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THE MANAGEMENT OF MUNICIPAL SOLID WASTE AND INDUSTRIAL MATERIALS

Report of the Standing Committee on Environment and Sustainable Development

**Harold Albrecht
Chair**

FEBRUARY 2015

41st PARLIAMENT, SECOND SESSION

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THE STANDING COMMITTEE ON ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

has the honour to present its

EIGHTH REPORT

Pursuant to its mandate under Standing Order 108(2), the Committee has studied the management of municipal solid waste and industrial materials and has agreed to report the following:

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THE MANAGEMENT OF MUNICIPAL SOLID WASTE AND INDUSTRIAL MATERIALS

Introduction

Waste management is an issue across Canada. In order to contribute to existing efforts being made to improve Canada's approach to waste management, the House of Commons Standing Committee on Environment and Sustainable Development agreed, in May 2014, to "undertake an eight (8) meeting study on the management of municipal solid waste and industrial materials [focussing] on (a) technological innovation in such management; and (b) best practices of provincial/territorial/municipal jurisdictions."¹ The Committee is pleased to present its findings.

Waste management falls primarily within the jurisdiction of provincial, territorial and municipal governments. However, it is an issue of national scope and there are things that the federal government can do to help.

Of the 33 million tonnes of waste disposed of each year in Canada² — two-thirds of which is non-residential³ — the vast majority ends up in landfills. Virtually any type of substance can end up in a landfill, resulting in an unpredictable chemical cocktail.⁴ Despite improved landfill design, no engineer will guarantee that a landfill will not leak its contaminants into the ground and into waterways. The potential liabilities associated with landfills are tremendous.⁵

In addition to posing a risk to land and water, decomposition of landfilled organic waste, in the absence of oxygen, produces methane, a potent greenhouse gas.⁶

Managing waste is also expensive. Every year, local governments collectively spend close to \$3 billion to get rid of waste.⁷

Moreover, materials sent to the landfill are resources that are being, quite literally, wasted in favour of continually extracting new materials to make products. There has

1 House of Commons Standing Committee on Environment and Sustainable Development [ENVI], [Minutes of Proceedings](#), 8 May 2014.

2 ENVI, [Evidence](#), 12 June 2014 (Michael Goeres, Executive Director, Canadian Council of Ministers of the Environment).

3 Ibid.

4 ENVI, [Evidence](#), 3 December 2014 (Bob Mills, As an Individual).

5 Ibid.

6 ENVI, [Evidence](#), 10 June 2014 (W. Scott Thurlow, President, Canadian Renewable Fuels Association). Also see *ibid.* (Mills).

7 ENVI, [Evidence](#), 12 June 2014 (Raymond Louie, First Vice-President, Federation of Canadian Municipalities).

only been a 3.5% increase in diversion rates since 2000 while disposal amounts are increasing.⁸

As put by one witness:

Th[e] reality is that we, as a society—and not just restricted to Canada—haven't really done a great job of managing materials after we're ready to get rid of them. We haven't done a great job of designing products so as to minimize waste when they're finished their life cycle. We haven't really figured out how to reuse as many materials as we could, and we haven't figured out the best way at all times to recycle materials.⁹

The way to improve waste management in Canada, therefore, is to do a better job at the 3 Rs — reducing, reusing and recycling. However, until these efforts are perfected, there will continue to be a remnant waste stream to which innovative energy from waste technologies might be applied, rather than simply landfilling the residue.

Technological Innovation in the Management of Municipal Solid Waste and Industrial Materials

Technology was seen by several witnesses as a solution where governments should focus their efforts to improve waste management in Canada. As stated by one witness:

We need to embrace any technology and support any technology that cleans up the rivers and cleans up the earth because that is the legacy we should be passing on to our children.¹⁰

Technological advances are necessary in all aspects of waste management — reducing, reusing, recycling and recovering value from waste. As was noted “any comprehensive solution to municipal waste, [industrial, commercial, and institutional] waste, [construction and demolition] waste, all of the waste streams that end up in a landfill, requires at least multiple technologies working together in order to handle them completely.”¹¹

The following is a summary of the various technological innovations in waste management that were described during the study.

A. Innovation in the 3 Rs — Reducing, Reusing and Recycling

Technological innovation has played a significant role in increasing waste diversion through reducing, reusing and recycling materials. Such diversion of materials from the landfill lessens the potential environmental and social liability associated with landfilling while at the same time reducing the need to continually extract virgin materials to make

8 Ibid. (Goeres).

9 ENVI, [Evidence](#), 3 June 2014 (Edmond Chiasson, Vice-President, Public Affairs and Corporate Communications, Plasco Energy Group Inc.).

10 Ibid. (Douglas Cardinal, Architect, As an Individual).

11 Ibid. (Trevor Nickel, Executive Advisor, BioWaste to Energy for Canada Integration Initiative).

new products. This is especially important if recovered materials are rare or if extracting and producing materials involve particularly environmentally damaging processes.¹²

The Committee was told how member companies of Food and Consumer Products of Canada, a national industry association, are working to reduce the impact of their packaging. However it was stressed that efforts to modify packaging are constrained by the functions of packaging such as those related to food safety requirements.¹³

When it comes to recycling, most people are familiar with municipal household recycling programs for plastic, glass, metals, paper and organics. Residents are often required to sort these materials at home; however, this is not always a simple task, particularly when it comes to the different plastics. As the Committee learned, in Ontario only about 60% of materials put in blue boxes is recycled, partly because home sorting is not perfect.¹⁴ One of the innovations in recycling that the Committee learned about that can help address this problem and make recycling plastic more economic is an optical sorter. This technology, which scans for different polymer types, reduces the number of hand motions needed to put together a tonne of the same type of plastic that can then be sold.

In addition to household “blue box” recycling, the Committee heard about other recycling activities. For example, Emterra Tire Recycling, which is a division of the Emterra Group, uses technology to recycle old tires to produce rubber seals and fibre.¹⁵

Many materials can be recycled or otherwise kept out of landfill. As one witness stated, “if it's non-combustible and has no value, I would question whether or not it has been taken apart into small enough pieces.”¹⁶ In particular, the Committee heard of various technological innovations to recycle organic waste.

1. The Case of Organic Wastes

Sending organic waste to landfill creates greenhouse gases, both in transporting the waste as well as through fermentation at the landfill, which produces methane. Landfilling organics is also a waste of nutrients.¹⁷ The Committee was made aware of a 2006 Natural Resources Canada report which states that 6.7 million tonnes of organic waste were produced in Canada during a single year, an amount second only to paper. Since then, organics have become the largest single stream of waste in Canada.¹⁸ Many technologies have been developed to deal with the organic waste stream.

12 See discussion: ENVI, [Evidence](#), 20 October 2014 (Rachel Kagan, Vice-President, Environmental Sustainability, Food and Consumer Products of Canada).

13 Ibid.

14 Ibid.

15 Ibid.

16 ENVI, [Evidence](#), 3 June 2014 (Nickel).

17 ENVI, [Evidence](#), 24 November 2014 (Dale Harley, General Manager, Orgaworld Ottawa).

18 Ibid.

Composting organics for fertilizer is perhaps the most obvious means of managing this waste stream. Orgaworld is a Netherlands-based company that has two composting facilities in Canada, each capable of handling 300,000 tonnes of organic waste per year. The company uses an innovative in-vessel technology to compost waste quickly, which results in no methane being created. Innovative technologies are also used to make the composting facilities more socially acceptable. “A state-of-the-art odour abatement system ... includes a wide variety of technologies ... [with] the whole process ... managed inside an enclosed facility that is under negative air pressure. The odour is being sucked in through a series of biofilters, bioscrubbers, and ammonia scrubbers that remove all the noxious odours.”¹⁹ Ammonia captured by the scrubbers is sold to the agricultural community.²⁰

Composting can be carried out using other techniques. The Region of Peel in southern Ontario, for instance, uses composting technologies from Holland and Germany that include the use of Gore-Tex membranes to protect compost from the environment while allowing gas exchange during the curing process.²¹

Traditional recycling and composting can manage up to 60% of Canadian waste economically, but the remaining 40% of waste, a large portion of which is organic, has been problematic.²² However, as the Committee learned, there are now innovative ways to turn organic materials into fuel and petrochemicals. As was apparent in testimony, there are two essential processes that can yield fuels: thermochemical or biological.

