologies that collectively constitute a comprehensive, fully optimized, fully maintained system, that, operating at its highest level and efficiency, produces output material that is ready to be repurposed. As such, it establishes a common "level-playing field" set of conditions that enable all materials' cost impacts to be consistently measured. Therefore, by nature and design, it does not reflect any particular municipal recycling program. While the conceptual system is rooted in real world recycling technologies and processes it is used

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	would all related costs (collection containers, vehicles, MRF infrastructure) be 100% covered by stewards under full EPR program (post 2023)? Do municipalities have any say should they wish not to see carts deployed throughout their community?	only to determine relative cost impacts and has no bearing on particular collection systems, processes or technologies used by individual municipalities. Further, no municipality is expected to adjust their recycling system based on the design of the conceptual system used to determine the MCI.
18.	Collection module assumes single stream. What if collection was fibres and containers rather than commingled?	Please see answer above.
19.	What does the category 'used beverage containers' refer to in the MCI? Does it refer to aluminum beverage containers only?	Used Beverage containers include: aluminum sealed rigid beverage containers used for alcohol and spirits, carbonated beverages, juices, sports drinks, water and energy drinks.
20.	You mentioned that currently, aggregation of fee categories happens before the 4-step methodology is applied. I was under the impression that it was the opposite and each individual material category undergoes the 4-step methodology, which produces its fee. Then certain material category fees are aggregated. Can you clarify?	MCD impact measurement studies were done on a greater number of material categories than the number of material categories on which stewards report and pay fees. This provides an additional level of granularity and detail on how a broad range of material characteristics impact the cost of the system. However, the MCD study categories are mapped to the existing fee setting categories which necessarily includes some aggregation and this is done before input to the fee setting methodology. This aggregation is completed during the calculation of the final MCI used in fee setting.
21.	How flexible is the MCD to new material streams being added as a new material stream would change the overall metrics established by the previous mix of materials	One of the four primary components of the MCD is maintenance procedures that monitor the evolving tonne and evolving recycling processes and technologies and their associated costs. This will ensure that the MCD model can respond over time and stay in step with the marketplace and the evolving tonne and the introduction of new materials and packaging formats. As new materials are introduced, they will be included in measurement studies so that we can gather the necessary metrics that will help inform their value on the Material Cost Index (MCI).
22.	Will any consideration be given adding more material categories? For example, newer plastics not in the exiting HDPE or PET categories.	Please see answer above. The evolving tonne refers to the ever-changing mix of materials in the recycling system as new materials and new formats are introduced into the marketplace. The MCD methodology has been built so that it has the flexibility and nimbleness to reflect these changing conditions.

#	Question	Answer
23.	What happens if the PROs in Ontario do not approve the Four-Step fee methodology?	Stewardship Ontario will determine if it will propose the move to the Four-Step Fee Methodology and the Material Cost Differentiation methodology for use while it remains the designated IFO until wind up is complete. Once the transition is complete and the Ontario PROs assume operational responsibility, we cannot comment on how these organizations will go about setting their prices/fees.
24.	The MCD seems to categorize the recyclability of materials by cost of handling/processing/etc. Is there a similar study or ranking/scoring system that looks at the recyclability of materials regardless of cost? For example, PVC shows a lower cost than some other plastics but many MRF's do not want PVC mixed in their plastic. How will that be addressed?	The MCD Methodology was developed specifically to assess the relative cost impact of materials on the recycling system in order to appropriately allocate gross system costs to all materials in Step One of the Four-Step Fee Methodology. The MCD Methodology was not designed to assess each material's recyclability or end market value. When it comes to materials such as PVC, the MCD methodology is based on the principle that all materials count, all characteristics count and all the activities needed to prepare them to be repurposed are considered. Therefore, since PVC is in the system it must be included in the MCD system and its cost impacts determined based only on its material characteristics not on its recyclability. The MCI is only one input into the Four-Step Fee Methodology. The system costs associated with materials that are not recyclable or might be considered a contaminant are addressed in other aspects of the fee methodology including steps two and four.
25.	What about PVC in the general trends?	If there are innovations in technology that affect the management of PVC or changes to the supply of PVC, these will be considered as they evolve and incorporated into the MCD Methodology accordingly.
26.	How did you distribute the cost of cross contamination, for instance, a can ending up in the ONP and having to be removed at the MRF?	The MCD model, which is comprised of 18 distinct modules, ensures that all cost impacts related to the collection and sorting of each material category are considered. This includes quality control activities such as the impacts of materials that tend to be misdirected at various stages of the sorting process such as lightweight PET bottles that can be misdirected to the mixed paper stream and need to be recovered.
27.	For an excluded material (not collected) does that mean that the calculation for their share of gross cost allocation	That is correct but it also means that this material will not receive any share of the commodity revenue under Step 2 of the Four-Step Fee Methodology. Further, this material may assume expense under Step 4 to fund research and

