EPR Case Study Report

Lessons From EPR Programs For Printed Paper and Packaging That Could Be Applied To Ontario Municipalities

Submitted to

Regional Public Works Commissioners of Ontario (RPWCO)

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in association with

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1. Introduction

1.1 Purpose of The EPR Research Project

Kelleher Environmental, in association with Love Environment, were commissioned by RPWCO to research and prepare this report with two objectives:

- Research EPR program models for printed paper and packaging in other jurisdictions (Europe, Canada), and
- Identify lessons learned which are applicable to Ontario municipalities.

Municipalities and EPR programs in Ontario may be operating under the Waste Diversion Act for several more years, given that Bill 91 (the Waste Reduction Act) did not move forward before the Ontario Provincial election was announced in May, 2014. There is strong interest on all sides to explore options for more sustainable stewardship programs that are acceptable to all parties involved. Solutions need to be found to address current Blue Box issues in particular. The research in this report provides some background on alternative models under which municipalities and producers could operate in Ontario.

2 EPR Program Research

2.1 EPR Programs Studied

This report compares the implementation of EPR for packaging waste across Belgium, Germany, France, Austria, the U.K., and for printed paper and packaging in Quebec and British Columbia with a particular focus on the differences among systems with respect to the roles and responsibilities of municipalities in these programs, their relationship with obligated producers and how costs are split between producers and municipalities. To the extent available, methodologies for determination of fair costs to municipalities were identified. It also includes a case study on graphic paper recycling in France. The research on which this report is based was carried out from October, 2013 to January, 2014.

Some of the key issues which were addressed in the case studies included:

- Competition in the marketplace – is there only one IFO or a number of competing IFOs operating in the marketplace being studied;
- The % of the EPR program costs that producers pay;
- The level of control which different players (producers and municipalities) have in the program;
- The materials addressed in the EPR programs;
- Other materials collected beyond the "basic list" funded by the program and
- How collection costs are split between different materials and different participants in the program.

One key difference between programs in Canada and in Europe is that printed paper is generally not obligated in most European countries; only packaging is obligated. European municipalities often collect printed paper and packaging together, and split the costs so that producers cover only the costs of managing packaging. The way in which the costs are split is of interest to Ontario municipalities on a go-forward basis as the nature of the relationship between producers and municipalities changes.

Table 1 summarizes key features of each case study and why the case study was chosen for this research.

Table 1: Programs Studied For EPR Research

Program	Population Served (million)[1]	Key Features of Interest To Ontario
Belgium	11.1	One IFO for residential packaging in the country (Fost Plus) Cooperative relationship between municipalities and producers Municipalities have options in terms of how recycling service is provided to their residents (their own forces, and Fost Plus will pay fair compensation, or contracted out and Fost Plus will pay full cost of their share of the contract, if the municipality uses the standard Fost Plus contract). Agreed formulas have been established to split total recycling collection costs between municipalities and producers
Germany	81.9	Moved from competition (only DSD) to multiple IFOs (now 9 IFOs). Bill 91 would allow competitive IFOs in Ontario, therefore experience moving from one to multiple IFOs is of interest
Austria	8.5	Chosen in case there were unique features, but there were none of specific interest to Ontario. Much higher targets for companies who have individual plans than those who join an IFO Moving from monopoly (ARA since 1993) to competition in 2014.
France - Packaging	65.7	Municipalities have central role in packaging collection in France
France -	65.7	France is one of a few EU countries where there is an IFO which provides funding to

[1] All population figures from World Bank

Printed Paper		municipalities to collect some printed paper (about 2/3 of printed paper stream)
UK	63.2	General interest in how the UK system works. It is completely different to other EU programs, in that a tradeable packaging recovery note (PRN) is used to establish recycling rates for packaging materials. Municipalities glean minimal benefit and financial support from the system. Residential recycling is generally funded through municipal taxes. Targets are for recovery and recycling of residential and IC&I packaging combined
BC	4.4	Responsibility for residential printed paper and packaging moves from municipalities to producers on 19th May, 2014. A new system has been designed by MMBC that allows a continuing role for municipalities in recyclables collection, but processing of recyclables will be fully taken over by producers. 100% of costs will be paid by producers from 19th May, 2014.
Quebec	8	Municipalities have full responsibility for the municipal recycling system (residential and some IC&I), collection and processing, and producers are required to pay 100% of efficient costs,

2.2 Research Questions For Case Studies

The research questions asked during the analysis of the case study information included:

- The role of municipalities in the packaging or printed paper and packaging programs (collection only, collection and processing, provision of drop-off sites or space for bins only, etc.);
- How municipalities get paid for the role they play;
- Roles and responsibilities of producers;
- Governance arrangements between producers and municipalities;
- Legislation under which the packaging or printed paper and packaging program operates and
- Whether the EPR program is a monopoly (one IFO, like in Belgium) or there is competition among IFOs (e.g. Germany which had one IFO – DSD, but now has 9).

2.3 Comparing Europe To Canada – Key Differences

While there are valuable lessons learned from Europe which could apply to Ontario, comparing European programs to Ontario is like comparing "apples to oranges" to some extent. There are some key differences between the two locations:

- Producers are obligated to recover packaging only in most European countries, because the EU Packaging Directive has set high recovery rates which producers are obligated to meet.
- A few European countries have printed paper recovery programs and compliance schemes, but these generally target only specific printed papers; newspapers are often excluded from the " graphic paper" compliance schemes and obligations;
- Municipalities in European countries generally collect printed paper with packaging, but producers pay for the packaging component of the program only. Where data are available, about 30% of the collection costs of Blue Box equivalent programs are paid for by producers. The remaining 70% of collection costs are absorbed by municipalities.
- The collected material is generally separated with municipalities handling the printed paper processing through their own networks, and producers taking over processing of the packaging materials;
- A different list of packaging is collected in EU countries compared to Canadian programs and
- Municipaliites are generally not in the processing business (except for France and UK).

2.4 Comparing Other Provinces To Ontario

The EPR programs in place for printed paper and packaging vary across Canada because of different legislation, and different histories on how the programs developed. Where deposit systems are in place for beverage containers, the composition of the materials recovered in the Blue Box is different to Ontario. While Ontario has a nominal 50:50 cost sharing agreement with producers, the split of costs is different in each Province which has an EPR program for printed paper and packaging.

Table 2 summarizes the current situation with respect to the percentage of Blue Box costs paid by producers across Canada, and who controls the system.

Table 2: Level of Funding Support and Control of EPR Programs for Printed Paper and Packaging Across Canada

Province	% Paid By Producers	Control of System
BC	100% May, 2014	100% producers by May 2014
Alberta	No program yet. Consultation program underway 2013/2014.	Municipalities currently
SK	Up to 75% of efficient costs	Municipalities
MN	80% of efficient costs	Municipalities
Ontario	50% of efficient costs	Municipalities
Quebec	100% of efficient costs	Municipalities by legislation
New Brunswick	EPR program being contemplated jointly with other Atlantic provinces	Municipalities currently
PEI	EPR program being contemplated jointly with other Atlantic provinces	Municipalities currently
Nova Scotia	Currently funded by half back deposit through soft drink container deposits – likely to move in same direction as other Maritime provinces in next 5 years	Municipalities currently
Newfoundland	EPR program being contemplated jointly with other Atlantic provinces	Municipalities currently

3 EPR Research Findings – European Programs

3.1 Belgium

The program in Belgium is often cited as the model considered most appropriate for Ontario by MOE, and many elements of the Belgian program were incorporated into Bill 91. Belgium has one IFO (Fost Plus) for residential packaging. Printed paper program costs are covered by municipalities, which is the case in most European programs. A detailed case study for Belgium (Fost Plus) is presentedin Appendix A to this document. Key aspects of the Belgian program of note:

- Fost Plus is the only PRO (producer responsibility organization) for residential packaging in Belgium. There is significant debate in Europe regarding monopolies for EPR program and the need for competition in the marketplace. The German case study addresses one country which moved from monopoly to competition in more detail.
- Municipalities are legally and solely responsible for separate collection and sorting of household packaging waste.
- Municipalties either collect household packaging waste (along with printed paper) themselves, or they contract the service out;
- Fost Plus pays all packaging related costs to municipalities;
- Where municipalities collect the packaging waste themselves, Fost Plus pays them "reasonable costs" established by the Inter-regional Packaging Commission (IPC), a third party entity with all municipal representation. The IPC is a public entity with representatives from the three regions in Belgium (Walloonia; Brussels and Flanders);
- If municipalties contract the service out and use the standard Fost Plus contract, Fost Plus will pay the full costs related to packaging collection;
- Fost Plus pays 100% of the cost of collection for a small list of packaging materials – PMD (plastic bottles only, metal, drink cartons) and paper packaging collected curbside;
- Beverage containers are out of the system (because they are on deposit);
- Glass is not collected curbside – in drop-off sites only;
- Where additional packaging (e.g. any plastics beyond PET and HDPE containers) are collected, producers pay 50% of costs, and municipalities pay the other 50%; this allows municipalities to choose a wider range of packaging materials;
- The IPC sets reasonable costs based on auditors reports if Fost Plus and the municiipality can not reach agreement;
- There is a level of trust for municipalities to deal with IPC because it is comprised of all public sector representatives;
- Municipalities deal with either IPC or Fost Plus directly;
- Collection of packaging material (along with printed paper) is split roughly 50:50 public sector service vs contracted service
- Where municipalities collect themselves,"reasonable costs" are agreed with IPC
- Where contracted out, Fost Plus pays 100% of contract costs if the contract follows their standard;
- The municipality and Fost Plus together agree on the contract award;
- Municipalities are re-inbursed for 100% for collecting and sorting of a prescribed list of packaging materials by Fost Plus;
- Fost Plus arranges processing and keeps 100% of revenues from most packaging;
- 25% of the mixed paper stream is considered packaging and 75% is considered printed paper (costs not covered by producers);
- Fost Plus pays 30% of collection costs for mixed paper (because paper packaging is considered a higher volume of the total);
- Revenues from the mixed paper stream are split 75% to municipalities and 25% to Fost Plus;

- Audits determine what % of the mixed paper stream is packaging and what % of collection costs should be attributed to the mixed paper stream;

3.2 Germany

Ontario currently effectively has a monopoly situation with respect to residential printed paper and packaging stewardship: under the Waste Diversion Act (WDA) all obligated producers (stewards) must belong to and pay fees to a single entity (Stewardship Ontario), or else discharge their obligations through an Individual Stewardship Plan (ISP). No ISP's have been approved to date for residential printed paper and packaging therefore all Ontario obligated stewards discharge their obligations through fees set by Stewardship Ontario and remitted to Stewardship Ontario. This system has been criticized for many years, as stewards do not have any choice regarding their service provider, and complaints have been made to the Competition Bureau about the lack of a competitive market for steward services in Ontario.

The MOE made an attempt to address the monopoly issue in Bill 91 by effectively allowing competition through multiple IFOs and choice for producers.

There is considerable discussion among the stewardship community about whether stewardship obligations are better discharged through countries with monopolies, or countries where compliance schemes are in competition with one another to discharge producer obligations. Currently about half of countries with packaging responsibility requirements for stewards have monopolies; the other half allow competition. Sixteen (16) countries (representing 50% of the population of locations with packaging stewardship programs) have monopolies and 13 countries have competition. There are valid arguments on both sides as to why one approach is better than the other. The jury is still out on which approach is more effective, but Germany provides a good example of a country which had a monopoly for a number of years, and opened the market up to competition in about 2003. Producers argue that competition comes in as markets mature, however many countries have not gone this route. These is also an argument that collecting packaging curbside is a „natural monopoly" where multiple service providers do not make sense. Others argue that collecting packaging curbside is a public service more than a business, and again, pure economic competition principles are not necessarily applicable.

