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Enhancing Plastic Recycling in Canada

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Contents

NOTE

Much of this report is based on a summary review of the following major reports on circular economy, plastics and recycling issues. It is remarkable the extent to which these reports done for foundations, NGOs and governments agree on the solutions before us. We are grateful to their authors:

- Environment and Climate Change Canada: Economic Study of the Canadian Plastic Industry, Markets and Waste
- Smart Prosperity Institute, University of Ottawa: *A Vision for a Circular Economy for Plastics in Canada: The Benefits of Plastics Without the Waste and How We Get it Right*
- Ellen MacArthur Foundation: *Towards the Circular Economy: economic and business rationale for an accelerated transition*, and *The New Plastics Economy: rethinking the future of plastics*
- United Nations Environment Programme: *Single-Use Plastics: A Roadmap for Sustainability and Legal Limits on Single-Use Plastics and Microplastics: A Global Review of National Laws and Regulations*
- Organization for Economic Co-operation and Development (OECD): *Improving Markets for Recycled Plastics: Trends, Prospects and Policy Responses*
- Canadian Council of Ministers of the Environment: *Canada-Wide Action Plan for Extended Producer Responsibility* and *A Canada-Wide Strategy for Sustainable Packaging*
- Institute for European Environmental Policy, *EPR in the EU Plastics Strategy and the Circular Economy: A focus on plastic packaging*
- Ontario's *Strategy for a Waste-Free Ontario: Building the Circular Economy*

Executive Summary

Plastic products are pervasive in Canada, but at the end of their life, only 9% of total plastic is actually recycled – and 95% of plastic value is lost to the economy after only a single use.[1] Our current industrial economy follows a linear model of resource consumption, which typically involves a product manufacturer extracting raw materials at the beginning of the product's lifecycle, and the consumer simply discarding the product into the waste stream or the environment at the end. This model is environmentally devastating and economically expensive. The amount of plastic used just once and then thrown away leads to a massive waste of resources and energy. As the world demand for plastic doubles every 20 years, we cannot afford this wasteful system that fills our landfills, litters our landscapes, consumes a growing portion of oil and gas production, and produces a swelling portion of global greenhouse gas emissions and other pollution.[2] Yet, driven by the fact that manufacturing new virgin plastic is often cheaper than using recycled plastic, the wasteful linear model perpetuates itself. This wasteful system needs to change, and recycling needs to be fully implemented.

There are policy solutions to address the problem. There are a number of initiatives that experts recommend and that other jurisdictions have successfully implemented to shift the linear approach. Our first, and most fundamentally important recommendation is for Canada to transition from a linear model for plastics to a Circular Economy for Plastics. A Circular Economy model is "a regenerative system in which resource input and waste, emission, and energy leakage are minimised by slowing, closing, and narrowing material and energy loops."[3] This can be achieved through designing products that are meant to last and

…at the end of their life, only 9% of total plastic is actually recycled – and 95% of plastic value is lost to the economy after only a single use.

[1] Mia Rabson and Michael Tutton, "Provinces, federal government bringing in first step of 'action plan' for plastics recycling" (27 June 2019), online: *CBC News* <https://www.cbc.ca/news/politics/provinces-federal-government-plastics-plan-1.5192802>. University of Victoria Environmental Law Centre, "The Case for Reform: BC Must Regulate Single-Use Plastics, p. 9.

[2] World Economic Forum, "The New Plastics Economy: Rethinking the future of plastics" (January 2016), online: <http://newplasticseconomy.org/report-2016>, at p 7. See University of Victoria Environmental Law Centre, "The Case for Reform: BC Must Regulate Single-Use Plastics, p. 9, which documents that plastics are on track to consume 20% of world oil production and 15% of the global annual carbon budget by 2050 ["*ELC Case for Reform*"].

[3] Martin Geissdoerfer et al., "The Circular Economy – A new sustainability paradigm?" (2017) 143:1 J Cleaner Production57 at 759 ["*Geissdoerfer*"].

reusing, maintaining, repairing, remanufacturing, refurbishing, and *recycling* existing products.