#	Question	Answer
	is based only on the 60% calculated from the contribution of materials into the market - reported by stewards.	development, end market development or other to improve its performance in the system.
28.	Using your slide 19, if material two is a material that is not collected in a municipal collection program, its relative share would still be 66.7%. Would it be the expectation of a steward that material 2 should be collected in a blue box, otherwise if collected as trash, the taxpayer is paying twice.	In line with principle that all materials count and should contribute to program costs, material two in your example, will receive a 66.7% share of 60% of the cost of the program based on the supplied quantity as reported by stewards. This feature of the Four Step Fee Methodology ensures that all materials are contributing to the system costs whether or not they are collected for recycling. The steward of a material not collected in the recycling stream may also be contributing to the costs associated with improving its recyclability and/or the development recycling end markets under Step 4. Typically, a material is not collected in the recycling system if it cannot currently be recycled or recovered, due to lack of technology and/or lack of end-markets.
29.	With little to no commodity revenue in many categories, doesn't being a material that is not collected benefit you by avoiding the costs associated with collection, thus advantaging less environmentally sound materials?	The first principle of the Four-Step Fee Methodology is that all designated materials must bear a fair share of the costs of the recycling system irrespective of whether they are collected for recycling or waste disposal. This principle ensures that non-recyclables are not inadvertently rewarded through the fee methodology. Since all materials are assuming their relative share of 60% of the gross cost of the system whether or not they are collected, reduces the share of gross costs attributed to those materials that are collected and recycled, nor do uncollected materials earn commodity revenue, which is allocated in Step 2 of the Fee Methodology. In addition, Step 4 of the methodology attributes cost only to those materials that require investment to improve their cost and performance effectiveness in the recycling system or need development of recycling end markets. In these ways the Four-Step Fee Methodology ensures that materials not yet collected for recycling do not avoid their fair share of the system costs.

Questions from Stewardship Ontario's consultation on the Blue Box Program Transition Plan

#	Question	Answer
1.	<p>What are the expected implications of this new costing model on the allocation between stewards who pay cash and those who pay in-kind?</p> <p>Is the new replacement costing methodology to the ABC methodology expected to have any implication on municipal funding?</p> <p>Are any cost implications expected for municipalities/First Nations communities funding with replacement cost model that replaces ABC model?</p>	<p>The MCD project examined how the characteristics of different materials (density, weight, size, compaction, etc.) impact the cost of managing the blue box recycling system using scientifically controlled procedures. That process revealed that some materials, particularly but not exclusively newsprint, have a larger relative impact on the cost of the blue box recycling system than was previously understood. Adoption of MCD would result in a different distribution of costs among the materials than the current ABC process. Since this redistribution would result in an increase in newsprint fees, the effect would be to increase the proportion of the Steward Obligation that municipalities receive on an "in kind" basis. It should be noted that Stewardship Ontario's ongoing research suggests that the relative contribution of newsprint and therefore the in-kind amount is likely to decrease over time. Stewardship Ontario appreciates that municipalities will have concerns about the impact MCD would have on the in-kind amount. As noted during the webinar, Stewardship Ontario intends to engage further with municipal representatives on the Transition Plan, including this issue. Additional details on the MCD project and its impacts will be provided at that time, to ensure that municipalities have the information they require to respond meaningfully to this consultation.</p>
2.	<p>Regarding the MCD Methodology, what is the difference between Area Weight vs. Weighted Area Weight? And Pick Rate vs. Weighted Pick Rate?</p>	<p>The metric Area Weight is used to measure the impact on or utilization by a material of mechanical sorting equipment. For all mechanical sorting targeting specific materials, e.g. optical sorting of each plastic resin, electromagnetic sorting (eddy current) of aluminum, or sorting out OCC with an OCC screen, Area Weight is used to differentiate the utilization by materials targeted by that equipment.</p> <p>In the special case of quality control (QC) sorting The Area Weight metric is weighted by the proportion of each material undergoing the QC sorting. For example, several types of plastic packaging must be separated from the mixed paper stream in order for the mixed paper stream to meet the market specifications for its repurposing and to recover the plastic packaging for its repurposing. The screens are not able to separate the mixed paper and all the</p>