The German system is described in Appendix B. There are interesting lessons from Germany for Ontario on moving from a monopoly (WDA) to competition (under Bill 91). Key elements of the German system are listed below:

- Germany has a population of 82 million; 16 states and over 500 municipalities;
- Fourteen (14) million tonnes of packaging are sold into the residential sector. Values for actual recovery rates vary, but are all reported as high (as high as 87%);
- Municipalities have statutory authority for the collection of garbage (residual waste) from households;
- Waste is collected from households in Germany in four bins:
    - Blue – paper;
    - Yellow – packaging;
    - Green – organics;
    - Grey –" rest waste" – garbage.
- Packaging is collected through the following methods:
    - Yellow bin/sack – lightweight packaging;
    - Glass – no curbside collection; drop-off depot collection only (this is a common approach to glass collection in Europe);
    - Paper – printed paper and paper packaging are collected together in a paper bin (blue).

- DSD (Duales[2] System Deutschland) was established as a monopoly to collect packaging waste curbside and at depots in 1990. Following a law requiring take back of packaging at retail, DSD was formed to discharge obligations of all producers through one entity. DSD started by coordinating recycling program collection details with local authorities and then awarding collection contracts to whichever waste management companies had existing municipal collection contracts;
- DSD ran a significant deficit in the first few years of the program (€400 million) because much more packaging than anticipated was collected; licencees were not paying fees; there was not sufficient processing capacity for plastic and collected recyclables were poor quality. After intense negotiations, waste management companies agreed to transfer debts into loans, and received non-voting shares in DSD; 10 year contracts were given to the waste management companies involved. In 2001-2002, the German government forced the waste management companies to leave the Board of DSD;
- Packaging was collected through long term 10-year contracts with waste management companies;
- The total system cost was $3.3 billion Can (€2.2 billion). This equates to €24.40/capita/year ($37/year/capita), or €49/household or $74/household (based on 40.7 million households);
- The German government was not happy about the monopoly but left it alone as stewardship was a new business at the time – they wanted to give the business time to mature;
- The break-up of the monopoly started in 2003, with a deadline for complete break-up by 2006;
- Costs reportedly decreased by 25%[3] to 30% from 2003 to 2006, because DSD was required to tender out collection services, rather than award collection contracts directly[4];
- Waste management companies on the board of DSD were asked to resign; a year later producers were asked to resign;
- DSD was sold to a US venture capital company in 2005 and competion was introduced to the market in 2006. There are now nine competing compliance schemes in Germany, although DSD still has 44% of the market;
- A Clearinghouse was established in 2008 to ensure a level playing field for competing systems, but it has limited power and scope; recent discussions have emerged regarding expanding the role of the Clearing House. Germany learned many lessons from the printed paper and packaging program which they have applied to establishing a Clearing House for the WEEE program;
- Systems costs have reportedly been reduced by over 50% from €2 billion to €1 billion[5] with competition, although there are different opinions on how this cost reduction was achieved;
- Some attribute reduced costs to the fact that older, smaller MRFs in place since 1993 in the 20,000 to 30,000 tonne range were replaced by 100,000 tonne/year MRFs which provided the scale possible to introduce more optical sorting and more efficient processing, therefore the move to competition brought innovation into the market[6];
- Free ridership is reportedly increasing, because with 9 compliance schemes, it is easier for companies to avoid meeting their obligations. Enforcement and tracking free riders is easier when the IFO is a monopoly and is “the only game in town” ;
- Reports vary on the impacts of competition on system performance; some say performance has been reduced by half; others state that recycling rates have stayed roughly the same but at half the cost.
- It should be noted that incineration and RDF are both counted towards recycling and recovery rates in Europe but are counted as disposal in Ontario;
- Municipalities are asking to be allowed to collect yellow bin material and be paid by producers.

3.3 Austria

Austria was added to the list of countries to research as it was believed there were some unique aspects of the Austrian system that would be relevant to Ontario on a go-forward basis. Nothing of note was found through the

[2] Duales refers to a „parallel“ system to the municipal collection system
[3] EXPRA (Extended Producer Responsibility Organization – Case Study on Germany, 2nd October, 2013
[4] OECD (Organization for Economic Development and Trade) , Directorate of Financial and Enterprise Affairs Competition Committee; Working Party No. 2 on Competition and Regulation, Waste Management Services, Germany 28th October, 2013
[5] 2011 data
[6] Presentation 4th February, 2014 at RCO AGM by Arno Rezek, German Competition Bureau

research. Austria has had a monopoly system since 1992 (ARA). Reclay (which operates compliance schemes in Europe) challenged the monopoly in the European Commission court. This resulted in Austria moving to competition in 2014. One item of note with regard to Austria is that where producers discharge their obligations through an individual compliance scheme (similar to an ISP in Ontario), they much reach signficantly higher recycling and recovery targets than those required by the national program.

A case study for Austria is included in Appendix C to this document.

3.4 France – Packaging and Printed Paper Programs

Municipalties are the main actors in collection of residential recyclables in France. Producer obligations for packaging are managed by Eco Emballages through contracts with 1,167 local authorities representing 36,312 municipalities. Producers pay 80% of the cost of efficient collection and sorting of packaging. The remaining costs are paid through material revenues and municipal taxes.

France also has a stewardship agency which provides some stewardship funding to municipalities by paper producers for the collection of “graphic paper ” (European term for printed paper). The Eco-Folio program excludes about one third of the paper into the market (but covers about 2/3). A reported 98% of the population is covered by the program.

A case study of the packaging EPR program in France is included in Appendix D to this document, and a case study of the graphic paper EPR program is included in Appendix E.

3.5 UK

A brief case study was completed of the UK program to provide some information on how the UK system (which is different to other European systems) works.

Stewardship of packaging in the UK is addressed through a PRN (packaging recovery note) system which is different to the programs in all other countries in Europe. Key features of the UK system are listed below:

- Targets apply to all packaging (residential and IC&I), and no distinction is made between residential and ICI packaging for reporting targets, therefore producers try to meet their targets in a cost efficient manner by focussing on recovery of printed paper and packaging from the IC&I sector;
- Companies and compliance schemes purchase PRNs (packaging recovery notes) to prove that they have met their packaging recovery obligations;
- PRNs are effectively tradable instruments which prove that a tonne of packaging has been recycled;
- Local authorities have no prescribed role in the EPR program for printed paper and packaging in the UK, but because they collect packaging and printed paper through curbside and drop off programs (bring sites as well as civic amenity sites), local authorities can sell packaging to PROs (producer responsibility organizations) looking for PRNs to meet their obligations;
- There is no evidence that $ flow to municipalities in the UK system (some reports cite a value of 5% to 10% of the total), therefore most recycling activities in the UK are financed through municipal taxes or fees.

4 Canadian Programs

The Ontario Blue Box system has been in place since the late 1980's. It has been a trail blazer for curbside recycling programs across Canada.

Curbside recycling programs developed across the country after Ontario. Most of these were financed through municipal taxes, but a few were financed in different ways through deposits on beverage containers (Manitoba through MPSC; Nova Scotia through RRFB, etc).

The requirement for producers to finance part of the Blue Box system in Ontario (to a funding cap of 50%) through the Waste Diversion Act in 2002 was also a new approach in Canada. Since then various provinces have developed different approaches to financing curbside collection systems. For this project, we profiled two provinces where funding is 100%, with different roles and responsibilities for producers and municipalities.

4.1 BC – MMBC

In May, 2014, producers in BC become fully responsible (financially and physically) for the recycling of residential printed paper and packaging in BC. The BC system is being observed with great interest by parties across Canada and the US in particular, because if it is successful, it is a model that may be rolled out across Canada over time. Key aspects of the BC system are listed below:

- In response to the Recycling Regulation deadline, MMBC (Multi Material BC) was formed in 2011 to take over physical and financial responsibility for the residential printed paper and packaging recycling system in BC by May, 2014;
- MMBC more recently became a subsidiary of CSSA (Canadian Steward Services Alliance), a national steward organization aimed at providing economies of scale to producers by managing „back office" functions such as fee collection, etc and lower overhead costs for producers who are obligated in printed paper and packaging programs across Canada;
- MMBC provided two options to municipalities:
  - remain involved in collection of printed paper and packaging (and receive an incentive payment per household) or
  - if not interested in remaining involved, MMBC would contract directly with collection companies to provide collection of residential recyclables curbside within these communities, and pay 100% of the cost;
- A curbside collection incentive (in $/household/year) was offered to municipalities in BC who want to sign up to the MMBC system. Most municipalities signed up to the MMBC system;
- Incentives are also offered to municipalities (also on a $/household basis) to provide multi-residential recycling services within their community;
- Where municipalities do not want to be involved in multi-residential recyclables collection, private sector collectors can sign up for a $/household incentive to service multi-residential households;
- A $/tonne incentive is offered for depot collection of a specific list of recyclables; a range of actors are involved in depots in BC;
- In all cases, a standard list of materials must be collected in all programs receiving MMBC funding;
- A provision is included that some materials must not be collected curbside and can only be collected by depot (e.g. plastic film and expanded polystyrene foam)
- Processing of recyclables collected from households will be carried out by the private sector under contract to MMBC. A tendering process closed in January, 2014. Green By Nature - a consortium of 30 companies and not-for profit organizations in BC was the successful bidder. In contrast to Ontario, where

some processing infrastructure is owned by municipalities, most of the BC processing infrastructure is already owned and operated by private sector companies.

4.2 Alberta, Saskatchewan and Manitoba

4.2.1 Alberta

There are a number of curbside and drop off recycling collection programs in communities throughout Alberta, although none of these are paid for by producers at this time. Edmonton has had a comprehensive curbside recycling program for many years, whereas Calgary (which had a comprehensive drop-off program consisting of over 50 drop-off sites) recently introduced curbside recycling on a mandatory fee for service basis. A consultation program is underway in early 2014 on regulatory change for recycling, including the possibility of bringing in an EPR program for printed paper and packaging.

4.2.2 Saskatchewan

On December 30, 2013, the Saskatchewan Ministry of the Environment approved the Waste Packaging and Paper Stewardship Plan that was submitted by Multi-Material Stewardship Western (MMSW) – a member of CSSA's family of recycling organizations. The plan was developed by representatives from Retail Council of Canada, Food and Consumer Products of Canada, and the Canadian Food and Restaurant Association.

MMSW's program is a shared responsibility program with stewards bearing 75% and municipalities bearing the remaining 25% of the costs of delivering efficient and effective recycling services to Saskatchewan residents. Funding of the recycling program will start in January, 2015.

4.2.3 Manitoba

Manitoba's Packaging and Printed Paper Stewardship Regulation (December, 2008) requires affected companies to register as product stewards and to remit fees that are used to cover up to 80% of the cost of efficient municipal recycling programs. The program is administered by Multi Material Stewardship Manitoba (MMSM). MMSM is now also part of the CSSA group. Newspapers are exempted from contributing to the program, as their contribution is obtained from the HST, based on an agreement made with the government a number of years ago.

4.3 Quebec

There is an EPR program in place to fund the recycling of all packaging and printed paper collected through municipal (residential and IC&I) systems in Quebec. Municipalities in Quebec are physically responsible for collection of printed paper and packaging from households. In 2013, industry was required to finance 100% of the net costs of municipal systems. The system cost was about $120 million in 2012, excluding newspapers.

EEQ (Eco Enterprises Quebec) collects fees from packaging producers and submits these fees to Recyc Quebec who then disburses the fees to municipalities. Newspapers contribute 10% of system costs through a separate association (Recyc Media) who remit the funds to Recyc Quebec separately.

Municipalities submit a report prepared by an auditor to Recyc Quebec to receive payment. The payout to municipalities is based on effectiveness and efficiency. Like other provinces, Quebec uses a "three factor formula" to allocate funding to municipalities. The system costs are split among producers based on ABC (activity based costing) studies. The split among the different materials has varied each year for the last few years is presented in Table 3.