Due to cultural differences, differences in how each country's government is structured, and differences in each country's existing recycling and resource use framework, there are many ways to create a Circular Economy for Plastics. However, the leading thinkers of Circular Economies have reached a general consensus that the "menu" of instruments listed below, when used in the right combination and in concert with others, will contribute to creating circularity:

1. Extended producer responsibility (EPR) schemes;
2. Disposal bans and waste levies;
3. Financial instruments, including a tax on virgin plastic resin or alternative financial instruments such as adjusted VAT rate and deposit refund systems;
4. Eco-design requirements with an associated labelling system;
5. Bans of specific products;
6. Mandating minimum recycled content; and
7. Government procurement (which uses government buying power to incentivize widespread minimum recycled content).

Each of these instruments has been used with success in other jurisdictions. Detailed information on each can be found in Part I of this Report.

The instruments above are key, but to achieve a circular plastics economy it is vital that they not be implemented in an *ad hoc* manner. They must be carefully implemented in accordance with six fundamental principles:

1. **Plan and implement the Circular Economy for Plastics with concerted, systemic and concurrent reforms that recognize the dynamic interplay among policy instruments chosen.**

   Each instrument must be implemented systematically and in concert with the others. A truly Circular Economy for Plastics will be a complex system, with dependency links *between instruments.* When designing the overall system, it is essential to understand this interconnectivity – and that these instruments often rely on each other for success. For example, a disposal ban on plastics that leads to illegal dumping may not have failed because of the ban itself. It may have failed because complementary systems were not put in place – such as adequate recycling programs to deal with the newly banned items.

2. **All actors – *e.g.* governments, producers, retailers, stakeholders, consumers and non-governmental organizations – must participate in order for the overall system to function as effectively as possible.**

   When implementing policy instruments, governments need to design them to ensure overall collaboration, co-operation and participation.

3. **Governments should collaborate with stakeholders to standardize and harmonize standards, programs, definitions, targets, labeling, criteria and policies.**

   Standardization and harmonization across jurisdictions is necessary for all the individual initiatives and policies to function as intended. A Canada-wide Circular Economy for Plastics cannot be achieved without making the current patchwork of standards and policies consistent.

4. **Governments must ensure collection of baseline data and set mandatory, measurable targets. Regular and transparent monitoring and reporting must be mandated.**

5. **Education programs for the public, businesses, universities, designers, engineers, scientists and industry, are necessary for the success of the transition to a Circular Economy. Innovative technologies and systems, pilot programs and civil society collaborations should be encouraged.**

6. **Research, development and innovation to overcome technological barriers to circularity should be encouraged**.

These principles are discussed in Part II of this Report.

Canada's transition to the Circular Economy for Plastics is past due. Fortunately, the way forward is clear. There are many examples of the recommended instruments already working in other jurisdictions – and ample research to guide implementation of these instruments in the Canadian context.

The Problem

Plastics are pervasive in Canada. In 2017 almost 5,000 kilotonnes of plastics were introduced to the Canadian market through imported and domestic products.[4] Combining resin production, recycled resin, and plastic product manufacturing, the plastics industry amounted to just over $35 billion CAD in sales in the same year; the overall industry was reported to employ more than 93,000 Canadians.[5]

Plastics are ubiquitous. While they bring benefits to society, the use of plastics today is a highly wasteful, linear, take-make-waste model that is harmful to the environment, unsustainable in the long-term, and a missed opportunity as value is literally thrown away. This current linear economy for plastics requires energy and generates emissions for each production cycle. This would largely be avoided if plastic was otherwise reused or effectively recycled. The opportunity for Canada's chemical industry to drive innovation and growth in plastics recycling and renewable plastic chemistries is lost.[6]

The predominant issue is that currently only around 9% of the resulting plastic waste in Canada gets recycled, and only about 4% gets incinerated with energy recovery. This means that the other approximately 87% of plastic waste in Canada ends up in the landfill or leaked into the environment. Not only is this system environmentally detrimental, it also amounted to an economic value loss of approximately $7.8 billion CAD in 2016 alone.[7]

In addition, more than 90% of plastic that is produced is new plastic, using virgin fossil feedstocks rather than recycled plastics in the manufacturing process. This represents 6% of oil consumption worldwide, which is equivalent to that of the aviation industry; if the plastic industry grows as expected, it will represent 20% by 2050 (and 15% of the annual carbon budget worldwide).[8]

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[4] Deloitte & Cheminfo Services Inc., "Economic Study of the Canadian Plastic Industry, Markets and Waste" (Environment and Climate Change Canada: 2019) at i (PDF p 5), online: <http://publications.gc.ca/collections/collection_2019/eccc/En4-366-1-2019-eng.pdf> ["*ECCC Report*"].