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		<p>plastic packaging to the degree required because of the mix of characteristics of both the fibre materials and the plastic materials that flow together. Therefore, additional mechanical (optical) sorting is required to separate these materials. So in the case of this QC sorting, the Area Weight measurement for each material undergoing the optical QC sorting is weighted according to (multiplied by) the proportion of that material present and that must be separated.</p> <p>The difference between the metrics of [Manual] Pick Rate and Weighted [Manual] Pick Rate is precisely analogous. Pick Rate is used to measure the utilization of manual sorting labour and Weighted Pick Rate is used to measure the utilization of manual QC sorting labour. For example, manual QC sorting is required to separate materials that cannot be effectively separated by optical QC sorting, e.g. black plastics and fibre materials in the mixed paper stream. In this case the Pick Rate metrics of each material are weighted (multiplied) by the proportion of the material that utilizes the manual QC sort, in this case the black plastics and the fibre materials in the mixed paper stream.</p>
3.	Regarding the MCD Methodology, can you explain the Percent Contribution Metric?	<p>Some impacts on the cost of the recycling system are difficult to measure with a simple measurement apparatus. This is because of the time over which the impact occurs and because of the challenge of establishing standard conditions under which to make the measurement. The impact of abrasiveness is an example. Therefore the Delphi method was adopted, in which a series of questions framed by the same context in which all other measurements are made, i.e. the MCD System, are posed to both a panel of industry experts knowledgeable about the issue and to a broad sample of recycling system managers and operators.</p> <p>The Delphi method is generally applied as follows:</p> <ol style="list-style-type: none"> 1. Questions are first posed and discussed in person to a panel of experts. 2. The answers from the panel of experts are compiled and summarized. 3. A second set of questions based on the answers of the expert panel are posed in a broad survey of recycling system managers and operators.

#	Question	Answer
		<p>4. The results of the survey are then compiled and summarized and then presented to and discussed with the industry experts with a view to determining whether their initial answers should be changed.</p> <p>5. The final results are then used as measurements in the MCD calculations.</p> <p>The metric Percent Contribution measures the contribution of a material to the total cost impacts of particular characteristic, say abrasiveness. For example, Glass contributes to X% of the cost impacts of abrasiveness, Steel, contributes Y% and so on.</p> <p>The Delphi method is employed to determine both the total impacts of material abrasiveness on the capital (life, replacement parts) and operating (maintenance) cost of all system activities, equipment and infrastructure and the Percent Contribution to those costs of each material having the characteristic of abrasiveness. Both are then subsequently used as inputs into the MCD calculations.</p>
4.	Regarding the MCD Methodology, how are materials being treated that may be accepted in some municipal systems vs. not accepted in other systems (e.g. coffee cups)?	<p>In accordance with the MCD Guiding principles, specifically:</p> <ul style="list-style-type: none"> • <i>Guiding Principle #2:</i> All designated materials count. All designated materials of the packaging and printed paper programs should be considered when measuring cost impacts even when those materials are supplied and/or managed in small quantities because all materials are constituents of the recycling system. • <i>Guiding Principle #4:</i> All activities count. All activities necessary to prepare the material to be repurposed should be considered because the intention is that all materials supplied into the market should be repurposed. <p>The MCD Methodology will produce a value for each material on the Material Cost Index (MCI) even when the material is not targeted for collection in all</p>

#	Question	Answer
		<p>municipal systems and even when it is not collected in any municipal system. This MCI value is then used in Step 1 of the Four-Step Fee Methodology to calculate each material's relative share of the Gross Cost (Collection and Processing) of managing the overall system. The Guiding Principles of the Fee Methodology require that all material's contribute to the funding of the system based both on the quantity of material supplied and the quantity of material managed.</p> <p>The conceptual MCD System includes a broader range of materials than typically collected in Canadian municipal recycling programs to help meet Guiding Principle #2 above. The value of each material on the MCI is determined based on impact measurements (cart density, compacted density, area weight, pick rate, etc). However, measurements are typically made with materials obtained from municipal systems. But for some materials, impact measurements cannot be made because they either are not generally collected in Canadian municipal recycling programs or because they occur in quantities insufficient for precise measurement. For the purpose of fee setting, these materials are either assigned a proxy MCI value or they are assigned proxy measurement results used to determine their value within the MCI. The proxies are based on the measurements and MCI values of materials with similar characteristics.</p> <p>MCD Material categories assigned proxy MCI values include Paper Laminates, Plastic Laminates and Other Film, Natural Textile packaging and some plastic packaging which is not yet accepted in commodity specs, such as soft plastic tubes. Materials which are assigned one or more proxy measurements include PVC packaging and rigid PS containers. Coffee cups are part of the MCD material category of polycoated paper and at this time this is included as part of the Paper Laminates category for the purpose of fee setting.</p> <p>Component #4 of the MCD Methodology does include maintenance processes where both materials and recycling process/technology changes are monitored</p>