Table 3: Allocation of Printed Paper and Packaging Recycling Costs in Quebec Program 2010-2012

Year	Packaging % of Total Costs	Printed Paper % of Total Costs	Newsprint % of Total Costs
2010	60%	20%	20%
2011	60%	30%	10%
2012	60%	20.6%	10.4%

4.4 Maritime Provinces

All four Atlantic provinces have existing recycling programs which are funded through a combination of municipal taxes and revenues from beverage container deposit programs. In late 2013, Recycle New Brunswick commissioned a study to provide a potential framework and implementation plan for a packaging and printed paper stewardship program which could be adapted to the needs of each of the four Atlantic Provinces (New Brunswick, Nova Scotia, Newfoundland and PEI).

5 Case Study Findings Applicable to Ontario

This case study report presents basic information on the printed paper and packaging programs in Canada and Europe which are usually cited as most applicable to Ontario. It is essential for Ontario municipalities to understand the elements of other printed paper and packaging stewardship programs so that there are no mis-conceptions on how other programs operate, and no "mythology" that other jurisdictions have all the answers. The findings from the research are summarized below.

There is no "magic bullet": No particular program has the perfect answer for Ontario – the best future model is likely to combine good elements from a few different programs. Each of the EPR programs studied has adapted elements from other programs to best suit their own local needs and regulatory framework. Ontario is likely to do the same.

EU Producers are Obligated to Fund Packaging Only: When comparing EU programs to Canadian programs, producers in most countries are required to finance packaging recovery only. Municipalities generally collect printed paper but pay for this themselves. Various formulas are worked out to split the system costs between packaging and printed paper. For instance, in Belgium it is assumed that 25% of the paper tonnage (and 30% of the paper costs) are related to paper packaging, and that about 30% of the printed paper and packaging collection costs are related to non-paper packaging.

Incineration and RDF Count Towards Recycling/Recovery Targets in Europe: Materials collected in Europe can be recycled, processed into RDF or incinerated. All of these options count towards the recycling/recovery targets, whereas in Ontario RDF and incineration are considered disposal.

There is a Logical Role For Municipalities in Blue Box Collection: Municipalities are the public face of recycling for residents, they have day to day face to face contact with residents. Municipalities (through contractors or their own staff) already collect Green Bin organics and garbage from households so it is logical that they have a clear, long term role in collection of Blue Box materials in Ontario. Other programs and countries involve municipalities in the collection part of recycling programs. Where municipalities have not been involved in the past (e.g. in Germany), discussions are underway on a possible role for municipalities.

Municipal Role in Processing is less clear long term: The case studies show that while municipalities continue to be involved in collection, producers generally assume responsibility for processing and marketing of recyclables after collection.

Belgium Fost Plus has many good features that Ontario should consider: The Belgian Fost Plus program seems to work well because there is a level of trust between producers and municipalities. Municipalities have total control over how they run their recycling programs and are given choices regarding how they run the recycling collection program and how to get paid by producers. If municipalities operate the collection programs themselves, they agree on *reasonable costs* with producers based on audited financial reports. If an agreement can not be reached, the IPC (a municipal body) gets involved in establishing *reasonable costs*. There is a level of trust in IPC because it has municipal representation. Fost Plus will pay 100% of the municipal collection costs of designated packaging materials. Municipalities can add more materials to the program than the official Fost Plus list, but the costs of collecting additional materials are shared 50:50 between producers and municialities. Municipalities can also choose whether to use the Fost Plus collection contract (and Fost Plus pays 100% of the packaging related costs), or they can collect themselves and be paid *reasonable costs*. There are a few significant differences in Belgium that Ontario municipalities need to understand:

- Fost Plus only pays for collection of selected packaging materials;
- Municipalities pay for collection of printed paper;
- Fost Plus takes over processing of packaging materials; municipalities do not get involved, and
- Municipalities manage processing and marketing of printed paper.

BC Model Has Elements For Consideration in Ontario: The BC system is different to Ontario now or for the foreseeable future as producers have full financial and physical responsibility for 100% of the residential printed paper and packaging recycling systems in the province. Ontario is not near that point at this time. The decision on 100% may be re-visited through the extensive consultation promised by the Minister in recent speeches (e.g. RCO on 4th February, 2014) and also in the Waste Reduction Strategy which is a companion/background document to Bill 91 (the Waste Reduction Act) which died on the order paper when the Provincial election was called in May, 2014. In BC, municipalities have the option to remain involved in recycling collection, but producers are completely taking over responsibility for processing and marketing of recyclables. This was not difficult in BC, as municipalities were not involved in processing which was all contracted to private sector MRF operators. However, this would be more complicated in Ontario as much of the MRF infrastructure is municipally owned (even though mostly operated by contracts with private sector companies). Some elements of the BC system may be viable in Ontario. The BC system moves to full producer responsibility in May, 2014. Ontario municipalties should carefully follow developments in BC over time to find lessons applicable to improving Ontario's system.

German Experience Moving From A Monopoly to Competition: Germany moved from monopoly under DSD to competition for EPR services for printed paper and packaging. Ontario is currently a monopoly (Stewardship Ontario is the only IFO). Under Bill 91, producers could form separate compliance schemes. This option is no longer under discussion as the future of Bill 91 is not known. Ontario municipalities need to fully understand the implications of not dealing with a monopoly, and the importance of having an effective Clearing House where data is centralized, should Ontario move away from monopoly towards competitive or multiple compliance schemes. Whereas the relationship with Stewardship Ontario presents challenges to municipalities, they only have to deal with one entity to get paid. The importance of on-going payments to municipalities needs to be front and centre in all discussions regarding changes to Blue Box funding approaches.

Appendix A – Packaging EPR Program in Belgium

Material Types Covered	• Only PMD waste (packaging made of plastic or metal and drink cartons) • Paper and printed paper are excluded from the EPR program, but are collected by municipal authorities.

Financing Mechanism	• Producers pay a fee of €0.50/capita per year to FOST-Plus.
	  o A producer/importer of other (household) plastics like film plastic and less common plastics like PP cups also has to pay a higher contribution because this plastic packaging can't be recycled.
	• Even though all types of printed paper and packaging are collected together, FOST-Plus pays only for the packaging portion (~30% of the total); the remaining 70% is paid by the municipality.
	• Collaboration, consultation, and negotiation is used to create a cost model that is agreed upon by all parties, and that gives a good indication of reasonable and fair cost to collect a specific fraction in a given area, taking into account the specific situation of the inter-municipality (e.g. geography, density, number and cost of full-time employees, number of trucks, the efficiency of the municipality's collection scheme (based on reports of tonnes collected per day/truck/containers), distance to the recycler, etc.).
	• If during/after negotiation parties don't agree, an audit is performed by a third-party consultant hired by FOST-Plus to verify the costs of the inter-municipality and the efficiency of the collection scheme. The auditor attempts to determine a reasonable collection cost, as well as an optimization process to increase efficiency. Following consultation with both parties, the regional authorities and the IPC try to identify a consensus.
	• The reimbursements are carried out according to one of the four following rules:
	1) **Real and complete cost:** FOST-Plus pays the municipality or private contractor directly for each tonne of material collected and sorted, based on information about tonnages supplied by the inter-municipality (group of municipalities), and cross-checked with tonnages received by re-processors.
	2) **Mutual agreement**: FOST-Plus and the municipality reach a mutual agreement on the costs to be reimbursed by FOST-Plus.
	3) **"Standard" cost**: FOST-Plus pays to the inter-municipality a so-called 'reference cost' intended to cover the average cost incurred in the selective collection and sorting of packaging waste for a *standard level of service*.
	  o The *standard level of service* is a packaging collection scheme for PET and HDPE bottles, metal cans, OCC and paperboard packaging.
	  o The standard cost is paid by packaging material calculated to 40% per tonne (the variable part of the "standard" cost) and 60% per resident (the fixed part of "standard" cost).
	  o If the municipality can provide proof of a different cost structure, FOST-Plus can opt to use an alternative proportion of the fixed and variable component of the standard cost.
	  o Municipalities have the right to collect for recycling other packaging waste in addition to the basic FOST-Plus collection scheme (for example, other plastics). When proof of recycling is given, FOST-Plus has the obligation to pay for 50% of the costs of collecting and recycling these waste flows. Typically, these are very small flows.
	4) **Special fixed reimbursement:** There are two scenarios in which a municipality can receive a special contribution:
	  o 1) If a municipality decides to complement the "standard" level of service with additional collection rounds, FOST-Plus reimburses the real and complete cost for the "standard" level of service per flow of packaging waste and the additional quantities are reimbursed with the special contribution.
	  o 2) Cost from household cardboard collected separately via the container parks (not via the standard door-to-door collection) are reimbursed according the standard cost.
	• Apart from the collection costs, FOST-Plus pays bonus incentives for quality, follow-up costs, etc.

	• According to FOST-Plus, the cost of the system to the packaging industry (producers, retailer, importers) is around €75 million Euros ($113 million Canadian) per year. • The per capita cost of operation is fairly stable, and was reported to be €8.98 per year in 2008 ($13.50 Can/cap) (or €6.40 per year ($9.60/cap) after the sale of recovered materials). Note this is for packaging only and excludes printed paper • In 2009 Fost Plus costs were €9.35 per year per cap ($14/cap/year), or €5.20 per year per capita $7.80/cap/year after sale of recovered materials. Note this is for packaging only and excludes printed paper

Performance Targets	• Belgium must meet targets set out in both the EU Packaging Directive and the Cooperation Agreement.
	• As indicated in the EU Directive 2004/12/EC, a minimum of 60% by weight of all packaging waste must be recovered or incinerated at energy-from-waste plants no later than December 31, 2008. Furthermore, it requires that by 31 December 2008, between 55 and 80% by weight of all packaging waste be recycled.
	• Aside from overall recovery and recycling targets, the Directive sets material specific targets as follows:
	  ○ 60% by weight for glass,
	  ○ 60 % by weight for paper and board,
	  ○ 50% by weight for metals,
	  ○ 22.5% by weight for plastics, and
	  ○ 15 % by weight for wood.
	• The Cooperation Agreement requires producers to achieve an 80% recycling rate and 90% recovery rate. Material specific recycling targets in the Cooperation Agreement are the same as under the EU Directive.
	• National targets apply separately to household and commercial packaging.