[5] *ECCC Report*, see note 4, at i (PDF p 5).

[6] Smart Prosperity Institute, "A Vision for a Circular Economy for Plastics in Canada: The Benefits of Plastics Without the Waste and How We Get it Right" (February 2019) at 3, online: <https://institute.smartprosperity.ca/sites/default/files/report-circulareconomy-february14-final.pdf>.

[7] *ECCC Report*, see note 4, at ii (PDF p 6).

[8] Ellen MacArthur Foundation, "The New Plastics Economy: rethinking the future of plastics" (2016) at 17, online: <https://www.ellenmacarthurfoundation.org/assets/downloads/The-New-Plastics-Economy-Rethinking-the-Future-of-Plastics.pdf> ["*Ellen MacArthur, New Plastics Economy*"].

The reason for these problems is that our modern industrial economy has historically followed a linear model of resource consumption that endorses a "take-make-dispose" pattern. In this model, companies extract materials, manufacture a product by applying energy and labour, and then sell it to an end consumer. At this stage, the customer normally discards it when it no longer serves its purpose.[9]

All three steps of the take-make-dispose model affect ecosystem services in different ways. The collection of raw materials leads to high energy and water consumption, emission of toxic substances, and disruption of natural capital such as forests and lakes. Product formation is also often accompanied by high energy and water consumption and toxic emissions. When these products are discarded, space is taken up from natural areas and harmful pollution impacts the environment.[10]

Plastics are part of the everyday lives of most Canadians. Since the 1950s, global plastics production has increased more than any other manufactured material due to their low cost, durability and utility. However, the current ways in which plastics are managed throughout their lifecycle is threatening ecosystems, human health and livelihoods, and costing billions of dollars a year in lost economic value and other damages. In addition, the amount of plastic designed to be used once and then thrown away leads to a significant waste of resources and energy.[11]

An examination of our current take-make-waste model makes it clear that the solutions to this issue will need to span all actors, and every part of the plastics industry in order to effect necessary change. The recommendations that flow from this report call for a full system reform – a shift to a Circular Economy for Plastics. By necessity, they also call on Canada to recognize, and adapt to, the inherent complexities and challenges that will come with a fundamental system transition.

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[9] Ellen MacArthur Foundation, "Towards the Circular Economy: economic and business rationale for an accelerated transition" (2013) at 14, online: <https://www.ellenmacarthurfoundation.org/publications/towards-the-circular-economy-vol-1-an-economic-and-business-rationale-for-an-accelerated-transition> ["*Ellen MacArthur, Towards the Circular Economy*"].

[10] P Lucas and H Wilting, "Using Planetary Boundaries to Support National Implementation of Environment-related Sustainable Development Goals" (2018), online: PBL Netherlands Environmental Assessment Agency <https://www.pbl.nl/sites/default/files/downloads/Using_planetary_boundaries_to_support_national_implementation_of_environment-related_Sustainable_Development_Goals_-_2748.pdf>.

[11] Deloitte & Cheminfo Services Inc., "Economic Study of the Canadian Plastic Industry, Markets and Waste" (Environment and Climate Change Canada: 2019) at 1, online: <http://publications.gc.ca/collections/collection_2019/eccc/En4-366-1-2019-eng.pdf>.

Part I – The Seven Most Recommended Initiatives for a Circular Economy for Plastics

The first, and most fundamentally important recommendation of this report, is for Canada to transition from a linear model for plastics to a Circular Economy for Plastics.

What is a Circular Economy?

A Circular Economy model, in contrast to our current linear model, is "…a regenerative system in which resource input and waste, emission, and energy leakage are minimised by slowing, closing, and narrowing material and energy loops. This can be achieved through