Regarding a thermochemical process, the Committee heard from Enerkem, a Canadian company whose “primary focus is the commercial production of cellulosic ethanol.”²³ Enerkem has just inaugurated a biorefinery in Edmonton to manage municipal waste. The company estimates that its thermochemical process can deal with 30% of the waste stream, which is expected to result in a total of 90% diversion of Edmonton’s waste from landfills. Enerkem’s technology can deal with “textiles, leftover lumber, plastic food packaging, old pairs of shoes, pizza boxes with leftover tomato sauce or old non-recyclable plastic toys.”²⁴ Enerkem described their company’s technology as “a breakthrough innovation that uses non-recyclable garbage instead of petroleum to produce liquid transportation fuels and renewable chemicals. It is a true biorefinery.”²⁵

In the Region of Peel, biological processing is being considered to create fuel. A representative from the region stated that “organics can be used for a lot of things

19 Ibid.

20 Ibid.

21 Ibid. (Larry Conrad, Manager, Waste Operations, Region of Peel).

22 ENVI, [Evidence](#), 10 June 2014 (Marie-Hélène Labrie, Senior Vice-President, Government Affairs and Communications, Enerkem).

23 Enerkem, “[Enerkem’s proprietary thermochemical process converts waste into biofuels and chemicals](#),” *Process*.

24 ENVI, [Evidence](#), 10 June 2014 (Labrie).

25 Ibid.

besides compost. You'll never get away from composting plants, but you can use composting in an anaerobic digester ... and co-digest it with waste water sludges and use the fuel maybe not to generate electricity, but for transportation. We're going to use natural gas-fired vehicles for our collection in our new contract, getting away from the use of diesel.”²⁶

The potential for waste to be transformed into fuel was noted by other witnesses as well, in particular the Canadian Renewable Fuels Association. Some of the barriers to such fuel production were noted. One witness pointed out that “the feedstock has to be pre-treated in such a way that it can easily be digested by either the thermochemical or the biological process.”²⁷ This process is very capital intensive. Another important step is “actually getting the feedstock, whether it's biomass, municipal solid waste, corn stover, or whatever, to the facility in a way that's economical.”²⁸

Using such biogenic material to produce fuel and petrochemicals avoids using fossil fuels and therefore can reduce greenhouse gas emissions. According to Enerkem, “in North America alone, 529 million tonnes of waste are generated every year. More than half of it is landfilled, and it has the potential to be converted into 63 billion litres of biofuels annually with Enerkem's technology.”²⁹ In some cases, such as GreenField Specialty Alcohols, the process of producing fuel also produces compost that can be applied to agricultural land.³⁰

Benefits of applying the 3 Rs were mentioned by many witnesses. However, as heard in testimony, many waste materials cannot be managed following the 3 Rs, or cannot be managed economically, which means that there is a residual waste stream that must be managed. Numerous witnesses who appeared over the course of the study are involved in developing innovative technologies that aim to extract energy from this residual waste stream instead of just putting it in landfills.

B. Innovation in Recovery: Energy from Waste

As one witness noted, “the baseline thing to do with something that has no value is to combust it.”³¹ Thermal treatment of waste can generally be divided into three different categories: combustion (either single- or two-stage) in the presence of oxygen to produce heat energy; pyrolysis of waste in the complete absence of oxygen, which produces liquid synthetic fuels and char; and gasification, which is thermal treatment in the absence of, or with very low levels of oxygen, the final product of which is a synthetic gas.³²

26 ENVI, [Evidence](#), 24 November 2014 (Conrad).

27 ENVI, [Evidence](#), 10 June 2014 (Thurlow).

28 Ibid.

29 Ibid. (Labrie).

30 Ibid. (Thurlow).

31 ENVI, [Evidence](#), 3 June 2014 (Nickel).

32 For more information on thermal technologies see: Federation of Canadian Municipalities, *Solid Waste as a Resource, Review of Waste Technologies*, 2004.

Some municipalities use combustion at mass burn facilities to manage large amounts of waste. Thermal treatment of waste avoids landfilling and creates energy, but has residual environmental effects, the magnitude of which is dependent on the specific technology used. Newer gasification technologies can avoid some, and potentially all, of these issues, but they have not been deployed significantly. The Committee heard from proponents of mass burn facilities and proponents of newer thermal technologies.

1. Mass Burn Facilities

The Committee was told that there are approximately 500 mass burn facilities in the world, and therefore there is plenty of experience with this technology.³³ A number of municipalities in Canada use combustion as a means of managing waste. One such municipality, the Region of Peel, testified at the Committee. The Region of Peel has adopted a hierarchy of 4 Rs — the fourth “R” being recover energy from waste — “based ... on a balanced approach among social, environmental, and financial considerations, but more important is getting a range of input from ... stakeholders and reflecting on what's best for ... residents.”³⁴ Until just a few years ago, the Region of Peel had contracted out a portion of its waste stream to a mass burn facility. The region has now decided to construct its own facility, the Peel Energy Recovery Centre, the heart of which will be a mass burn unit capable of handling 300,000 tonnes of garbage a year.³⁵

However, there are serious potential environmental issues associated with mass burn facilities.³⁶ In particular, the process results in a solid residue — slag or ash — which may be toxic and must be landfilled. The Committee was told that in some cases, this could represent up to 30% of the original waste.³⁷

In addition, witnesses also referred to the air pollution associated with burning waste.³⁸ In particular, incineration produces furans and dioxins, both of which are carcinogenic, as well as nanoparticles of ash, which are small enough to travel through the pores of a human lung and enter the blood stream.³⁹ One witness was deeply concerned about emissions of these chemicals.⁴⁰ According to another witness, older incinerators, those built in the 1970's, were “a disaster” when it came to emissions.⁴¹

33 ENVI, [Evidence](#), 24 November 2014 (Conrad).

34 Ibid.

35 Ibid.

36 ENVI, [Evidence](#), 6 October 2014 (Stan R. Blecher, Port Hope Residents 4 Managing Waste Responsibly).

37 ENVI, [Evidence](#), 3 December 2014 (Mills).

38 ENVI, [Evidence](#), 6 October 2014 (Blecher) and *ibid.*

39 *Ibid.* (Blecher). Also see Government of Canada, “[Incineration](#),” *Environment Canada*.

40 *Ibid.*

41 ENVI, [Evidence](#), 3 December 2014 (Mills).

A representative from the Region of Peel acknowledged that incineration results in emissions, but stated that plumes of most modern facilities are monitored “so people are alerted right away as to when there's an issue in the process.”⁴² He testified that incineration can be done safely and that “waste, properly prepared and treated, can be as clean or cleaner than coal.”⁴³ However, one witness remained adamant about the importance of reducing such emissions to zero. Given that there is no safe dose for some of the toxic chemicals emitted by incinerators, and that these chemicals can bioaccumulate in the food chain, he testified that “there's no excuse for [the emissions limits] being anything more than zero, because there is no safe limit.”⁴⁴ This point was also made by another witness who stated “incineration is not the way to go. Even with modern scrubbers, incineration will pretty much give you the same problems as coal in terms of greenhouse gases, in terms of carcinogenic emissions, dioxins and furans.”⁴⁵

Another potential issue with mass burn is that it requires feedstock. Throughout the study witnesses stressed the need to maximize the application of the 3 Rs. However, as one witness pointed out, energy from waste “can be inconsistent with that approach and we always want to examine it to determine whether or not it's disrupting the kinds of objectives we just outlined in terms of reuse and recycling.”⁴⁶ In other words, contracts that require municipalities to supply waste as feedstock might require municipalities to scale back recycling efforts to ensure supply. This would be a negative, if unintended, consequence of energy from waste facilities.