Program Performance	• Belgium (Flanders in particular) exceeds the maximum targets set by the EU Directive. Overall, nearly 90% of the total tonnage of packaging put on the market is covered in the collection scenario advanced by FOST-Plus. • In 2011, the recycling rate of household packaging waste was 80.2%, making Belgium the top packaging recycler among all 27 EU member states. At the same time, its recovery rate was 96.9%, closely behind Germany. • The high recycling rate needs to be viewed with caution as the system only takes bottle plastics for recycling, leaving huge amounts of other kinds of plastic packaging to be incinerated. • Indeed, only 39% of PET plastic is recycled, while 46% is incinerated. • 95% of the Belgian population actively participates in the program. • In 2011, the amount of packaging waste that was recycled (700,000 tonnes) resulted in an estimated reduction of 860,000 tons of CO^2 to the atmosphere.
Roles and Responsibilities	

Producers	• As per the Cooperation Agreement, producers (packer/fillers or brand owners, importers or end-users) that place more than 300 kg of packaging per year in the Belgian market have a take-back obligation and are required to bear the full costs associated with the selective collection, recovery, and recycling of their packaging.
	• Below this threshold, companies are exempt from the legal obligations of recycling and recovery.
	• Producers may fulfill this obligation individually (in which case they report directly to the interregional secretariat [IVCIE]) or collectively by joining a producer responsibility organization (PRO) (also known as a producer compliance scheme (PSC)) to whom they delegate their obligations.
	• There are two licensed packaging waste organizations in Belgium:
	  ○ FOST-Plus for household packaging; and.
	  ○ VAL-I-PAC for commercial packaging
	• In order to transfer their obligations to FOST-PLUS, producers of household packaging must sign a membership agreement (this can be terminated each year).
	• As part of this agreement, FOST-Plus provides specifications for collection and sorting, including a list of quality criteria.
	• Producers must report the weight, type and quantity of packaging they put on the Belgian

	market each year, and then pay a fee to FOST-Plus based on the amount of packaging (weight) and material type used. • By the end of 2009, FOST-Plus recorded 5,900 memberships, • Contracts stipulate which fractions of packaging are collected, how that collection occurs, what activities FOST-Plus finances and under what terms and conditions, what administrative obligations both parties have, and how they are followed up and enforced. • FOST-Plus doesn't have an obligation to collect all household packaging. They can make choices, as long as they meet the 80% global recycling target and the minimum recycling target of 30% for plastics. • In addition to the take-back obligation, all companies placing more than 300 tonnes of one-way packaging on the market per year must submit a prevention plan to the IPC once every three years. Among other things, this plan must outline the measures foreseen to increase recycling and recovery rates to achieve the targets
Municipalities	• In order to meet its members' obligations, FOST-Plus signs 8-year contracts with all inter-municipalities for the collection and/or sorting of the household packaging waste flow. • There are 589 municipalities for waste management, resulting in approximately 50 inter-municipal waste authorities. • Municipalities have the choice of whether to use their own collection infrastructure or to contract these services out to private waste management companies. • If they choose individual compliance, their alternative collective scheme must be authorized by the regional authorities. • If they prefer to delegate these responsibilities to a private sector contractor, a call for tender is made. FOST-Plus and the inter-municipality make a joint decision as to which waste management company to use. • So far, contracts have been mainly awarded to the cheapest bidder, although quality criteria, such as references or relevant experience, and transport costs to reprocessing plants, are also taken into account. • There is roughly a 50/50 split between those municipalities collecting themselves and those contracting out. • Although Belgium decided to only collect plastics it could get market value for rather than invest in new technologies that would create markets for the plastic, some municipalities have found markets for some non-bottle plastics and are beginning to collect them in parallel to FOST-Plus collection
Government	• The Flemish Public Waste Agency (OVAM) prepares waste legislation on behalf of the Flemish Minister for the Environment. After legislation has been approved by the Flemish Government, OVAM implements and monitors its performance. • At the regional level, each government establishes its own legal framework on waste management. • Responsible for approving contracts between municipalities and FOST-Plus. • Responsible for finalizing implementation plans.
Population/Households Covered	• In 2010, FOST-Plus reported 100% coverage of the territory/population

Infrastructure	• After being discarded by the consumer, packaging waste is selectively collected through two main systems:
	    o Curbside collection for paper/cardboard and PMD (plastic bottles and flasks, metallic packaging and drinks cartons); and
	    o Bottle banks for collection of glass (differentiating colored and clear glass).
	• In addition to these 2 systems, packaging waste (both types) can be collected via drop-off centers (e.g. container parks, recycling centers).
	• Even if public infrastructure is used, the costs have to be paid by the producers of the packaging material through FOST-Plus.

Enforcement	• Penalty clauses for non-compliance include: warnings, suspension or withdrawal of accreditation, release of all or part of the financial guarantees provided by the accredited body, administrative penalties, and even imprisonment. • With regards to the prevention plan required to be submitted by companies responsible for at least 300 tonnes of one-way packaging per year, the IPC can impose an administrative

	fine if it is not submitted within a specific period. • The inter-municipalities can impose administrative fines against behaviour described as "incivilities" (e.g. littering, wrong sorting).

Governance	• At the regional level, each region has its own government and waste authorities:
	  ○ The Brussels' Institute for Environmental Management (IBGE/BIM) was established to administer and control the application of environmental and waste legislation in the Brussels region.
	  ○ The Flemish Public Waste Agency (OVAM) was created to prepare and implement waste legislation on behalf of the Flemish Region.
	  ○ A Waste Agency (belonging to the Walloon Ministry for Natural Resources and Environment, DGRNE) was created to ensure the implementation of waste policies in the region of Wallonia.
	• Each of these authorities is responsible for ensuring the participation of the respective region in the Interregional Packaging Commission (IPC).
	• The Interregional Packaging Committee (IPC) is the official body that monitors the implementation of the legislation on the prevention and management of packaging waste. It is a public institution set up to ensure the harmonized management of packaging waste and is made up of representatives of the 3 regions: the Walloon Region, the Flemish Region, and the Brussels Region.
	• The primary responsibilities of the IPC are the following:
	  ○ Grant approval to packaging waste management organisations (e.g. FOST-Plus) and audit their activities to suspend or renew their licenses;
	  ○ Monitor compliance with the regulations by packaging producers and approved organisations;
	  ○ Evaluate and approve prevention plans established by packaging producers and the sectoral federations;
	  ○ Ensure the smooth operation of the whole system.
	• The IPC consists of two main groups:
	  ○ a decision-making body (DMB) and
	  ○ a Permanent Secretariat
	• The DMB is made up of nine members (three from each region) appointed by the regional governments. Every year, a new President is appointed by members of the DMB. The Presidency rotates between the three regions. The DMB convenes at least once a month (or at the request of a member), and makes its decisions based on consensus.
	• The Permanent Secretariat is comprised of civil servants and agents that each regional government places at the disposal of the IPC to carry out its administrative and technical duties. Its main role is to assist the DMB. The day-to-day operations of the Permanent Secretariat are overseen by the director who is appointed by the DMB.

Enabling Legislation	• European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste (EU Packaging Directive) • The Ecotax-Act (ordinary Law of 16 July 1993) • Interregional Co-operation agreement Packaging Decree, 30 May 1996; has been in force since 1997 with respect to household packaging and since 1998 with respect to industrial packaging. • Law of 21 December 1998 (essential requirements) • The Royal Decree, 25 March 1999 defining standards for packaging

Appendix B – Packaging EPR Program in Germany

Material Types Covered	• Household and some commercial packaging • Excludes all (except juice and wine) beverage containers which are on deposit in a separate scheme.)
Financing Mechanism	• The Duales system is operated by producers through a number of compliance schemes (DSD and 8 others) with no involvement by municipalities • There is no financial flow between producers and municipalities. • There is no government money financing the selective collection and sorting of packaging waste. • The recycling system is 100% financed by industry through the license fees paid by the manufacturers who put the packaging onto the market. These fees are based on the amount and type of packaging they place on the market; the lighter the package, the smaller the fee. For competition reasons, license fees are not known for any of the dual systems. • Costs of packaging waste collection are allocated based on the respective market shares of the dual systems. • Companies who want to use the Green Dot logo on their packaging (it is not mandatory) must pay a trademark fee *in addition to* the license fee. These fees (paid by producers to DSD) are not sufficient to cover the full costs of the system and only represent the “economic value” of using the trademark.

Performance Targets	• For household packaging, Germany has set higher targets than those in the EU Packaging Directive.
	• The overall minimum recycling and recovery targets set by Germany, to be achieved no later than December 31, 2008, are as follows:
	  o Recovery – at least 65% by weight of all packaging waste (compared to 60% target set out in the EU Directive)
	  o Recycling – at least 55% by weight of all packaging waste
	• The minimum recycling targets for the different materials contained in packaging set out in the Packaging Ordinance are as follows:
	  o Paper/cardboard: 70%
	  o Glass : 75%
	  o Aluminum: 60%
	  o Tinplate: 70%
	  o Plastic: 36%
	  o Composites: 60%

Program Performance	• In 2011, Germany recycled 71.8% of household packaging. In the same year, Germany was the EU leader for recovery rates with 97.4% of packaging waste recovered or incinerated.
Roles and Responsibilities	
Producers	• Packaging manufacturers and distributors are fully (100%) responsible for the end-of-life management of their waste and have to comply with a system that ensures its recycling and recovery. • This responsibility can be assumed individually in which case producers must provide a system for the take back of secondary packaging at the point of sale. • Alternatively, producers can transfer this take-back obligation to an authorized dual system, the largest of which is ‘Duales System Deutschland’ (DSD). There are currently nine dual system companies licensed to operate on the packaging waste management market. • The first example of a ‘green dot’ company, DSD was created by industry in 1990 to manage the collection, sorting, and recycling of all household and commercial packaging on behalf of producers (clients). • DSD does not collect the material themselves; since 2004, they tender these services to private and municipal waste management companies by signing three-year contracts. • For a long time, DSD has had sole responsibility for the collection of household packaging and associated costs. This is no longer the case and DSD is now required to cooperate with

	municipalities before they can receive approval from central government for waste management systems. • Obligated producers must register and submit data based on the quantity of packaging handled to the Federal Ministry of the Environment; this includes mass flow verification
Municipalities	• In the beginning, municipalities had no involvement in recovery and recycling operations; this has recently changed. Now, each dual system needs to be given permission by the local waste management authority in order to organize and collection of household packaging. • Paper/cardboard packaging is collected with the other (non-packaging) waste which municipalities collect in a blue "paper bin". • In this case, the dual systems have to reimburse municipalities for the collection based on the share of the packaging waste collected in the blue paper bin
Government	• Pass packaging laws • Approve compliance schemes • Set recycling targets
Population/Households Covered	
Infrastructure	• The 'dual system' is based on the collection of household packaging in parallel to the existing municipal collection infrastructure. Packaging can be collected through the following methods: ○ Light-weight packaging (LWP) (including plastics, aluminium, tinplate and composite materials) are mainly collected in 'yellow bins' or 'yellow bags' (curbside or a bring system); ○ Glass is collected in glass containers (bring system); ○ Paper/cardboard is collected in a 'blue bin' with other (non-packaging) waste (e.g. used paper)
Enforcement	• Due to a lack of action on the provincial and local level, DSD and the retail sector took over enforcement and most of the big retail chains only listed suppliers who could prove to be a member of DSD. Companies using the Green Dot symbol that do not have a valid licence agreement can be taken to court.
Governance	• No environmental groups are represented in the DSD's board of trustees. • Established by DSD in 1995, Pro-Europe (Packaging Recovery Organization Europe) is the umbrella organization for European packaging and packaging waste recovery and recycling schemes which use the "Green Dot" trademark. In its overarching role, Pro-Europe oversees the granting of "Green Dot" licenses. Its membership spans 31 countries across Europe and some in North America.
Enabling Legislation	• European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste (the EU Packaging Directive) • Packaging Ordinance 1991, amended 21 of August 1998

Appendix C -Packaging EPR Program For Austria

Material Types Covered	• Commercial and household packaging
Financing Mechanism	• While municipalities can be contracted for collection services, all financial burdens lie with the producer responsibility organization(s). • Every obligated company wishing to transfer their take-back obligations to a PRO (Alstoff Recycling Austria (ARA) being the largest) must pay license fees (in accordance with the valid tariffs) in order to display the 'green dot' logo. These fees depend on the quantity and type of packaging the company puts on the market. • In order to ensure fair distribution of the costs, the tariffs are based on the expenditure incurred for the collection, sorting and recovery or recycling of the individual packaging material. • Any revenues from the sale of recycled material are used to offset costs and decrease producer fees
Performance Targets	• Obligated companies, or recovery organizations acting on their behalf, are required to meet the overall recycling targets set out in the EU Packaging Directive, which are: o a minimum recovery rate of 60%, and o a minimum recycling rate of 55%. • They must also meet the material-specific targets as follows: o Glass 60%; o Paper 60%; o Metals 50%; o Plastics 22.5%; o Wood 15% • Under the Austrian Packaging Ordinance, approval notices for recovery organisations require at least 60% of the quantity of each packaging material covered by the organisation to be collected. Furthermore, at least 55% overall and at least the percentages set out in the material-specific targets must be recycled. • For companies choosing to go the individual route rather than through a collective system, packaging must be recycled by the end of the calendar year after that in which it was taken back at the following rates: o 95% of the ceramic and metal packaging collected, o 93% of the glass, o 90% of the paper and board, o 40% of the plastics and composite board for beverages, and o 15% of other composite materials must be sent for recycling, and untreated wood packaging sent for recovery. • If the company fails to meet the target for any of these individual materials, it will be required to sign up with the ARA system • The Target Ordinance includes ratios of drinks packaging as a proportion of the bottling volume sold on the domestic market which shall be met through re-filling, recycling and energy recovery (e.g. 94% of beer containers) and targets for maximum amounts of packaging waste other than beverage containers that can be landfilled (e.g. plastics: 60,000).
Program Performance	• In 2011, Austria had a packaging recycling rate of 65.8%[7]. Its recovery rate sits at around 85%[8], therebyexceeding the maximum target set by the EU Packaging Directive.
Roles and Responsibilities	

[7] "UK drops down packaging recycling league table," http://www.letsrecycle.com/news/latest-news/packaging/uk-drops-down-packaging-recycling-league-table, 10 October 2013.
[8] Reclay Group, "Packaging Waste Management in Europe in a state of flux: the transition into competition," *Recycling Council of British Columbia,* http://www.rcbc.bc.ca/files/u7/rcbc2013_flanderka.pdf, accessed 28 October 2013.