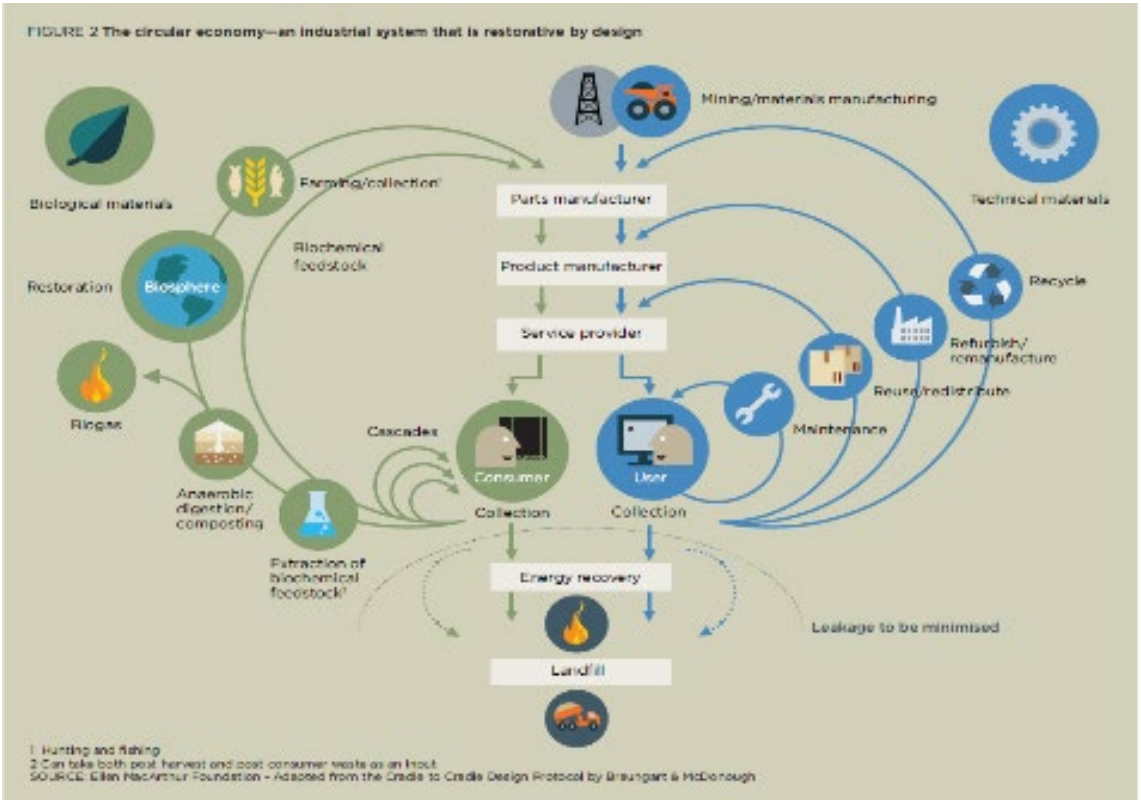

Figure 1: The Circular Economy (courtesy of the Ellen MacArthur Foundation) *www.ellenmacarthurfoundation.org*

long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling."[12]

The Circular Economy inherently embraces the concept of a "Waste Hierarchy," which prioritizes waste from best-use to worst-use. The uses consistently considered worst use are waste-to-energy and landfilling.[14] In general, these "worst uses" should be banned, avoided where possible and/or disincentivized (for example, by taxing the energy to reflect the environmental burden – *e.g.* in the form of a carbon tax).[15]

The difference between a linear and a circular economy[13]		
	Linear Model	**Circular Model**
Step Plan	Take-make-dispose model	Reduce-reuse-recycle model
Focus	Eco-efficiency [to minimize the ecological impact for the same output]	Eco-effectivity [not only the ecological impact is minimized, but that the ecological, economic and social impact is even positive]
System Boundaries	Short term, from purchase to sale	Long term, multiple life cycles
Reuse	Downcycling	Upcycling, cascading and high grade recycling

[12] *Geissdoerfer*, see note 3, at 759.

[13] Het Groene Brein, "How is a circular economy different from a linear economy?" Circular Economy, (accessed 21 May 2020), online: <https://kenniskaarten.hetgroenebrein.nl/en/knowledge-map-circular-economy/how-is-a-circular-economy-different-from-a-linear-economy/>.

[14] United Nations Environment Programme, "Single-Use Plastics: A Roadmap for Sustainability" (2018) at 6, online: <https://www.unenvironment.org/resources/report/single-use-plastics-roadmap-sustainability> ["*UNEP Roadmap*"]:

Energy recovery processes are preferable to landfilling or improper forms of disposal. However, if the desire to recoup the large investment required to set up energy recovery infrastructures indirectly discourages policies geared at reducing plastic waste generation, this would be problematic. In the waste management hierarchy, prevention of waste should always take first priority;

See also Smart Prosperity Institute, "A Vision for a Circular Economy for Plastics in Canada: The Benefits of Plastics Without the Waste and How We Get it Right" (February 2019) at 9, online: <https://institute.smartprosperity.ca/sites/default/files/report-circulareconomy-february14-final.pdf> ["*SPI Vision document*"]:

What makes economic and environmental sense is optimizing the design and use, collection, and recycling of plastic-containing products and packaging. It makes sense to retain embodied materials and energy by maximizing the yield of recycled plastics. In discussing reuse and recycling, it important to raise reduction – the first "R" in the traditional waste management hierarchy of Reduce, Reuse, Recycle ("the 3Rs").