While the feedstock issue is associated with all energy from waste technologies, the environmental concerns related to mass burn can potentially be addressed by newer thermal waste management technologies, but these technologies have yet to be widely deployed. The Committee heard from a number of witnesses about emerging technological innovations.

2. Emerging Thermal Technologies: Gasification

As the Committee heard from various witnesses, newer thermal technologies use a number of processes to transform different waste materials into inflammable gases (various forms of which are termed, more generally, “syngas”) and various solids and liquids. The gases can either be used to create heat and electricity, or as in the case of Enkern, some types of syngas can also be used to produce other organic molecules, including liquid fuels.⁴⁷ Solid and liquid products of thermal treatment can be used for various purposes or may need to be disposed of, depending on their characteristics.

42 ENVI, [Evidence](#), 24 November 2014 (Conrad).

43 Ibid.

44 ENVI, [Evidence](#), 6 October 2014 (Blecher).

45 ENVI, [Evidence](#), 3 December 2014 (Mills).

46 ENVI, [Evidence](#), 10 June 2014 (Theresa McClenaghan, Executive Director and Counsel, Canadian Environmental Law Association).

47 Ibid. (Labrie).

Gasification “is a well-known and proven technology”⁴⁸ that has the potential to recover energy from the waste that remains after the 3 Rs have been applied to the waste stream, to the extent possible. In the case of very high temperature plasma gasification, such as that used by Plasco Energy Group, the gases and solids produced are very clean, as the temperatures destroy all toxic chemicals such as furans and dioxins.⁴⁹ However, gasification technologies also vary in their environmental effects.

Officials from Renewable Energy Management, an innovative waste management enterprise, testified that the low-temperature gasification process will degrade waste down to a 2% residue of inert, non-toxic ash and will oxidize all impurities and compounds in its syngas burner.⁵⁰

The provincial approval process for the development of Renewable Energy Management's facility is expected to result in the highest possible standards of environmental protection for the ecosystems and for the communities around where it will operate.⁵¹

While gasification technologies have the potential to improve municipal waste management, they are all emerging technologies at various stages of development. As the Committee heard, one of the main differences between gasification of coal — an old and proven technique — and that of waste is that coal is relatively uniform while, for waste, “every garbage bag is different. That's why this is still in the innovation stage of the technology development cycle.”⁵²

Several witnesses referred to a report produced for Natural Resources Canada by a consultant, which concluded that Canada can be a leader in emerging energy to waste technologies.⁵³ As the report noted, there are various roles that the federal government can play in supporting these technologies. Some examples include to:

- Create stronger domestic demand through policy and provide additional support for companies exporting to competitive markets;
- Help coordinate provincial and federal financing vehicles (e.g., venture capital, government “prizes”) to address a broader range of opportunities;
- Cultivate domestic talent and ensure access to international sources as required; and

48 ENVI, [Evidence](#), 3 June 2014 (Chiasson).

49 ENVI, [Evidence](#), 3 December 2014 (Mills).

50 ENVI, [Evidence](#), 5 June 2014 (Doug Starr Executive Vice-President, Renewable Energy Management).

51 Ibid.

52 ENVI, [Evidence](#), 3 June 2014 (Chiasson).

53 McKinsey and Co., [Opportunities for Canadian Energy Technologies in Global Markets](#), 2012.

- Create a highly coordinated network of government institutions, such as research centres and startup incubators, to support technology developers along the entire innovation funnel.⁵⁴

It is also clear that municipalities are faced with an extraordinary range of technological and management options to manage their waste, in many cases with limited resources to assess these options. Here, municipalities can learn from best practices that others have put in place.

Best Practices of Municipal, Provincial and Territorial Jurisdictions

The second focus of the Committee’s study was on best practices of municipal, provincial and territorial jurisdictions. Witnesses provided examples of best practices from across the country as well as from Europe.

The Committee was told that, fundamentally, the objective of good waste management practices is to reduce waste with the ultimate goal of zero waste.⁵⁵ It was noted that the European Commission recently endorsed the goal of zero waste and a “circular economy.”⁵⁶ In this context, the circular economy is a move away from the linear pattern of growth — “take-make-consume and dispose”⁵⁷ — which is “based on the assumption that resources are abundant, available, easy to source and cheap to dispose of.”⁵⁸ The circular economy is a move towards an economy where, at the end of their useful lives, materials and products are reused, repaired, refurbished and recycled.⁵⁹

Here in Canada the concept of zero waste is catching on. In 2011, Metro Vancouver together with the Federation of Canadian Municipalities founded the National Zero Waste Council to develop a national campaign to raise public awareness about the need to reduce solid waste.⁶⁰ One witness who appeared for the study urged the Committee to engage with the National Zero Waste Council and to develop a national strategy to reduce waste.⁶¹

The Region of Peel has also embraced a concept of zero waste in its vision for “a world without waste.”⁶² While recognizing that achieving this vision will be challenging, a witness explained that the Region of Peel has adopted a hierarchy of 4 Rs: reduce, reuse,

54 Ibid., p.6.

55 ENVI, [Evidence](#), 3 June 2014 (Chiasson).

56 European Commission, “[Towards a circular economy: A zero waste programme for Europe](#),” *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions*, Com(2014) 398 final, Brussels, 2 July 2014.

57 Ibid., p. 2.

58 Ibid.

59 European Commission, “Moving towards a circular economy,” News release, 2 July 2014 provided by Peter Hargreave, Director, Policy & Strategy, Ontario Waste Management Association, 3 July 2014.

60 National Zero Waste Council, [History](#).

61 ENVI, [Evidence](#), 12 June 2014 (Louie).

62 ENVI, [Evidence](#), 24 November 2014 (Conrad).

recycle and recover energy from garbage. The witness explained that this approach balances social, environmental and financial considerations, and that it is based on a range of input from stakeholders.⁶³

Another witness testified that “the future of waste management is definitely in recycling” and that “the goal of reaching 100% diversion is a realistic one.”⁶⁴ In support of this opinion, he pointed to “[the City of] Markham, north of Toronto, which has achieved a success rate of over 80% diversion from landfill in recycling. Areas in the United States, such as California, are in the high eighties and approaching 90%.”⁶⁵

The Committee heard about other Canadian jurisdictions, in addition to Markham, which have high diversion rates. One witness testified that Nova Scotia has the lowest disposal rate in Canada, while Alberta has the highest.⁶⁶ Some of the reasons for Nova Scotia’s success in generating less waste include “the regionalization of their landfills [and] the ban on organics and recyclable materials into the landfills.”⁶⁷

Nevertheless, examples of best practices in Alberta also came up in testimony. Edmonton was described as “a world leader in sustainable waste management” for its plan to increase its residential waste diversion rate from 60% to 90%.⁶⁸ “Instead of paying tipping fees to bury waste, Edmonton chose to make strategic investments, investing capital in technologies that will do away with trash forever by converting it into energy and chemicals.”⁶⁹ Specifically, witnesses described “the world’s first commercial-scale waste-to-biofuels biochemicals plant”⁷⁰ that Enerkem recently opened in Edmonton. Described in greater detail earlier in this report, Enerkem’s technology “uses non-recyclable garbage instead of petroleum to produce liquid transportation fuels and renewable chemicals.”⁷¹ A representative from Enerkem testified that “[m]unicipalities around the world are looking at what we are doing in Edmonton.”⁷² Indeed, the city now owns a private corporation, known as Waste RE-solutions Edmonton, which the Committee was told “provides consulting services to municipalities in developed countries to help them further improve their waste diversion activities.”⁷³