Producers	• Producers (manufacturers, importers, packers and distributors) are responsible (physically and financially) for the collection, recovery and recycling of packaging materials placed on the market • May comply individually or collectively through a producer responsibility organization (Altstoff Recycling Austria [ARA] is the largest) • For companies complying individually, high levels of recovery are required (>90%). If the company does not meet the target for each individual material, it *must* sign up with the ARA system. • Producers must document the amount of packaging they put on the market and the return and recovery quotas, and report these to the Minister of Environment, no later than three months after the end of each calendar year
Municipalities	• Municipalities have neither physical nor financial responsibility under the system, but they may be contracted for certain services in the context of packaging management. Indeed, ARA has signed agreements with more than 450 Austrian municipalities. Examples of such services include: the emptying of containers, the cleaning of container areas, sorting activities, and other services. Their role is predominantly an advisory one; while municipalities have the right to comment on any application made by a PCS and work with ARA and waste management contractors to communicate on waste management activities, they have little overall influence.
Government	• The authority responsible for oversight is the Austrian Federal Ministry of Agriculture, Forestry, Environment, and Water Management. • Responsible for approving collection and recovery systems.
Population/Households Covered	• ARA, who handles all packaging except beverage cartons, operates in all municipalities and 1.1 million households have access to separate collections.
Infrastructure	• There is no duplication; ARA and other producer responsibility organizations have an obligation to share use of the existing collection infrastructure at the regional level. • In Austria, paper packaging from households and small business is collected together with other paper products (e.g. newspaper, journals, other print products) in red containers. These containers are placed in public areas (bring system) or directly at the curb (curbside collection). In urban areas in particular, a combination of the two systems is commonplace. • In around 60% of Austria, light-weight packaging (i.e. plastics and composite materials) is collected in yellow bags and bins together with packaging made of wood, textiles, ceramics, and biodegradable material. • In Vienna, Lower Austria, Salzburg, and Carinthia, a separate collection scheme is available for plastic bottles, which in some cases are collected together with metal packaging. Other light-weight packaging materials can be disposed of via the municipal solid waste collection system and are used for energy recovery.
Enforcement	• High fines and penalties for non-compliance • Several companies have been prosecuted for failing to license their packaging with one of the producer compliance schemes; fines have ranged between €363 and €730 and offenders also have to pay the Lebensministerium's enforcement costs, which are typically €1,450 – 2,200. • Companies prosecuted a second time must pay a fine equivalent to double the license fees they would have paid if they were members of a PRO. Most companies have been prosecuted more than once, and have typically paid fines in the range of €7,270.
Governance	• To ensure equal representation of the three main stakeholder groups, the ARA association is divided into three sections: manufacturers, packers/fillers/importers, and wholesaler/retailers of packaging. All nine packaging materials are equally represented consistent with the provisions of the Packaging Ordinance. • The companies representing the individual packaging materials hold an ownership share in ARA of 3.7 % each, either indirectly as members of the ARA association or through a separate body. • Established in 1995, Pro-Europe (Packaging Recovery Organization Europe) is the umbrella organization for European packaging and packaging waste recovery and recycling schemes which use the "Green Dot" trademark. In its overarching role, Pro-Europe

	oversees the granting of "Green Dot" licenses. Its membership spans 31 countries across Europe and some in North America.
Enabling Legislation	• European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste • Austrian Packaging Ordinance 1992, amended in 1996 • Waste Management Act

Appendix D – Packaging EPR Program in France

Material Types Covered	• Household packaging
Financing Mechanism	• Costs are shared between producers and municipalities • Up from 60% in 2010, current legislation stipulates that by 2012, 80% of the overall reference cost (net baseline cost) of efficient collection and sorting of household packaging waste will be covered by industry (this represents a 25% increase in financial support for local authorities between 2010 and 2011). This is done through Green Dot fees. Each producer pays a financial contribution to the collective scheme, depending on the quantity of products they put on the market. This fee comprises a variable component (weight fee) and a fixed component (unit fee). • The remaining 20% of the household packaging management costs are financed by municipalities through revenue from the sale of sorted materials and on contributions from tax-payers. • Municipalities may be eligible for increased funding depending on their global performance rate or if they serve a restricted group of population (buildings and/or dispersed rural housing).
Performance Targets	• No collection targets • Recycling target 75% in 2012
Program Performance	• Since 2007, France's overall recycling rate has risen by 1.5 percentage points per year. • In 2011, the overall recycling rate was 67.1% (50 kg/inh/year). • Eco-Emballages exceeded recycling targets by 21%, two years ahead of requirements.
Roles and Responsibilities	
Producers	• Packaging or packaged goods manufacturers are responsible for the collection and recovery of household packaging waste. • Producers may fulfill this obligation individually by providing deposit facilities for consumers or by establishing individual brand-based collection and treatment systems for the waste generated by their products. • Individual systems are approved by the State for a period of up to six years (renewable) on the condition that the producers who set up the system can demonstrate their capacity (technical and financial) to achieve the requirements set out in the terms of reference. • Producers can also comply collectively by transferring their obligation to a certified producer compliance scheme to which they pay a financial contribution. • Éco-Emballages, a private non-for-profit organization, was the first compliance scheme established in France and is now the largest. • Éco-Emballages (and the other PCS, Adelphe) manages producers' obligations through contracts with local authorities. In 2010, this company had contracts with 1,167 local authorities representing 36,312 municipalities. • Regardless of how a producer chooses to fulfill its obligations, it must report to the Agency for Environment and Energy Management (*Agence de l'Environnement et de la Maîtrise de l'Energie* (ADEME)) the amount of packaging it placed on the market as well as the amount of packaging waste collected and recovered. • All producers must commit to abide by the terms of reference established by cabinet decree. • With regards to commercial packaging, it is the end-user (not the producer) who is responsible for collection and recovery operations. The only obligation for the producer is to put industrial end-users in contact with local waste management contractors. • Since July 1, 2011, supermarkets have to take back packaging at the end of checkout.
Municipalities	• Initially, municipalities were charged with the responsibility for the collection and recovery of household packaging, while industry was responsible for only commercial waste. This changed following the Directive. • Today, in addition to commercial packaging, industry is responsible for financing household packaging waste recovery by paying contributions to the recovery organizations.

	• Through contracts with recovery organizations, municipalities are still responsible for the physical management of household packaging (including collection, sorting, sale of sorted materials, communicating information to the public), but are compensated for their involvement.
Government	• After implementing regulations, the main role of government is to oversee the operation of PCSs by establishing operational rules and recycling targets, and by arbitrating between stakeholders (i.e. municipalities, industry). • Set the 'terms of reference' for the certification of collective schemes, and re-negotiate these every 6 years among all stakeholders (producers, municipalities, waste management operators, government, NGOs). • Approve collective schemes and validate standard contracts • Determine rules for the implementation of financial guarantees • Establish the responsibility shared between actors • Approve the fee schedule for fees paid upstream by producers • Approve the fee schedule for downstream payments, for example, reimbursements to municipalities involved in collection and sorting • Monitor the quantities of packaging entering the market, collected, and recovered • Sanction those who do not comply with their certification
Population/Households Covered	• At the end of 2011, fewer than 1 million residents were without recycling access (were not served by home collection service or by civic amenity sites for materials other than glass).

Infrastructure	• Packaging is typically collected via curbside and/or bring systems. A small portion (mostly cardboard waste) is also collected through drop-off centers.
	• In France, packaging can be collected through the following methods:
	  ○ **Bi flow** –glass is collected separately from the multi-material flow, *including* all types of packaging as well as newspapers and magazines;
	  ○ **Tri flow** –glass is collected separately from the multi-material flow, *excluding* newspapers and magazines, which are also collected separately (the third flow);
	  ○ **Corps creux/corps plats 1** – also a tri-flow; glass is collected separately, cardboard is collected along with newspapers and magazines, and the third flow is consists of metal and plastic packaging.

Enforcement	• Monitoring and prosecution of non-compliant producers is carried out by government enforcement agencies. • Municipalities have no power as enforcers
Governance	• In the '96 Decree on Waste Management, provisions were made for advisory committees including municipalities to advise on the development of waste management plans. • Municipalities, represented by the French Mayors Association (AMF) (*Association des Maires de France* in French), communicate with producers through the co-ordinating body, OCAD3E, that represents the four PCSs in operation. • The relationship between producers and municipalities is usually managed through contractual agreements between both parties, through a process of continuous consultation and regular performance reviews. • The Ministry of Environment manages an approval procedure with the prospective recovery organizations. Consultations are organised with stakeholders (producers, municipalities, waste management operators, government, NGOs) resulting in the setting up of a Consultative Committee for Approval. This group meets every 3 months. • The approved PCSs are subject to monitoring by a State comptroller. A State comptroller sits on the board of each PCS to provide oversight and may carry out audits of financial operations. • For its assessments, the State relies on reports from ADEME (a government agency under the joint authority of the Ministry for Ecology, Sustainable Development and Energy, and the Ministry for Higher Education and Research), on evaluations the government has requested, and on the advice of special consultative commissions. • These commissions are comprised of representatives from government ministries (e.g. Ministry of Environment) and ADEME, as well as from bodies that represent the various stakeholders in the system: manufacturers, distributors, importers, municipalities, consumer groups, environmental organizations, and waste collection and treatment entities.