[15] See OECD, *Improving Markets for Recycled Plastics: Trends, Prospects and Policy Responses* (Paris: OECD Publishing, 2018), online: <https://www.oecd.org/environment/improving-markets-for-recycled-plastics-9789264301016-en.htm> at 100 and 108 ["*OECD Improving Markets*"]: "Issue: competition between recycling and energy from waste. Intervention: (regulatory) ban plastics from energy from waste; (economic instrument) incentivise recycling over energy from waste by introducing a tax to reflect the relative environmental burden/benefit of energy from waste and recycling (and landfill);" see also *SPI Vision document*, see note 11, at 30-31.

The concept of a Circular Economy has been discussed since the 1970s.[16] However, it has recently attracted significant mainstream attention, as the problems associated with plastics pollution begin to gain political traction. In time for the 2012 World Economic Forum, the Ellen MacArthur Foundation published a report which evaluates the potential benefits of the transition to a Circular Economy.[17] Since then, countries and companies alike have begun to recognize the need to transition to a circular system.

Benefits of a Circular Economy for Plastics

The transition to a Circular Economy for Plastics has innumerable benefits, both for the Canadian economy and for the environment. As pointed out by Smart Prosperity Institute, "[t]his current take-make-waste approach to plastics is bad for the planet, and a lost opportunity for economic growth. The loss of 88% of the plastic used in the Canadian economy results in squandered non-renewable fossil resources, increased greenhouse gases and the discharge of plastics to land and marine environments. The waste and pollution associated with plastics not only results in environmental impact but also represents a deadweight loss to the Canadian economy."[18] As mentioned above, a report commissioned by Environment and Climate Change Canada (the "ECCC Report") estimated a loss of $7.8 billion CDN in 2016 as a direct result of our linear system for plastics. In contrast, the same study offers an educated projection of the following benefits by 2030, if we immediately transitioned to a Circular Economy for Plastics: "$500 million of annual costs avoided, 42,000 direct jobs and indirect jobs created, and annual greenhouse gas emissions savings of 1.8Mt of CO_2e."[19]

Global Support

Individual businesses and other industry stakeholders are beginning to embrace the idea of the expected benefits that flow from a circular model:

- The New Plastics Economy Global Commitment, launched by the Ellen MacArthur Foundation and the United Nations Environment Programme in October 2018, already unites more than 400 organizations on its common vision for a Circular Economy for Plastics. Close to 200 of these signatories are businesses that are part of the plastics packaging chain, representing over 20% of all plastic packaging globally. Other non-governmental organizations include financial institutions with over USD $4.2 trillion worth of assets under management, over 50 academic or educational organizations, as well as a

[16] Thibaut Wautelet, "The Concept of Circular Economy: its Origins and its Evolution" (2018) ResearchGate Working Paper DOI: 10.13140/RG.2.2.17021.87523, at 1, available online: <https://www.researchgate.net/publication/322555840_The_Concept_of_Circular_Economy_its_Origins_and_its_Evolution>.

[17] *Ellen MacArthur, Towards the Circular Economy*, see note 8.

[18] *SPI Vision document*, see note 11, at 7 [citations omitted].

[19] *ECCC Report*, see note 4, at iv.

number of other leading research institutions such as World Economic Forum and the World Wildlife Fund.[20]

- The World Business Council for Sustainable Development has also released a report recommending the Circular Economy.[21]

Canada has begun to acknowledge the importance of implementing a Circular Economy. For example, a recent release from Environment and Climate Change Canada stated:

> *A circular approach to business innovation will not only help save money and open new market opportunities, but it can also help create good jobs in all industries across our country while protecting the environment.*[22]

It is time for Canada to act vigorously to lead the rest of the world in recognizing that the Circular Economy is the way of the future.

How to Begin the Transition

There are innumerable ways to create a Circular Economy for a particular industry, as it comprises a number of coordinated initiatives.