Another jurisdiction that is moving away from landfilling towards energy from waste is the Region of Peel. Other than providing energy and environmental benefits from not

63 Ibid.
64 ENVI, [Evidence](#), 6 October 2014 (Blecher).
65 Ibid.
66 ENVI, [Evidence](#), 12 June 2014 (Goeres).
67 Ibid.
68 ENVI, [Evidence](#), 10 June 2014 (Labrie).
69 Ibid. (Thurlow).
70 Ibid.
71 Ibid. (Labrie).
72 Ibid.
73 Ibid.

landfilling, the region's planned Peel Energy Recovery Centre is expected to create "300 construction jobs and upwards of 40 direct and 120 indirect jobs."⁷⁴

Another successful Canadian jurisdiction the Committee heard about is Prince Edward Island, which has diverted well over 50% of the 100,000 tonnes of waste generated on the Island annually thanks to the province's Island Waste Management Corporation. This provincial Crown corporation has put in place programs for numerous types of materials including compostables, recyclables, used tires and electronic waste, among other items.⁷⁵

Another jurisdiction mentioned by a witness for implementing best practices is the City of Guelph, Ontario, which was described as "a pioneer in terms of mixed waste recovery and separation."⁷⁶ Quebec and Manitoba were noted for implementing landfill levies, the profits of which are used to fund new recycling infrastructure.⁷⁷ British Columbia was recognized for having initiated 23 programs for extended producer responsibility, which have reportedly "created approximately 2,400 jobs and diverted over 150,000 tonnes of garbage from landfills."⁷⁸

As noted previously, management of organic waste was a topic of considerable interest during the study. The Committee heard that the European Union adopted a landfill directive in 1999 that calls for the organic component of the waste stream to be reduced to 35% of 1995 levels by either 2016 or 2020.⁷⁹ A witness testified that the U.K. has instituted a landfill tax that now stands at \$144 per tonne, and that Germany has instituted "a disposal restriction of less than 3% organics."⁸⁰

Here in Canada, it was apparent from the testimony that "there are significant variances among provinces as to how they deal with this organic waste."⁸¹ Nova Scotia was identified as a leader for having banned organics from landfills almost 20 years ago.⁸² As related by a witness, other Canadian jurisdictions are starting to catch up:

Other maritime provinces are beginning to impose similar regulations, and British Columbia is now moving towards an organics ban as well. Manitoba and Saskatchewan have fledgling regulatory systems in place, while Alberta's promotion of organics diversion is driven by the specified gas emitters regulation, which seeks to reduce greenhouse emissions through a cap-and-trade system. In this respect, a number of

74 ENVI, [Evidence](#), 24 November 2014 (Conrad).

75 ENVI, [Evidence](#), 12 June 2014 (Gerry Moore, Chief Executive Officer, Island Waste Management Corporation).

76 ENVI, [Evidence](#), 10 June 2014 (McClenaghan).

77 ENVI, [Evidence](#), 12 June 2014 (Goeres).

78 Ibid.

79 ENVI, [Evidence](#), 24 November 2014 (Harley).

80 Ibid.

81 Ibid.

82 Ibid.

organic diversion projects have been developed to create offset credits in the marketplace.⁸³

However, landfilling organic matter still occurs in Canada, and it has environmental impacts. Best practices to mitigate these impacts include capturing methane that is generated as garbage decomposes. The Committee heard that gas recovery systems have been installed at a number of landfills.⁸⁴ Such technologies that reduce greenhouse gas emissions are being funded in Alberta by proceeds of a \$15 carbon tax on emitters, which one witness mentioned as a best practice.⁸⁵

The waste generated from construction and demolition is a different stream that needs to be managed apart from regular residential waste. The Committee heard about Ottawa's construction and demolition recycling facility, established and operated by Tomlinson Environmental Services, which sorts 51,000 tonnes of construction and demolition waste each year and directs the components to a variety of new uses. White wood is used in the agricultural and horticultural industry, especially for cattle bedding. Other wood products are turned into biomass to fuel energy production. Metal is used in the scrap metal industry. Cardboard is baled and sold. Concrete and brick are crushed to make aggregate. Recovered gypsum is processed and used to amend soil in agricultural applications.⁸⁶ Over the past 17 years since the operation started, Tomlinson has improved its processes to the point that it now diverts 70% of the material it receives. Tomlinson is now planning a second plant in Ottawa which, once it is operational in 2015, will be able to recycle an additional 100,000 to 150,000 tonnes of the city's construction and demolition material each year.⁸⁷

To help deal with construction and demolition waste in Vancouver, that city has adopted various requirements to keep materials out of the landfill. The Committee heard that in the Metro Vancouver region, there is a ban on clean wood waste.⁸⁸ Also, the city recently passed a resolution allowing officials to require a 90% diversion rate of the waste emanating from the "demolition of any house that is currently older than 1940 and deemed to have 'character'."⁸⁹

One witness who had researched successful waste management programs concluded "that programs were successful when there was a national program that

83 Ibid.

84 ENVI, [Evidence](#), 10 June 2014 (McClenaghan).

85 ENVI, [Evidence](#), 3 December 2014 (Mills).

86 ENVI, [Evidence](#), 3 June 2014 (Michael Walters, Project Manager, Municipal Business Development, Tomlinson Environmental Services).

87 Ibid.

88 ENVI, [Evidence](#), 12 June 2014 (Louie).

89 Ibid.

encouraged all jurisdictions to be active participants in working toward a collective goal.⁹⁰ Without a national program, jurisdictions may end up shipping waste across a border.⁹¹

Another best practice the witness identified was social marketing and responsibility in relation to a waste management facility. The witness recommended community outreach prior to siting a facility to ensure the community's concerns are taken into account. He also recommended sharing scientific information with the community to foster a better understanding of waste management practices.⁹²

The Role of the Federal Government in Improving Waste Management

During the course of the study, most witnesses went beyond describing innovations in waste management technology development and jurisdictional best practices, the two areas of study identified in the motion. In particular they also shared with the Committee their ideas regarding the role of the federal government in improving waste management. These ideas related to setting standards — including ideas related to extended producer responsibility programs —, collecting data, supporting research and development, providing certain fiscal incentives and changing attitudes towards waste management.

A. Setting Standards

A number of witnesses suggested that governments should set standards. One witness proposed that more environmental standards are necessary.⁹³ Another witness called for standards for recycling technologies and processes, which he explained “are needed to help foster competition and innovation in the waste diversion sector by promoting a level playing field amongst processing facilities.”⁹⁴

In a similar manner, governments can prohibit the disposal of certain materials, a possibility that was raised by several witnesses.⁹⁵ For example, Nova Scotia's ban on organics in the landfill was cited as a means by which that province tries to ensure that it captures value from that stream of waste.⁹⁶

Standards to encourage recycling were also suggested by various witnesses throughout the study. One witness felt sure that, at some point in the future, everything will be recyclable. He suggested that manufacturers should be discouraged from making unrecyclable plastics.⁹⁷ Another witness suggested that the government role in waste

90 ENVI, [Evidence](#), 24 November 2014 (Harley).

91 Ibid.

92 Ibid.

93 ENVI, [Evidence](#), 3 June 2014 (Cardinal).

94 ENVI, [Evidence](#), 5 June 2014 (Peter Hargreave, Director, Policy, Ontario Waste Management Association).

95 Ibid. (Emmie K.H. Leung, Chief Executive Officer and Founder, Emterra Group); ENVI, [Evidence](#), 24 November 2014 (Conrad and Harley); and *ibid.* (Hargreave).