Enabling Legislation	• European Directive 94/62/EC (amended) • Lalonde Decree N° 92-377 (amended), setting out conditions for the collection and the recovery of packaging waste produced in households • Decree N° 94-609 13 July 1994 on packaging waste for which the owners are not households • Decree N° 96-1008 on the disposal of household waste which contains the quotas set by the European Packaging Directive • Decree N° 98-638, 20 July 1998 related to the environmental requirements in the design and manufacture of packaging • Article 46, Law 2009-967 • Articles R 543-53 to R 543-65 of the Environmental Code

Appendix E - Printed Paper EPR Program In France

Material Types Covered	• Graphic papers (junk mail, supermarket flyers, free newspapers and other 'unsolicited printed publications'). • Excluded from the program are: books, press publications, paper documents put in the market by public persons (or by individuals carrying out public service tasks), papers existing only because of a legal obligation such as tax or identification documents. • About 2/3 of all paper produced in France falls under the EPR scheme.
Financing Mechanism	• France is the only country in the EU where local authorities are financially responsible for the sorting process of graphic paper. • The total overall cost of the system (including collection *and* sorting) is 190€/tonne (compared with 73€/tonne in Sweden). After paying for sorting, the industrial revenues range from €70 to €80/tonne. • Unlike other member states, French producers are required to provide financial support to municipalities. (In 2012, municipalities were compensated for their services at a rate of 15-20%). This is done by paying an "eco-contribution" to Eco Folio, France's producer responsibility organization for graphic papers. This is not covered by the financial revenues and was about €1 per capita per year until 2013. It will increase to €1.20 per capita per year during 2013-2016. • Contribution levels are based on the amount of paper a producer has distributed in the previous year. In 2011, the eco-contribution was set at €39/tonne. This rate was determined by the Board following negotiations with local authorities. • Producers that have implemented eco-design initiatives, for example, by obtaining the EU Eco-label, or by using a minimum of 50% of recycled fibrous paper in the paper manfacturing process, will pay a 10% lower contribution. • Eco Folio uses the sum of these contributions to distribute subsidies to municipalities, depending on the tonnages collected and their treatment method. The amount has been set at: ○ €80/tonne for paper sent for recycling (previously €65); ○ €30/tonne for paper sent for composting, digestion or energy recovery; and ○ €2/tonne for all other treatment methods. • After financial support from Eco Folio, the overall cost of managing graphic paper waste in France is €3.54 per capita per year (compared to €0.35 to €1.84 euro in the rest of Europe). This adds up to an average cost (operational costs – industrial revenues) paid by municipalities of approximately €111/tonne. This is significantly higher than in other EU countries (15€/tonne in Portugal, -59€/tonne in Belgium). • Eco Folio generates no profit. After deducting the operating costs, 100% of producer contributions are distributed to municipalities.
Performance Targets	• With the renewal of the PRO authorization for Eco Folio by the state for the period 2013-2016, the objective for 2016 is to achieve a 55% recycling rate of graphic papers put on the market. By 2018, this will increase to 60%. • In addition to these country-specific targets, France is required to achieve the targets set out in the EU Packaging and Packaging Waste Directive 2004/12/CE. This Directive requires that a minimum of 60% by weight of all packaging waste must be recovered or incinerated at energy-from-waste plans no later than December 31, 2008. Furthermore, it requires that by 31 December 2008, between 55 and 80% by weight of all packaging waste be recycled. It does not include a specific target for graphic paper.
Program Performance	• In 2011, the collection and recycling rates for graphic paper were 50% and 49%, respectively.
Roles and Responsibilities	
Producers	• Companies who directly produce at least 5 tonnes of graphic papers per year or put those paper products on the market are required to compensate local authorities for the collection and treatment of their post-consumer waste. • Producers can meet this obligation by subscribing to Eco Folio, a state-approved private company set up in 2007 to ensure the collection and treatment of paper waste on behalf of

	producers. • Companies have to report to Eco Folio the amount of tons of paper they have distributed in the previous year before January 31st of each year. Based on their declarations, producers pay a voluntary "eco-contribution" to Eco Folio. In 2011, the eco-contribution was set at €39/tonne.
Municipalities	• Municipalities are the main actors in this EPR scheme. They are charged with the responsibility for managing the separate collection of graphic papers and for choosing its modalities either directly or by contracting it to private waste operators that are selected through public tenders. • Eco Folio, after concluding a convention, provides financial support to municipalities based on the tonnages collected. While municipalities are not required to contract with Eco Folio, currently 98% of the population is covered by a convention signed between Eco Folio and a local authority. • After municipalities (or the private company contracted by them) have collected and sorted graphic papers, they ship them to recyclers. Eco Folio contracts directly with regional recyclers.
Government	• Define targets • With the support of ADEME and a consultative commission, monitor compliance. Ensure the collection of the TGAP for those who do not pay their contributions. • In accordance with the regulations, public authorities approve one PRO for a specific period of time (typically 6 years). The obligations and missions of the PRO are specified in the call for tender approved by the three responsible ministries: the Ministry of Ecology, the Ministry of Finance, and the Ministry of Interior
Population/Households Covered	• In 2010, 98% of the population in France had access to this program.
Infrastructure	• It is up to each municipality to decide on the type of collection system it uses, the type of wastes it wants to collect, and how often collection will occur (weekly, bi-weekly,none). It is unrealistic to generalize the collection infrastructure used in France as various combinations of these options are in place. • For graphic papers, the majority (67%) of collection is curbside collection, while voluntary waste sorting, by bringing paper waste directly to specific drop-off receptacles, accounts for 33%. This is in contrast to other EU countries which tend to focus more on voluntary action and bring sites.

Enforcement	• Monitoring of the system and prosecution of non-compliant producers is carried out by public authorities in coordination with ADEME (the French environment agency), a consultative commission, and of graphic papers sector members (including environmental and consumers associations).
	• Before 2013: Producers who failed to comply with the eco-contribution system were subject to a general tax on polluting activity (TGAP) of up to €120/tonne put on the market. This amount, recovered by the French Customs Administration, was then transferred to the state budget.
	• Since 2013: In 2013 the TGAP was removed and new sanctions were established. The French Ministry of the Environment can now impose penalties up to €7,500/tonne for non-compliance.
	• The percentage of free-riders in the system is estimated at 10%.
	• Two different types of enforcement activity are undertaken by Eco Folio directly:
	    o *On-site controls*: These are carried out at the end of the declaration period to verify the reliability of tonnages reported by the municipalities.
	    o *Audit controls*: These are done on take-back firms to the municipalities in order to ensure traceability of graphic paper flows.

Governance	• Eco Folio is a private, not-for-profit organization established by 33 associate founders representing the graphic papers sector. Since the scope of graphic papers covered by the regulation has evolved, there are currently 48 associate organizations. • The company is supervised by its governance group and by external auditors. Thirteen members (all unpaid and representing paper producers subject to the EPR scheme), each elected for a period of three years, sit on the Board. A state censor also sits permanently on

	the board. The Board defines the strategy Eco Folio will adhere to and monitors its application.
	• Board members nominate a President for the same length of time (3 years). The President is responsible for managing all financial matters, including the annual budget, the amount of money to transfer to each municipality, etc.
	• Two consultative bodies complete the governance system:
	    ○ *A liaison committee*: Brings together members of community associations, including elected officials.
	    ○ *A statutory agreement advisory committee:* Brings together all partners (including members of the three ministries, of the municipalities and of the graphic paper sector). This group meets every trimester to discuss and agree on general orientations of the PRO.

Enabling Legislation	• Article 541-10-1 of the Environmental Code • Articles D543-207 and D543-213 of the Environmental Code define the requirements for the applicability of the contribution

Appendix F – Residential Printed Paper and Packaging EPR Program British Columbia, Canada

Material Types Covered	• Household packaging and printed paper

Financing Mechanism	• Municipalities have three options under B.C.'s PPP Stewardship Plan, each of which has implications for the way the program is financed.
	• In cases where a municipality enters into a contract with MMBC to provide collection services, MMBC agrees to pay financial incentives they determine to be appropriate. The current incentive rate ranges between \$32-\$36 per single family household and \$17-\$20 per multi-family household. This payment amount is fixed and no escalation has been offered. Part of the payment is a fixed amount and part is dependent on performance (e.g. higher funding for higher diversion)
	• There are separate incentives for curbside and depot collection.
	• Incentives for curbside and multi-family collection include 4 components:
	  o (1) incentive based on # of households;
	  o (2) incentives based on amount of glass in segregated stream (tonnage);
	  o (3) performance bonus based on kg collected/household; and
	  o (4) resident education and service administration top-up allowances.
	• MMBC pays a higher incentive for dual stream as compared to single stream collection services.
	• Incentives for providing depot collection services are based on 3 components:
	  o (1) incentive per tonne of PPP collected;
	  o (2) collecting all types of PPP in communities without curbside collection; and
	  o (3) collecting all or depot-only PPP in communities with curbside.
	• Different incentives are also offered for baled and loose materials.
	• Drop off containers (and all related shipping/transportation costs) for materials collected at depots are to be included in the post collection service bids from processors.
	• At program start up, MMBC is allowing for the collection of EPS and plastic film at depots only (i.e. no curbside collection).
	• It should be noted that municipalities who participate in the MMBC program (i.e. select option 1) will not directly receive the value of the sale of recyclable commodities (all processing services will be directly contracted by MMBC through a competitive tender process)
	• Municipalities are responsible for providing all containers required for the program and delivering collected materials to the MMBC-selected processor, which can be as far as 60km away. While MMBC will pay 60km mileage, it is unknown whether that will be sufficient to cover both fuel and wages.
	• In cases where a municipality rejects the incentive offer to continue to provide collections services to its residents (Option 2), MMBC will use a competitive tender process to select contractors to carry out this work. Municipalities may choose to submit a proposal in response to the tender issued by MMBC; however, these competitive bid prices may have no relationship to the collection incentive and therefore they may exceed the collection incentive offered to municipalities. MMBC will contract with the collector for a period of 5 years (with potential for a two-year extension at MMBC's discretion).
	• If a municipality rejects the previous options and continues to provide recycling collection services, (Option 3), they will not receive any payment from MMBC and the program will continue to be funded through the municipal tax base.(or through utility fees where applicable).. This option provides the highest degree of control over service levels and service costs, but with no outside funding.
	• The "market-clearing price" financial incentives that MMBC is offering municipalities (and others – e.g. private collectors can register with MMBC to be reimbursed for PPP collected from multi-family buildings) to collect PPP on MMBC's behalf are set to reflect the cost of an efficient collection service. Market-clearing prices are the prices at which the market will deliver the service required by MMBC.
	• Stewards who chose to fulfill their stewardship obligations by joining MMBC are required to report the quantity of PPP they put into the residential market so that MMBC can allocate

	costs and report on recovery rates. The methodology for allocating the costs of the PPP Stewardship Plan to stewards is based on cost allocation experience in Ontario and Manitoba.. MMBC presented material specific costs to BC stewards in November 2013 (these costs are higher than either Ontario or Manitoba which are not 100% industry -led EPR programs).
Targets	• The regulation stipulates that the PPP stewardship program must achieve – or be capable of achieving within a *reasonable time* – a 75% recovery rate. No specific date is identified for reaching the target.
Program Performance	• In 2011, it is estimated that ~200,000 tonnes of the ~350,000-400,000 tonnes of packaging generated in B.C. was recycled. This translates into an estimated recovery rate of between 50% and 57%.
Roles and Responsibilities	

Producers	• As of May 19 2014, producers that supply packaging and printed paper (PPP) to the BC marketplace must assume 100% responsibility for the end-of-life management of their products. In addition be being financially responsible for the costs associated with recycling with post-consumer waste, they will also be physically responsible for the operational infrastructure to meet their obligations.
	• Producers may comply individually by filing their own approved stewardship plan; in the alternative, they may register with Multi Material British Columbia (MMCB) as a steward whose plan was approved by the BC MoE in April 2013. In this case, MMBC, not the individual producer, becomes the responsible entity.
	• Regardless of how a producer chooses to comply, industry is responsible for:
	  o Providing reasonable access to PPP collection services
	  o Managing collected PPP
	  o Achieving the 75% target
	  o Establishing relationships other stakeholders (municipalities, private sector companies and not-for-profit organizations, post-collection service providers)
	  o Financing implementation of PPP stewardship plan by making fee contributions based on the data submitted to MMBC or the government regarding the quantity and packaging material supplied into B.C.
	  o Reporting annually to MoE on the programs progress and performance.