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		<p>so that as materials begin to be collected by municipal recycling programs, they would be incorporated into the MCD System and impact measurements could become feasible.</p>
5.	<p>Regarding the MCD Methodology, what are the assumptions with the MCD Method and do these assumptions have longevity?</p>	<p>The MCD Methodology is grounded in the MCD Context, in addition to identifying material characteristics and categories, the context establishes a conceptual recycling system’s entry and exit point and a corresponding conceptual recycling system design that includes all the activities necessary to move a material from the point of collection through to a state where it is ready to be repurposed without any subsequent operation.</p> <p>Key to this context are that all materials will be set out together, clean and dry in a 360 litre cart and collected as a single stream for the purpose of providing a consistent impact measurement condition only. Additionally, the MCD System includes all the necessary activities to move a material from the point of collection through to a state where it is ready to be repurposed without any subsequent operation. The methodology has defined the repurpose ready commodities based on a set of criteria rooted in the requirement to be ready to be repurposed without subsequent sorting and the predominate technologies and end market practices in the real world. Thus plastic packaging is generally sorted to its specific resin.</p> <p>The conceptual MCD System is assumed to be well maintained and achieves a 97% effectiveness, noting that only designated materials are included. The full cost of all activities and resources to achieve this have been included, rather than the varied financial and business conditions and objectives among municipal recycling programs.</p> <p>Lastly, the impact measurement studies (cart density, compacted density, area weight, manual pick rate, etc.) are conducted based on protocols that impose the same conditions on the measurements for all individual materials. This is so that only the characteristics of the individual materials are being addressed</p>

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		<p>rather than those of the varied commodities which each different service provider or program chooses to produce and the conditions under which they choose to operate, as in the allocation determined by the ABC methodology.</p> <p>The conceptual MCD System has 18 modules, each of which is fully 'costed'. The labour rates, equipment costs, maintenance and operating expenses informing this model are sourced from referenceable sources such as Industry Canada for standard labour rates, equipment manufacturers for current cost of equipment, etc.</p> <p>All of these building blocks contribute to our ability to compare the relative impacts of the materials on a level-playing field basis.</p>
6.	<p>What is the rationale on why in-kind amount for newspapers are doubled using four-step and MCI?</p>	<p>Stewardship Ontario is seeking input on making two changes:</p> <ol style="list-style-type: none"> 1) First is the replacement of the three-factor formula fee methodology with the Four-Step Fee Methodology. 2) Second is the replacement of the ABC methodology with the MCD methodology. <p>The combination of these replacements and the data and calculations that underpin them result in some materials having higher fees and some materials having lower fees. The replacements result in newsprint having higher fees.</p> <p>Both methodologies (Four-Step and MCD) are based on principles defined by stewards. There is no rationale pertaining to the outcome for any specific material, packaging or product, including that of newspaper.</p> <p>Newspapers are part of the newsprint MCD material category. Newsprint has a relatively low value and rank (sixth lowest) on the MCI. However, the relative value of all materials on the MCI is different than the relative value and ranking within the range of ABC cost/tonne and therefore the relative inputs to the Four</p>

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		<p>Step Fee Methodology are different, resulting in different fees and a different in-kind contribution.</p> <p>The MCD methodology includes new measurement metrics and protocols and additional activities and full costing to ensure that the impacts of individual material characteristics are the focus and all materials are treated consistently.</p>
7.	How is relative cost applied?	<p>As illustrated in the example provided to Q3, the 60% allocation of Gross Cost under Step 1 of the Four-Step Fee Methodology is based on quantities supplied by steward multiplied by the material's MCI value and the 40% allocation of gross cost is based on the quantities of material managed in the province.</p>