96 Ibid. (Hargreave).

97 ENVI, [Evidence](#), 6 October 2014 (Blecher).

management should be to set the outcome: “if you put this product in the marketplace, it needs to be recycled.”⁹⁸ A third witness agreed with this suggestion. She stated that if the government were to set a national standard for waste diversion, “private industry will find a way to do it. ... they will innovate.”⁹⁹

Witnesses had additional suggestions regarding standard-setting to support recycling. They proposed:

- that governments should build a market for recycled products by creating incentives or requirements for Canadian manufacturers to use recycled materials;¹⁰⁰
- that, in order to help consumers sort recyclable materials, the federal government should make regulations that require packaging to clearly show what it is made of and whether it can be recycled;¹⁰¹ and
- that there are too many differences in municipal recycling programs, and therefore that the federal government should work “with the provinces and territories to establish requirements to make products and packaging as recyclable as possible and to standardize packaging types in accordance with municipal programs.”¹⁰²

Vehicle recycling was a topic of concern raised by one group that appeared before the Committee advocating for government intervention. They noted that 65% of vehicles at the end of their useful lives are not necessarily being handled by certified recyclers. Accordingly, although much metal from vehicles is being recycled, there is potential for more, and recycling of plastics from vehicles is very underutilized. As well, hazardous materials from vehicle fluids and batteries are not necessarily always being handled appropriately. The group recommended that the federal government put in place legislation governing safe end-of-life recycling for vehicles.¹⁰³

1. Implementing Extended Producer Responsibility Regimes

Related to the idea of national standards is the concept of extended producer responsibility (EPR), which is “an economic policy approach in which producers of products and packaging bear responsibility for ensuring proper end-of-life management of those materials.”¹⁰⁴

98 ENVI, [Evidence](#), 5 June 2014 (Hargreave).

99 Ibid. (Leung).

100 Emterra Group, written brief, 5 June 2014, p. 34.

101 ENVI, [Evidence](#), 12 June 2014 (Moore).

102 ZeroWaste – National Zero Waste Council, written brief presented by Raymond Louie, First Vice-President, Federation of Canadian Municipalities, 12 June 2014, p. 17.

103 ENVI, [Evidence](#), 10 June 2014 (McClenaghan).

104 ENVI, [Evidence](#), 5 June 2014 (Hargreave).

Overall, witnesses were supportive of EPR because it is consistent with the polluter pays principle.¹⁰⁵ As described by one witness, “EPR as a major policy approach has been adopted right across the country and ... is being implemented by every provincial and territorial government.”¹⁰⁶ The federal government has endorsed EPR, as has the Canadian Council of Ministers of the Environment (CCME).¹⁰⁷ In 2009, the Canadian Minister of Environment and provincial and territorial ministers of environment, through the CCME, approved a Canada-wide Action Plan for EPR “in order to create a harmonized approach to EPR.”¹⁰⁸ In a recent progress report on the action plan, the CCME noted that, since the adoption of the action plan, most provinces have adopted legislation extending EPR programs to additional materials, “and the number of product categories covered by EPR programs or requirements, both in effect or soon to be, has almost tripled.”¹⁰⁹

Phase One of the 2009 Canada-wide Action Plan for EPR required the enactment of a number of operational EPR programs, particularly for automotive products, within six years of adoption, and that deadline is expected to be met.¹¹⁰

The approach to EPR of the Government of Canada, in leading everybody together to harmonize their efforts in a way that will have a maximum impact across the country, is the right way to go.¹¹¹

The 2009 Canada-wide Action Plan for EPR would not have been achieved without the collaborative approach of federal, provincial and territorial ministers.¹¹²

The Government of Canada contributes one-third of the funding for the CCME. Environment Canada plays an important role in the CCME. It has a depth in its science capacity and a depth in its human resources that individual provinces do not possess.¹¹³

Despite these encouraging results, a representative of Food and Consumer Products of Canada, Rachel Kagan, raised concerns with the way EPR is being implemented in Canada. The first concern relates to the lack of national harmonization of EPR programs, which are regulated at the provincial and territorial level.¹¹⁴ For EPR programs relating to packaging, in particular, she pointed out that “packaging is seldom designed for a provincial market. More often it is designed for a North American or global

105 For example, see *ibid.* (Leung) and ENVI, [Evidence](#), 24 November 2014 (Conrad).

106 ENVI, [Evidence](#), 12 June 2014 (Goeres).

107 ENVI, [Evidence](#), 5 June 2014 (Hargreave).

108 Canadian Council of Ministers of the Environment, [Canada-Wide Action Plan for Extended Producer Responsibility](#), PN 1499, October 2009.

109 Canadian Council of Ministers of the Environment, [Progress Report on the Canada-Wide Action Plan for Extended Producer Responsibility](#), 2014, p. 3.

110 ENVI, [Evidence](#), 12 June 2014 (Goeres) and ENVI, [Evidence](#), 10 June 2014 (McClenaghan).

111 ENVI, [Evidence](#), 10 June 2014 (McClenaghan).

112 ENVI, [Evidence](#), 12 June 2014 (Goeres).

113 *Ibid.*

114 ENVI, [Evidence](#), 20 October 2014 (Kagan).

distribution system.”¹¹⁵ She went on to explain that the lack of national harmonization makes it “difficult for some companies to make informed decisions as it’s not always clear which materials are compatible with which recycling facilities across municipal and provincial borders.”¹¹⁶ As a result, the witness concluded that “EPR, as it stands today, does not wholly foster packaging design changes.”¹¹⁷

The second concern with EPR programs raised during the study is that they are primarily focussed on the recyclability of products. Again in the context of packaging, a witness pointed out that this focus on recycling takes away from other important considerations, such as water and energy use associated with packaging.¹¹⁸ Accordingly, she called for “a broader sustainability lens” through which packaging design ought to be viewed.¹¹⁹

A third concern raised relates to a type of EPR program that producers are not directly responsible for funding and operating. Under this type of program, sometimes referred to as a “shared responsibility” program, municipalities or other public agencies are responsible for collecting, processing and selling a certain type of material, and producers are responsible for funding a portion of the program costs.¹²⁰ A witness suggested that this type of program is not truly EPR, and that producers responsible for paying for these programs should also have a role in program decision-making.¹²¹

A final concern raised with EPR across Canada relates to those programs where producers of designated materials combine to form a single organization responsible for recycling those materials. That organization sets the price for recycling within a jurisdiction and passes on the costs to consumers.¹²² Because consumers have no choice other than to recycle their materials with the organization, as described by one witness, “there are no competitive tensions within the system to innovate or to find ways to do things more efficiently or more effectively.”¹²³ The witness suggested to the Committee that the federal Competition Bureau should look into these types of programs.¹²⁴

115 Ibid.

116 Ibid.

117 Ibid.

118 Ibid.

119 Ibid.

120 See Canadian Council of Ministers of the Environment (2014), p. 5 for a description of the various types of extended producer responsibility programs.

121 ENVI, [Evidence](#), 20 October 2014 (Kagan).

122 See Canadian Council of Ministers of the Environment (2014), p. 3 and ENVI, [Evidence](#), 5 June 2014 (Hargreave).

123 ENVI, [Evidence](#), 5 June 2014 (Hargreave).

124 Ibid.

B. Collecting Data

The importance of the federal government's role in collecting data on waste management was underscored by numerous witnesses who appeared before the Committee.¹²⁵ Sound data are needed for provinces, municipalities and producers to develop effective waste management policies and programs, including EPR programs.¹²⁶

The Committee was told that, currently, Statistics Canada is “the only source of broad-level information on the movement of waste materials in Ontario and across the country.”¹²⁷ The Statistics Canada data currently available were described as providing “a reasonable high-level picture,” but were said to “miss large portions of data, and ... lack detail that would allow businesses and policy-makers to make more informed decisions.”¹²⁸ More specifically, several witnesses perceived the following deficiencies in available waste management data:

- Data do not take into account waste that flows from a generator potentially directly to a processor. An example of such waste might be “materials that go directly from a food processor to be animal feed.”¹²⁹
- Data are not detailed enough.¹³⁰ For example, organic waste “encompasses a lot of different types of organic materials.”¹³¹ The differences in organic materials are relevant for some facilities, such as anaerobic digesters.¹³²
- “There are no consistent definitions across the country on what constitutes recycling, what constitutes disposal, what constitutes a certain category of waste, what constitutes a particular category within a waste stream.”¹³³
- “There are concerns about the lengthy delays between receiving data and getting data. Sometimes two, three, four years intervene between the collection of data to the time it's available.”¹³⁴

125 For example, see *ibid.* (Leung); ENVI, [Evidence](#), 20 October 2014 (Kagan); ENVI, [Evidence](#), 5 June 2014 (Hargreave); ENVI, [Evidence](#), 12 June 2014 (Goeres); and ENVI, [Evidence](#), 3 December 2014 (Mills).