Municipalities	• Traditionally, the responsibility for recycling and collection of residential packaging has fallen on local governments. As of May 19 2014, however, municipalities have the opportunity to decide how they will engage with the PPP program based on what works best for them. They have three options: • **Option 1**: **Accept the market-clearing price financial incentive offered by MMBC and continue to provide PPP curbside collection services to residents.** Under this option, MMBC will enter into contracts with municipalities who will take on the role of being the contractor to MMBC. • **Option 2: Reject MMBC's offer and advise MMBC to take over the responsibility for providing collection services.** In this case, MMBC will contract with a private company selected through a competitive tender process. • **Option 3: Reject the market-clearing price financial incentive offered by MMBC and continue to provide recycling collection services.** Under this "opt-out" option, municipalities continue to provide recycling services but do not receive any incentive payments since they are outside of the MMBC program. Material collected under this option is excluded from MMBC's performance targets.
Government	• Implement regulations, including setting recycling target • Approve stewardship plans • Oversee the operations of MMBC • Sanction those who do not comply with the regulations • It should be noted that all printed paper and packaging producers that supply the BC market have not joined MMBC. The BC MoE retains the responsibility to "track down" the free-riders in the system.
Population/Households	• Number of single-family households and multi-family households with access to PPP

Covered	curbside collection service is 936,118 (77.8%) and 405,666 (79.1%), respectively.

Infrastructure	• The PPP Stewardship Plan intends to build on existing municipal collection infrastructure (curbside, depot, and multi-family collection) while seeking to continuously improve service and accessibility for residents. Under the existing infrastructure:
	  o 96% of BC households receive some level of PPP collection service;
	  o 78% of single-family households receive collection service, with 46% single-stream and 54% multi-stream
	  o 79% of multi-family units receive collection service with 16% single stream and 84% multi-stream
	  o 18% of BC households receive only depot collection service

Enforcement	• Although municipalities are offered financial incentives for collection, the contracts they enter into with MMBC (if choosing option 1) include a number of penalties that they could be subject to if they do not meet certain requirements. • For example, if the recycling contamination rate (meaning the presence of non-obligated materials, not residue) is greater than 3%, a $5,000 fine would be levied against the municipality by MMBC if there is no evidence that the municipality and its contractor have made efforts to remedy the problem. Contamination is considered to be anything other than residential packaging or paper products (e.g. industrial, institutional or commercial materials) that winds up in a residential collection box. • This process would entail notification of the results of composition audits that identified collections containing over 3% non-PPP, followed by additional audits after a certain period of time to allow residents the opportunity to improve. • MMBC has estimated that 97.5% of residential PPP is covered through this new province-wide program (i.e. the same materials will be collected at the curb and at depots across BC when the program starts up).

Governance	• Multi-Material British Columbia (MMBC) is a not-for-profit public agency created under the province's *Society Act*. During the planning stage and acting on behalf of stewards in order to discharge their obligations under Schedule 5 of the Recycling Regulation, MMBC was governed by an interim Board of Directors comprising directors from the following organizations:
	  o Retail Council of Canada, Canadian Federation of Independent Grocers, Canadian Restaurant and Foodservices Association, Food and Consumer Products of Canada, Loblaw Company Limited, McCain Foods, Overwaitea Food Group, and Tim Hortons.
	• Once the plan was approved by MoE, MMBC was "folded into" the Canadian Steward Services Alliance (CSSA) organization/group of companies. This Alliance also includes Stewardship Ontario, Multi-Material Stewardship Manitoba and Multi-Material Stewardship Western (for Saskatchewan). CSSA was established in 2013 as the "one stop" national producer-led agency to support businesses in meeting their stewardship obligations across Canada.
	• Throughout the development of its stewardship plan, MMBC held informal meetings and discussions with various stakeholders involved in residential recycling, including municipalities, private sector companies, and a various other organizations. The UBCM Packaging and Printed Paper Working Group is one example. Formed in response to local government concerns and issues with the PPP Stewardship Plan, the Working Group is comprised of six appointed municipal government representatives from all regions of the province, a UBCM staff representative, a representative from the BC Product Stewardship Council, and a Ministry of Environment staff member.
	• The UBCM Working Group is intended to support a "smooth transition" to this new PPP program by:
	  o Giving municipalities a voice to state their concerns/expectations;
	  o Informing municipalities;
	  o Enhancing municipal capacity to effectively negotiate their interests with producers
	• One of the consistent concerns raised by UBCM (and other interests) is the challenge of meeting the program implementation deadline of May19, 2014 that was set through the legislation.

Enabling Legislation	• British Columbia's Recycling Regulation (B.C. Reg. 449/2004) under the Environmental Management Act.

Appendix G – Municipal Printed Paper and Packaging EPR Program in Quebec, Canada

Material Types Covered	• All packaging and printed paper collected through municipal curbside systems, but not deposit-bearing beer and soft drinks containers and their associated packaging materials (e.g. cases, etc.).

Financing Mechanism	• As of 2013, industry is required to finance 100% of the net costs of municipal curbside recycling programs . Set at 70% in 2010, industry's share of net costs increased to 80% in 2011, 90% in 2012 and to 100% in 2013.
	• The total compensation due to municipalities (557 municipal bodies) in 2012 (to be paid in 2013) is $114.9 million.
	• RECYC-Québec, a crown agency, calculates the costs of the services provided by a municipality that is eligible for compensation based on the net costs of the services provided during the year preceding the year for which reimbursement is being paid. Eligible costs include expenses incurred by the municipality during that year to collect, transport, sort, and condition the materials subject to compensation, after subtracting any income, rebate, or other gain related to the materials and received by the municipality. The costs associated with supplying containers and consumer awareness campaigns are excluded.
	• While industry is said to be 100% financially responsible, only effective and efficient systems are fully compensated. In other words, the annual compensation paid by industry to municipalities is subject to an effectiveness and efficiency factor. For each municipality, the amount of compensation it receives is determined by comparing its performance and efficiency with the performance and efficiency of the other municipalities in the same group (see below).
	• For the purpose of calculating the cost of eligible "compensatable" services, the municipalities are divided into 6 groups as follows according to size of population and distance from Quebec's two major cities:
	  ○ (1) municipalities serving <3,000 residents, situated <100 km from the cities of Montréal or Québec;
	  ○ (2) municipalities serving 3,000-25,000 residents, situated <100 km from the cities of Montréal or Québec;
	  ○ (3) municipalities serving >25,000 residents, situated <100 km from the cities of Montréal or Québec, including those 2 cities;
	  ○ (4) municipalities serving <3,000 residents, situated ≥100 km from the cities of Montréal or Québec;
	  ○ (5)municipalities serving 3,000-25,000 residents, situated ≥100 km from the cities of Montréal or Québec; and
	  ○ (6) municipalities serving >25,000 residents, situated ≥100 km from the cities of Montréal or Québec.
	• The performance and efficiency (P&E) factor for each municipality is calculated as follows:
	  ○ PE = $\frac{Cost}{Tonne} / \frac{Kg}{Inhab.}$
	
	"Cost" is the net cost declared by the municipality for the year concerned
	"Tonnes" is the quantity (in metric tonnes) of materials subject to compensation that was recovered during the year, as reported by the municipality
	"Kg" is the quantity in kilograms of materials subject to compensation that was recovered during the year, as reported by the municipality
	"Inhab." is the number of residents in the municipality
	
	• After calculating the P&E factor for each municipality in a group, those found to be in the lowest 12.5% and in the highest 12.5% are excluded, and the arithmetic mean of the remaining factors is then calculated. The standard deviation is then calculated. Finally, the results obtained from the previous two steps are added together.
	• If a municipality's P&E factor is determined to be equal to or lower than that of the group of municipalities to which it belongs, the annual compensation it will receive for its services

	corresponds to the net costs declared by the municipality. • On the other hand, if a municipality's P&E factor is determined to be higher than that of the group of municipalities to which it belongs, the cost of the services provided by the municipality that is eligible for compensation (EC) corresponds to the amount obtained by applying the following formula: ○ EC = $[PEg\ x\ (kg/inhab.)]\ x\ tonnes$ "PEG" is the P&E factor determined for the group of municipalities to which the municipality belongs "Kg" is the quantity in kilograms of materials subject to compensation that was recovered during the year, as reported by the municipality "Inhab." is the number of residents in the municipality "Tonnes" is the quantity (in metric tonnes) of materials subject to compensation that was recovered during the year, as reported by the municipality • To reimburse the municipalities for the management costs related to the services they provide for the recovery of materials eligible for compensation, and for the purchase of containers required to collect them, a flat amount of 8.55% will be added to those costs to determine the total annual compensation that must be paid to each municipality. • In addition to compensating municipalities, the Regulation *respecting compensation for municipal services provided to recover and reclaim residual materials* stipulates that up to $2.7 million per Schedule of Contributions is to be paid to RECYC-Québec in 2013 to cover its management costs and other expenses related to the compensation plan. In 2013, the allowance paid to RECYC-Québec was $2,585,000. • Total operating expenses for 2012 were $3.92 million.
Performance Targets	• The 2011-2015 Action Plan associated with the Quebec Policy on Residual Materials includes a recycling target of 70% for paper, cardboard, plastic, glass, and metal waste.

Program Performance	• In 2010, 65% (almost 2/3) of all designated packaging and printed materials placed on the Quebec market were recovered through curbside recycling. Recovery rates for the four main categories are as follows:
	  ○ Paper and cardboard: 70.8%
	  ○ Glass: 82.1%
	  ○ Metal: 52.7%
	  ○ Plastics : 32.5%

Roles and Responsibilities	
Producers	• Producers (brandowners and first suppliers) are responsible for taking back packaging placed on the market and must bear the full costs associated with its collection, recovery, and recycling • They may comply with this obligation individually or collectively by joining a producer responsibility organization. In Quebec, this organization is Éco-Entreprises Quebec [ÉEQ], a private not-for-profit. • ÉEQ is responsible for financing municipal services for the collection, sorting, and conditioning of containers, packaging, and printed matter in Quebec. To do this, it collects contributions from the over 3,000 companies and organizations that it represents. Company contributions are established in a Schedule of Contributions developed by ÉEQ and are based on the net costs of curbside services reported by municipalities. For example, the real costs incurred by municipalities in 2011 serve as a benchmark for the 2012 Schedule of Contributions. Every obligated company must submit a Company Report to ÉEQ according to which payable contributions are determined.. Contribution amounts are calculated by multiplying, *for each material*, the amount, in kilograms sold in Quebec during the year by the material specific rate, as indicated in the contribution table, then totalling those amounts. • ÉEQ remits these contributions to RECYC-QUÉBEC who then pays municipalities for their services
Municipalities	• Municipalities play a critical role in Quebec's curbside recycling system. They are physically responsible for the collection of packaging and printed materials.