126 *Ibid.* (Kagan).

127 ENVI, [Evidence](#), 5 June 2014 (Hargreave).

128 *Ibid.*

129 *Ibid.*

130 *Ibid.* and ENVI, [Evidence](#), 12 June 2014 (Goeres).

131 *Ibid.* (Hargreave).

132 *Ibid.*

133 ENVI, [Evidence](#), 12 June 2014 (Goeres).

134 *Ibid.*

Witnesses urged the federal government to play a more active role in data collection related to waste management.¹³⁵

C. Supporting Research and Development

Witnesses suggested that another important role for the federal government in waste management is supporting a wide range of research and development. One role would be in supporting scientific research and monitoring of the effects of waste on human health and the environment. For example, the Committee heard that guidelines to address the issue of waste pharmaceuticals — and in particular of endocrine disruptors — finding their way into water bodies will only be developed “when the science is available.”¹³⁶

Another role for the federal government that falls under the heading “research and development” involves supporting innovation in new technologies to manage and use waste better.¹³⁷ For example, Committee members were encouraged to hear about a European optical sorter technology which has made recycling plastics more economically feasible in Canada and elsewhere.¹³⁸ Witnesses recommended that our federal government spend more time, money and energy in research and development to foster such technological development here in Canada.¹³⁹

Several witnesses explained that while it is important to support research, it is also important for the government to support commercialization of new technologies. They described the challenge of crossing the financial “valley of death” on the path from development through pilot project and demonstration to commercialization of a new technology. The Committee was told that “when you're dealing with technology that's perceived as new, the capital community ... applies a heavy premium in terms of risk. That means that money gets very expensive and sometimes that expense is out of reach for the development of projects based on new technology.”¹⁴⁰ He called for the assistance of all levels of government to remove or reduce “the risk or perceived risk from the capital community.”¹⁴¹ Another witness testified that it is important for the government “to complement and stimulate private investment at all stages.”¹⁴²

The federal government has programs that “bridg[e] the funding gap between innovation and development.”¹⁴³ In particular, Sustainable Development Technology Canada (SDTC) was noted as “the primary funding channel for developing sustainable

135 ENVI, [Evidence](#), 5 June 2014 (Hargreave).

136 ENVI, [Evidence](#), 12 June 2014 (Goeres).

137 For example, see ENVI, [Evidence](#), 24 November 2014 (Conrad).

138 ENVI, [Evidence](#), 5 June 2014 (Leung).

139 Ibid.

140 ENVI, [Evidence](#), 3 June 2014 (Nickel).

141 Ibid.

142 ENVI, [Evidence](#), 10 June 2014 (Labrie). Also see *ibid.*

143 Canadian Renewable Fuels Association, “Evolution & Growth: From Biofuels to Bioeconomy,” written brief, p. 31.

technology infrastructure in Canada”¹⁴⁴ and was praised as doing “a great job.”¹⁴⁵ Witnesses suggested to the Committee that SDTC should be recapitalized¹⁴⁶ and its funding increased.¹⁴⁷

SDTC is not the only potential source of funding to support research and development though. Other federal programs as well as provincial programs that support regional economic development or workforce training, for example, might also promote research and development. One witness recommended that the federal government “create a central source of information on provincial and federal programs and funding that could be used for promoting R&D in this field.”¹⁴⁸

D. Providing Fiscal Incentives

Witnesses raised a fourth role for the federal government in waste management in Canada: providing fiscal incentives. Testimony on this topic related to fiscal incentives to support recycling and other innovative means of diverting waste, as well as fiscal incentives to promote energy and fuels that reduce greenhouse gas emissions.

1. Fiscal Incentives in Support of Waste Diversion

Testimony given during the Committee’s study identified a number of advantages of recycling or generating energy from waste (together “diversion”) rather than putting it in a landfill. In essence, diversion extracts value from the waste stream, creates jobs, and avoids the long-term potential environmental and social liabilities associated with landfills. However, landfilling remains Canada’s primary means of waste management, principally because it costs less.¹⁴⁹ “Issues related to convenience and capacity are also contributing factors.”¹⁵⁰

Witnesses suggested a number of ideas for how the federal government could be involved nationally in improving the economics of diversion over landfilling.

Several ideas for improving the economics of diversion were based on tax incentives. A witness suggested that the government could provide tax credits or accelerated depreciation to support the adoption of new technologies in waste management.¹⁵¹ Another witness suggested a tax incentive to encourage the development of products that make use of recycled materials for which the market is currently not

144 Ibid.

145 ENVI, [Evidence](#), 3 December 2014 (Mills).

146 For example, see Canadian Renewable Fuels Association, written brief, p. 31.

147 ENVI, [Evidence](#), 3 December 2014 (Mills).

148 Emterra Group, written brief, 5 June 2014, p. 33.

149 ENVI, [Evidence](#), 5 June 2014 (Hargreave). Also see ENVI, [Evidence](#), 12 June 2014 (Moore).

150 Ibid. (Hargreave).

151 ENVI, [Evidence](#), 3 December 2014 (Mills).

lucrative.¹⁵² A third witness suggested extending tax incentives for charitable donations to include donations of food that would otherwise be wasted.¹⁵³

Another suggested means by which the federal government could encourage diversion over landfilling is by expanding existing funding programs for waste management infrastructure.¹⁵⁴ The importance of these programs was underscored by a representative from the Region of Peel, who confirmed that the region intends to access the current federal green infrastructure funding to help build its planned \$500 million energy from waste facility.¹⁵⁵

On the other hand, the Committee heard from witnesses whose waste management enterprises operated with a sustainable and profitable economic model, without government funding other than market-based tipping fees and energy purchases. This suggests that government funding is not always a necessary strategy.¹⁵⁶

The other means of making diversion more appealing than landfilling would be to raise the cost of landfilling by internalizing costs of air and water pollution associated with landfills.¹⁵⁷ One witness talked about adding a disposal levy at disposal sites or consolidation points.¹⁵⁸ Another witness, who was formerly a municipal councillor, told the Committee about the “tag-a-bag” program he introduced while he was in office.¹⁵⁹ Under this program, residents paid by the bag for landfilling, and in return, municipal waste fees were taken off their tax bill. He suggested that the federal government could create the right type of environment to encourage municipalities to participate in such types of programs while at the same time using “social marketing to make people aware of what they can do to become more responsible.”¹⁶⁰ As was pointed out at one meeting, however, such disincentives from landfilling may only work when alternatives to landfilling are available.¹⁶¹

152 ENVI, [Evidence](#), 12 June 2014 (Moore).

153 Ibid. (Louie).

154 ENVI, [Evidence](#), 24 November 2014 (Harley).

155 Ibid. (Conrad).

156 ENVI, [Evidence](#), 5 June 2014 (Lewis Staats, President, Renewable Energy Management) and (Leung).

157 See *ibid.* (Leung). Also see ENVI, [Evidence](#), 24 November 2014 (Conrad), who discusses the possibility of a national carbon credit registry.

158 Ibid. (Hargreave).

159 ENVI, [Evidence](#), 24 November 2014 (Harley).

160 Ibid.

161 See ENVI, [Evidence](#), 24 November 2014.

2. Fiscal Incentives to Promote Energy and Fuels that Reduce Greenhouse Gas Emissions

The Committee heard testimony about numerous waste management processes that ultimately result in lower greenhouse gas emissions.¹⁶² The promoters of these technologies suggested four ways the federal government could provide support. First, a number of witnesses called for a price on carbon.¹⁶³ As expressed by one witness: “If we want this industry to flourish, we have to make sure that the rules are fair. It is only through a price on carbon that businesses will contribute to reducing greenhouse gas emissions.”¹⁶⁴ One witness highlighted that some technologies can offer a reduction in greenhouse gas emissions and that “ensuring the ability to obtain a fair value for those environmental benefits is key to the success of all renewable fuels.”¹⁶⁵ Another witness suggested introducing a cap-and-trade system for carbon credits.¹⁶⁶

Second, several witnesses called on the federal government to use the tax system to support the production of biofuels made from waste. For example, some witnesses asked the federal government to exempt cellulosic biofuels from the 10¢ per litre federal excise tax on gasoline.¹⁶⁷ They pointed out that, “in the past, tax exemptions for ethanol and biodiesel helped to kick-start those industries in Canada.”¹⁶⁸ They also proposed that the equipment used for making biofuels be eligible for the accelerated capital cost allowance rate currently provided for clean energy generation and energy efficiency equipment.¹⁶⁹ A witness explained that this preferred rate is currently only available for “equipment that generates or conserves energy by using renewable energy such as wind, solar, and fuels from waste, such as landfill gas. It does not include equipment ... which focuses on the production of liquid transportation fuels from waste rather than stationary energy.”¹⁷⁰

Third, witnesses pointed out that, unlike the United States, Canada does not require that refiners include a specified percentage of cellulosic ethanol in their mix. They implied that, if imposed, such a requirement could stimulate investment in Canada.¹⁷¹ They also called on Canada to increase the renewable content required in

162 For example, see ENVI, [Evidence](#), 3 June 2014 (Nickel) and ENVI, [Evidence](#), 10 June 2014 (Thurlow and Labrie).

163 Ibid. (Nickel); ENVI, [Evidence](#), 3 December 2014 (Mills); and ENVI, [Evidence](#), 10 June 2014 (Thurlow and Labrie).

164 ENVI, [Evidence](#), 10 June 2014 (Labrie).

165 Ibid. (Thurlow).

166 ENVI, [Evidence](#), 24 November 2014 (Conrad).

167 ENVI, [Evidence](#), 10 June 2014 (Labrie).

168 Ibid. (Thurlow).

169 Ibid. (Labrie).

170 Ibid.

171 Ibid.

diesel fuel from 2% to 5% by 2020,¹⁷² and to expand renewable diesel-use to new markets such as marine, rail, mining, power engines and oil sands expansion.¹⁷³

Finally, a witness called on both “federal and provincial governments to make strategic investments in infrastructure, and encourage pump turnover from existing fuel providers, independent retailers, and new market entrants to provide opportunities for consumers to choose ... higher-level blends [including] cellulosic biofuels from waste.”¹⁷⁴ The witness made this suggestion in the context of “corporate average fuel economy rules, introduced by this government to harmonize fuel economy standards across North America, [which] will require fuel economy improvements, starting in the 2017 model year vehicles.”¹⁷⁵

E. Changing Attitudes Towards Waste Management

The final set of recommendations witnesses made to the Committee regarding the federal role in waste management all centred on changing attitudes. One witness testified that Canada needs an entire culture change regarding waste management.¹⁷⁶ Another witness called on the government to make a “solid, concerted effort to remind people of the environment more often” along with the effect their choices have on the environment.¹⁷⁷

Specifically, one witness suggested that the government could help educate people on the “huge liability” associated with leachate from landfills.¹⁷⁸ Regarding food labelling, a witness suggested a role for government in providing direction to the population that the date on food is a best-before date, which guarantees a certain standard of food quality, but does not mean that the food should not be consumed after the date. He suggested that food waste could be reduced if people understood better what the date on food means.¹⁷⁹

However, a number of witnesses felt that it is not just the attitudes of individual Canadians towards waste management that need to change, but government attitudes as well. A witness who has been working for improved waste management for decades, both as a member of Parliament and privately, described what he sees as the current situation in Canada: no level of government is taking responsibility for improving waste management.¹⁸⁰ He suggested that municipalities, provinces and the federal government

172 Ibid. (Thurlow) and Canadian Renewable Fuels Association, written brief, p. 32.

173 Canadian Renewable Fuels Association, “Evolution & Growth: From Biofuels to Bioeconomy,” written brief, p. 32.

174 ENVI, [Evidence](#), 10 June 2014 (Thurlow).

175 Ibid.

176 ENVI, [Evidence](#), 6 October 2014 (Blecher).

177 ENVI, [Evidence](#), 24 November 2014 (Conrad).

178 ENVI, [Evidence](#), 3 December 2014 (Mills).

179 ENVI, [Evidence](#), 12 June 2014 (Louie).

180 ENVI, [Evidence](#), 3 December 2014 (Mills).

all need to work together to encourage the innovation and adoption of new technologies in waste management.¹⁸¹

As suggested by one witness, the federal government could serve as a model if it were to maximize recycling and adopt innovative technologies to manage waste from government operations.¹⁸² In order to encourage other levels of government to embrace and support the vision of zero waste, one witness called for the federal government to do a “sales job” starting at the Federation of Canadian Municipalities (FCM).¹⁸³ However, the Committee heard that the FCM together with Metro Vancouver already have founded the National Zero Waste Council. A representative of that council suggested that the federal government could develop a national strategy to “reduce the amount of waste created and enhance recycling and recovery programs for the remaining waste.”¹⁸⁴

Conclusion

“Municipal solid waste is an environmental issue for everyone and every city around the world.”¹⁸⁵ The situation here in Canada was encapsulated by one witness as follows:

First, we know that we all produce too much waste and that we need to do better. Second, local governments bear the brunt of this in facing the direct costs of waste management, but with little scope to solve the problem. Third, we need the federal government—it's the missing piece—to address this issue.¹⁸⁶

However, in order to address this issue, there is “no one clear silver bullet ... of the best model”¹⁸⁷ that would work for every municipality in every region of the country. Rather, there are numerous best practices to reduce, reuse, recycle and recover value from waste that have been adopted across the country. There are also technological innovations, both developed and on the horizon, that have the potential to extract ever more value from different types of waste and in different ways while at the same time reducing the amount of material ultimately sent to landfills.

If we, as a society, want to manage our waste more effectively, everybody has a role to play. Consumers need to re-evaluate their choices of what to buy and when and how to dispose of any associated waste. Manufacturers and importers need to continue to improve their products and packaging, including by making them easier to reuse and recycle. Municipalities need to implement best practices and use new innovative technologies in waste management, depending on their circumstances and limitations. Finally, a more coordinated approach involving all levels of government needs to create

181 Ibid.

182 ENVI, [Evidence](#), 3 June 2014 (Chiasson).

183 ENVI, [Evidence](#), 3 December 2014 (Mills).

184 ZeroWaste – National Zero Waste Council, written brief presented by Raymond Louie, First Vice-President, Federation of Canadian Municipalities, 12 June 2014, p. 17.