	• In order to receive compensation for the services they provide, municipalities must submit to RECYC-Québec a signed report/statement by their external auditors outlining the quantities and net costs of their multi-material recovery program. • They are responsible for developing residual materials management plans (RMMPs) that are able to achieve the objectives set out in the Quebec Policy on Residual Materials and the associated 2011-2015 Action Plan.
Government	• The Ministry of Sustainable Development, Environment and Parks (Ministère du Développement durable, de l'Environnement et des Parcs) is responsible for: ○ Enacting take-back regulations; ○ Determining recovery targets to be achieved ○ Enforcement • RECYC- Québec, a government organization responsible for waste management policy implementation and oversight, is charged with the responsibility of certifying organizations such as ÉEQ and managing the application of the compensation plan.
Population/Households Covered	• Today, 99% of Quebecers have access to curbside collection of packaging.
Infrastructure	• Packaging placed on the Quebec market, after being discarded by the consumer, is collected through the municipal recycling system through 2 main systems: ○ Curbside collection ○ Local depots, in most places, where curbside collection is not available
Enforcement	• Penalty clauses for non-compliance under the *Regulation respecting the recovery and reclamation of products by enterprises* include monetary administrative penalties ranging from $250 to $3500 and penal sanctions ranging from $1,000 to $3 million. • In accordance with section 53.31.4 of the Environment Quality Act, the compensation owed to a municipality that fails to submit their declaration of costs to the Société québécoise de récupération et de recyclage within the prescribed time period is reduced by 10% as a penalty, unless the Société deems that the failure is due to circumstances beyond the municipality's control. • In addition to the interest, an obligated company who has not paid the required contribution within 90 days following the date the sum is due, must pay fees equivalent to 10% of the contributions owing to • Éco-Entreprises Québec. If ÉEQ pursues a remedy to claim a sum it is owed, a penalty equal to 20% of the contributions owed is applicable.
Governance	• Éco-Entreprises Québec's Board of Directors is comprised of 12 representatives from the following business sectors: retailers and distributors, food and consumer product manufacturers, durable goods manufacturers, and services. More specifically, it includes: • 2 representatives for small and 2 representatives for large retailers and distributors • 2 representatives for small and 2 representatives for large and consumer goods manufacturers • 2 representatives for small and 2 representatives for large companies in the general sector, including the Société de alcools du Quebec • Members of the Board are appointed for 2-year terms (renewable). Six members were elected by acclamation. • During fiscal year 2012, the Board of Directors met 8 times and Board sub-committees (e.g. nominating committee, human resources committee, audit and finance committee, etc.) 7 times. • Unlike the other committees that play mainly an advisory role, the Nominating Committee has decision-making authority. It establishes the list of candidates selected.
Enabling Legislation	• Regulation respecting compensation for municipal services provided to recover and reclaim residual materials under the *Environment Quality Act* • Regulation respecting the recovery and reclamation of products by enterprises under the *Environment Quality Act*

Appendix H – Packaging EPR in UK

Material Types Covered	• All packaging. The UK system does not distinguish between household, commercial, or industrial packaging. All schemes look after all types of packaging, although some were established to cater to specific industries such as the dairy industry (Difpak) or the paper industry (Paperpak).
Financing Mechanism	• The system has two revenue sources: PRN revenue and revenue from the sale of materials. • Producers pay a membership fee to a producer responsibility organization and are charged for required Packaging Recovery Notes (PRNs) or Packaging Export Recovery Notes (PERNs) A PRN is accepted evidence that demonstrates a certain tonnage of material specific packaging has been recovered and recycled. PRNs can only be issued by accredited re-processors. • PRNs and PERNs have a market value which depends on relative supply and demand of packaging materials. Since this value bears no relationship to the materials value, the low value materials can be inflated in order to meet the recycling targets. Likewise, the high value materials can retain their own value even if the recycling targets have been achieved. This dynamic promotes the supply increase and, consequently higher collection and recycling/recovery rates. • Average PRN prices in 2010 were as follows: o Paper: €3.80 o Plastic: €5.00 o Glass: €23.29 o Steel: €21.82 o Aluminum: €16.10 o Wood: €1.20 • Approved re-processors are the beneficiaries of PRN revenue with <u>no financial compensation allocated to municipalities for collection and recycling activities</u>. Rather than being reimbursed directly for packaging waste disposal, municipalities are paid indirectly through material sales to re-processors, per tonne of material; • There are concerns that municipalities are not being financed for their role from PRN revenue. Although re-processors are required to invest PRN revenue into the recycling infrastructure, it is unclear as to whether this actually happens.
Performance Targets	• As stated in the EU Packaging Directive, by 31 December 2008, at least 60% of the UK's packaging waste must be recovered, and 55-80% must be recycled. • In March 2012, new packaging targets for 2013 to 2017 were announced. Material-specific targets for 2013 are: o 69.5% for paper and cardboard o 81% for glass o 43% for aluminum o 72% for steel o 37% for plastic • Targets apply exclusively to the collection and recovery of commercial packaging, *however*, it appears that for certain materials, municipally-collected packaging is vital to achieving producer recovery and recycling targets • This observation was reinforced when the UK was forced to reduce the 2008 targets for glass and aluminium from those originally proposed, as the industry believed they were too hard to achieve.
Program Performance	• On account of the low involvement of municipalities, the UK has struggled to meet material-specific recycling targets for materials such as steel, aluminium and glass, which are found in relatively large proportions in household waste. • In 2011, the UK disposed of ~10.8 million tonnes of packaging waste, of which ~67% was recovered (compared to only 27% recovery in 1998). Broken down, the recovery/recycling rates were as follows: o 84.8% for paper o 63.9% for glass

	○ 45.8% for aluminum ○ 57.6% for steel ○ 55.3% for metal ○ 24.2% for plastic
Roles and Responsibilities	
Producers	• Producers (manufacturers, converters, packers/fillers, sellers, importers) which handle more than 50 tonnes of packaging per year and that have a turnover of more than £2 million per year are responsible for the collection, recovery, and recycling of a *percentage* of the packaging they place on the UK market. The percentage depends on their activity in relation to packaging. ○ Manufacturers (6%); ○ Converters (9%) ○ Packers/fillers (37%) ○ Sellers (48%) ○ Importers are also liable for some or all of the responsibility. • Producers may fulfill this obligation in two ways (join a PRO or individually). • One option is to join a producer responsibility organization (PRO), which carries out producers' obligations on their behalf. Currently, there are 22 registered PROs in the U.K. Producers must pay a fee, which typically includes a reduced registration wee which the PRO pays to the regulator on the producers' behalf. • Producers who join a registered PRO are exempt from meeting their recovery and recycling obligations themselves, as these responsibilities are transferred to the PRO. This includes the requirement to obtain evidence of recovery and recycling, by providing Packaging Waste Recovery Notes (PRNs) or Packaging Waste Export Recovery Notes (PERNs), and reporting on compliance to the regulator (Environment Agency). • Currently, Valpak – a Green Dot company – is the largest PRO and holds approximately 50% of the U.K. market share. • To meet their clients' obligations, Valpak and other PROs establish partnerships with municipalities who are responsible for managing municipal waste and, consequently, household packaging waste. • The second option for fulfilling the packaging waste obligations is to comply individually. Producers who prefer to go this individual route must follow a series of steps: ○ Annually register with the Environment Agency or Scottish Environment Protection Agency or, in Northern Ireland, the Northern Ireland Environment Agency. ○ Calculate and report to the environmental regulator the amount of packaging it generated in the previous year and the activity they performed on each material (e.g. converting, raw material manufacturing, etc.) ○ Provide confirmation that it has met its recovery and recycling obligations. This is done by submitting a Certificate of Compliance, issued by an approved person, by January 31 each year to the regulator. This certificate must be accompanied by copies of evidence of compliance. This evidence is issued in the form of PRNs, by UK re-processors, or PERNs, by UK exporters of packaging waste. Re-processors and exporters typically charge a fee for PRNs and PERNs, the cost of which depends on market conditions. ○ Companies who sell packaging have an additional obligation ("seller's obligation") to provide information to their customers about how they can help increase diversion of packaging waste. This includes, for example, informing consumers on the return, recovery and collection facilities available to them. • Regardless of whether they join a scheme or decide to meet the obligations on their own, obligated companies are required to submit accurate information on the packaging handled throughout the previous year. This includes data on the weights of each type of packaging handled, and the activities carried out in relation to that packaging, plus details of any packaging exported or imported by their company. This information is required in order to calculate the weights, in tonnes, of packaging waste that a producer is required to recover and recycle. • In order to verify compliance with performance targets, producers must present evidence notes, known as "Packaging Waste Recovery Notes" (PRN), to the relevant enforcement authority. PRNs demonstrate that certain activities have been completed, for example, that packaging waste has been collected and transported to re-processors for recycling. • Producers whose obligation is 500 tonnes or more are also required to provide an

	operational plan describing how they will meet their recovery and recycling obligations.
Municipalities	• In the U.K., municipalities are legally responsible for municipal solid waste collection, and therefore the household packaging waste flow. • Municipalities can perform collection services directly or by contracting out to private waste companies that collect, sort and sell the packaging waste materials to the re-processors/exporters. • There are currently 232 local authorities in the UK, of which 152 are located in England, 22 in Wales, 26 in Northern Ireland, and 32 in Scotland. • Responsible for the preparation and publication of Regional Waste Plans. They have little to no involvement in the consultation and decision-making processes regarding design of the system.
Government	• The U.K. has adopted a decentralized form of government, transferring some competences and responsibilities of the central government to the governments of each country. • Develop and implement regulations • Set recovery and recycling targets • Approve compliance schemes
Population/Households Covered	
Infrastructure	• Even though the system was not intended to utilize municipal collection infrastructure and there is no formal agreement with industry, in practice, municipalities are collecting packaging waste (glass, aluminium and steel) from household streams and local authority sites • According to Valpak's estimates, in 2007, 83 and 88% of PRN for glass and aluminium respectively, were accounted for by household streams.
Enforcement	• Government enforcement agencies are responsible for monitoring and prosecution of non-compliant producers • The Regulations provide for criminal offences with specific penalties for producers; penalties range from a fine not exceeding the statutory maximum (£5,000) for each offence heard in a Magistrates or Sheriff Court to an unlimited fine for a case heard in the Crown Court or High Court.
Governance	• There are three main environmental regulators in the U.K. to which a producer (or a PRO on its behalf) must report to: the Environment Agency, the Scottish Environmental Protection Agency, and the Northern Ireland Environment Agency. • The U.K. Environment Agency is a non-departmental public body (NDPB) consisting of 11 Board members, including a Chairman and Chief Executive. All members are appointed by the Secretary for Environment, Food and Rural Affairs (DEFRA). The Board meets four times a year and delegates day-to-day management to the Chief Executive and staff. • The Scottish Environment Protection Agency (SEPA) is Scotland's environmental regulator. Like the U.K. Environment Agency, SEPA is a non-departmental public body, accountable through Scottish Ministers to the Scottish Parliament. All of its Board members, including the Chairman, are appointed by the Scottish Ministers. Among other things, the Board has responsibility for ensuring that SEPA fulfils the aims and objectives set by the Scottish Ministers, establishing the overall strategic direction of the organization, and overseeing and monitoring performance of the organization against agreed targets. Furthermore, the Board may convene standing committees to assist and advise it in undertaking its responsibilities. The Board has established an Audit Committee to monitor and review risk, control and corporate governance. • Northern Ireland's environmental regulator is the Northern Ireland Environment Agency (NIEA). NIEA's executive agency is led by a Chief Executive and a Board of Directors which represents four sectors - Natural Heritage, Built Heritage, Environmental Protection and Corporate Services.
Enabling Legislation	• European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste • Producer Responsibility Obligations (Packaging Waste) Regulations 1997 (as amended) • Packaging Regulation 1998

	• Packaging (Essential Requirements) Regulations 1998 • Producer Responsibility Obligations (Packaging Waste) Regulations (Northern Ireland) 1999 (as amended)

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Appendix J – EU Packaging Directive

The EU first introduced measures on the management of packaging waste in the early 1980s. Directive 85/339/EEC covered the packaging of liquid beverage containers intended for human consumption only but it was too vague to bring about the effective harmonisation of national policies. As a consequence, diverging national legislation appeared in several Member States.

Only some EU Member States introduced measures on packaging and packaging waste management with a view to reducing their environmental impacts. Serious Internal Market problems arose when cheap secondary materials from countries with recycling schemes that provided funding for collection and recycling appeared on the markets of other Member States where no such schemes were in place. Collection and recycling activities that relied on cost recovery through the sale of secondary raw material were threatened by collapse.

For this reason, economic operators and Member States approached the Commission to introduce comprehensive legislation on packaging. In 1992, the Commission came forward with a Proposal for a Council Directive on Packaging and Packaging Waste. Following a prolonged discussion in the European Parliament and the Council of Ministers, Directive 94/62/EC was adopted.

This Directive aims to harmonise national measures in order to prevent or reduce the impact of packaging and packaging waste on the environment and to ensure the functioning of the Internal Market. It contains provisions on the prevention of packaging waste, on the re-use of packaging and on the recovery and recycling of packaging waste.

In 2004, the Directive was reviewed to provide criteria clarifying the definition of the term 'packaging'and increase the targets for recovery and recycling of packaging waste. In 2005, the Directive was revised again to allow new Member States transitional periods for attaining the recovery and recycling targets.