185 ENVI, [Evidence](#), 10 June 2014 (Thurlow).

186 ENVI, [Evidence](#), 12 June 2014 (Louie).

187 ENVI, [Evidence](#), 20 October 2014 (Kagan).

“the conditions necessary to encourage the most efficient use of all resources across the entire supply chain.”¹⁸⁸

188 *ibid.*

LIST OF RECOMMENDATIONS

The Committee recommends:

- 1. That the federal government continue to work with all levels of government and stakeholders to ensure that best practices in waste management are shared and utilized, while respecting provincial and territorial jurisdiction in this area.**
- 2. That the federal government encourage all Canadians to incorporate the 3Rs – Reduce, Reuse, and Recycle – into their daily routines.**
- 3. That the federal government continue to support the efforts of the Canadian Council of Ministers of the Environment to promote the use of waste management best practices, including through the Canada-wide Action Plan for Extended Producer Responsibility and the Canada-wide Strategy for Sustainable Packaging.**
- 4. That the federal government encourage scalable solutions for waste management that will work throughout Canada.**
- 5. That the federal government continue to support the commercialization of new technologies that will improve waste management.**
- 6. That the federal government consider potential incentives to support the adoption and implementation of new technologies in waste management.**
- 7. That the government continue to encourage the use of cellulosic fuel.**

APPENDIX A LIST OF WITNESSES

Organizations and Individuals	Date	Meeting
<p>As an individual</p> <p>Douglas Cardinal, Architect</p>	2014/06/03	26
<p>BioWaste to Energy for Canada Integration Initiative</p> <p>Trevor Nickel, Executive Advisor</p>		
<p>Plasco Energy Group Inc.</p> <p>Edmond Chiasson, Vice-President, Public Affairs and Corporate Communications</p>		
<p>Tomlinson Environmental Services</p> <p>Michael Walters, Project Manager, Municipal Business Development</p>		
<p>Emterra Group</p> <p>Emmie K.H. Leung, Chief Executive Officer and Founder</p>	2014/06/05	27
<p>Ontario Waste Management Association</p> <p>Peter Hargreave, Director, Policy</p>		
<p>Renewable Energy Management</p> <p>Lewis Staats, President</p> <p>Doug Starr, Executive Vice-President</p>		
<p>Canadian Environmental Law Association</p> <p>Fe de Leon, Researcher</p> <p>Theresa McClenaghan, Executive Director and Counsel</p>	2014/06/10	28
<p>Canadian Renewable Fuels Association</p> <p>W. Scott Thurlow, President</p>		
<p>Enerkem</p> <p>Marie-Hélène Labrie, Senior Vice-President, Government Affairs and Communications</p>		
<p>Canadian Council of Ministers of the Environment</p> <p>Michael Goeres, Executive Director</p>	2014/06/12	29
<p>Federation of Canadian Municipalities</p> <p>Raymond Louie, First Vice-President</p>		
<p>Highland Creek Treatment Plant</p> <p>Frank Moir, Co-Chair, Neighbourhood Liaison Committee</p>		
<p>Island Waste Management Corporation</p> <p>Gerry Moore, Chief Executive Officer</p>		

Port Hope Residents 4 Managing Waste Responsibly	2014/10/06	30
Stan R. Blecher		
Food and Consumer Products of Canada	2014/10/20	32
Rachel Kagan, Vice-President, Environmental Sustainability		
Orgaworld Canada	2014/11/24	39
Dale Harley, General Manager, Ottawa		
Region of Peel		
Larry Conrad, Manager, Waste Operations		
As an individual	2014/12/03	41
Bob Mills		

APPENDIX B LIST OF BRIEFS

Organizations and individuals

Canadian Council of Ministers of the Environment

Canadian Paint and Coatings Association

Canadian Renewable Fuels Association

Emterra Group

Federation of Canadian Municipalities

Ontario Waste Management Association

Tomlinson Environmental Services

REQUEST FOR GOVERNMENT RESPONSE

Pursuant to Standing Order 109, the Committee requests that the government table a comprehensive response to this Report.

A copy of the relevant *Minutes of Proceedings* ([Meetings Nos. 26, 27, 28, 29, 30, 32, 39, 41, 42 and 43](#)) is tabled.

Respectfully submitted,

Harold Albrecht

Chair

Dissenting report from the New Democratic Party on the study on municipal waste.

The members of the New Democratic Party (NPD) would like to thank the witnesses who participated in the study on municipal waste by the Standing Committee on the Environment and Sustainable Development. We would also like to recognize the professionalism of the Library and committee staff.

While we agree with the general thrust of the report, we find it important to raise key points not covered in the report. For one, the report does not state that, according to a study by the OECD, Canada ranks poorly in waste management and, as a result, the federal government should act promptly to correct the situation in partnership with other levels of government.

We were told that, according to the annual report of the Conference Board of Canada, Canada ranked last among 16 OECD countries in 2014 in terms of waste management, producing more than twice the per capita waste of Japan, which had the best performance.

Moreover, recommendation three does not reflect the reality expressed by experts who called on the federal government to show leadership in harmonizing Extended Producer Responsibility (EPR) programs: “a more national and coordinated approach to the decisions related to the collection, processing, and sale of recycled packaging materials, will lead to greater efficiencies and economies of scale, and [...] to increased waste diversion and recycling.”¹

In the committee meetings, the vast majority of witnesses expressed support for the polluter pays principle and said that the federal government should establish a price on carbon to satisfy this basic principle of sustainable development. Witnesses mentioned the need to balance marketplace rules so that low-carbon technology solutions can be developed in the field of waste management and businesses can invest in these technologies: “If we want this industry to flourish, we have to make sure that the rules are fair. It is only through a price on carbon that businesses will contribute to reducing greenhouse gas emissions. In the current environment, that is a very difficult thing to do.”²

Other witnesses pointed out that a cap-and-trade solution would provide better prospects for reducing greenhouse gases and concrete support to create new waste reduction technologies: “cap and trade is an important system that can be put in place

¹ ENVI, Evidence, 20 October 2014 (Kagan)

² ENVI, Evidence, 10 June 2014 (Labrie)

to help raise funds for viable projects”³ and “Alberta’s promotion of organics diversion is driven by the specified gas emitters regulation, which seeks to reduce greenhouse emissions through a cap-and-trade system. In this respect, a number of organic diversion projects have been developed to create offset credits in the marketplace.”⁴

Finally, it is imperative to note that the report’s conclusion and recommendations do not reflect the vast testimony that focused on Canada’s poor track record and the lack of federal action. The recommendations are too general and fail to mention carbon pricing or the federal leadership needed in EPR programs.

³ ENVI, Evidence, 24 November 2014 (Conrad)

⁴ ENVI, Evidence, 24 November 2014 (Harley)

Liberal Minority Report – Municipal Solid Waste Management

For whatever reason, the government members on the Environment Committee decided that a study on municipal solid waste would warrant an eight session inquiry. When a committee commences a study in which it has limited jurisdictional competence, it is reasonable to assume that the body of the report will be anodyne and the recommendations vacuous. To no one's great surprise, the refrain of "what has this to do with the federal government?" was repeated throughout the study.

Notwithstanding the able work of the researchers, government members did not want to see any criticism of government activity or inactivity in the body of the report. A 2014 conference Board of Canada report ranks Canada last behind 16 of its peers in the OECD in landfill management and also notes that Canadians produce twice as much waste per capita as Japan. Apparently in a conservative world reality, we see no evil hear no evil and smell no evil.

In spite of the enormous efforts on the part of capable Canadians to come and give testimony to the committee, most of their pleas for a federal government to become more engaged fell on deaf ears. When one of the major recommendations is "That the federal government encourages all Canadians to incorporate the 3Rs- Reduce, Reuse and Recycle –into their daily routines," it is reasonable to surmise that this report could generously be described as "light."

The message of the report is clear: don't expect anything from this Conservative government and you won't be disappointed.

The committees report includes three encouragements two “continues to support,” one “continue to work,” and one “consider potential.” It is doubtful that any of the innocuous phrasing will address serious issues raised by the witnesses. For example, one witness noted, “we haven’t really figured out how to reuse as many materials as we could, and we haven’t figured out the best way at all times to recycle materials.” But the recommendation is to encourage Canadians to reduce, reuse and recycle, despite the fact that we haven’t figured out what to do with much of the materials they place at the curb.

Perhaps the reader will be encouraged by the Government’s recommendations and follow its advice with this document by taking it to the curb.