Due to the unique complexities and differences of each country's existing economy, each version of circularity is going to differ. As the ECCC Report states, "…international benchmarks from European, US and Australian case studies have demonstrated that no 'one size fits all' approach exists. Due to the diverse nature of plastic applications, each sector is unique and will require a different and well-thought-out combination of efforts."[23] However, the leading thinkers on the Circular Economy have established a "menu" of possible instruments, initiatives and policies that can each contribute a piece in the overall shift, when combined appropriately and implemented in concert.

Therefore, the Government of Canada should carefully consider the research already conducted on the Circular Economy for Plastics, in order to create the best possible combination of initiatives and policies to function within the current Canadian reality. For this reason, Part I explores the seven initiatives that have been the most uniformly highlighted by leading thinkers on the Circular Economy for Plastics: These include:

1. extended producer responsibility ("EPR") schemes;

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[20] Ellen MacArthur Foundation, "New Plastics Economy Global Commitment: June 2019 Report" (June 2019) at 4, online: <https://www.newplasticseconomy.org/assets/doc/GC-Report-June19.pdf> ["*Ellen MacArthur, June 2019 Report*"].

[21] World Business Council for Sustainable Development, "Policy Enablers to Accelerate the Circular Economy: Scaling up actions across regions and stakeholders" (August 2019) online: <https://circulareconomy.europa.eu/platform/sites/default/files/wbcsd_policy_enablers_to_accelerate_the_circular_economy.pdf> ["*WBCSD Report*"].

[22] From Environment and Climate Change Canada, News Release: "Canada to host the World Circular Economy Forum 2020 in Toronto" (2 December 2019), online: <https://www.canada.ca/en/environment-climate-change/news/2019/12/canada-to-host-the-world-circular-economy-forum-2020-in-toronto.html>.

[23] *ECCC Report*, see note 4, at 26.

2. disposal bans and waste levies;
3. financial instruments;
4. eco-design requirements;
5. use or product bans;
6. minimum recycled content; and
7. green government procurement.

The seven initiatives included in Part I are not individual recommendations in and of themselves. Instead, they offer a summary of information that allows Canada to choose when contemplating which combination of policies and initiatives will have the highest efficacy.

1. EXTENDED PRODUCER RESPONSIBILITY (EPR)

The Organization for Economic Co-operation and Development ("OECD") defines EPR as

> *…a policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle. An EPR policy is characterised by: (i) the shifting of responsibility (physically and/or economicall fully or partially) upstream toward the producer and away from municipalities; and (ii) the provision of incentives to producers to take into account environmental considerations when designing their products. While other policy instruments tend to target a single point in the chain, EPR seeks to integrate signals related to the environmental characteristics of products and production processes throughout the product chain.*[24]

EPR makes producers consider end-of-life management when they design products. This causes producers to act to minimize disposal costs – thereby incentivizing reuse and recycling. EPR also envisions "that the resulting policy schemes [are] dynamic—that is, as the product mix, production and processing technologies, or market and societal conditions [change], so too [do] the responses by the producers facing EPR requirements."[25]

Why EPR and not just Product Stewardship

According to the Product Stewardship Institute, product stewardship "is the act of minimizing the health, safety, environmental, and social impacts of products and packaging throughout all life-cycle stages, while also maximizing economic benefits. Producers are in the best position to recover materials, incorporate them back into the economy, and

[24] Organization for Economic Cooperation and Development, "Extended Producer Responsibility" (accessed 21 May 2020) online: <http://www.oecd.org/environment/waste/extended-producer-responsibility.htm> ["*OECD EPR*"].
[25] R Lifset & T Lindhqvist, "Producer Responsibility at a Turning Point?"(2008) 12:2 J Industrial Ecology 144 at 144.

minimize adverse impacts. [EPR] is a mandatory type of product stewardship that requires manufacturer responsibility to extend to post-consumer management of products and packaging."[26]

In Canada, according to Smart Prosperity Institute, in a product stewardship program, producers fund recycling programs operated by third parties. As an example, under product stewardship for packaging, a third-party operator – often a municipality – will operate an individual recycling system "with little to no coordination with other recycling systems and with no connection to the producers whose packaging they manage. As such, each municipality is left to address the changing packaging mix and commodity market realities within its own system. This is both ineffective and inefficient."[27] It also creates a patchwork of systems. As stated by the Product Stewardship Institute, "EPR is the only large-scale solution that takes an entirely different approach to create a much-needed, significant transformation in the entire system."[28]

As Leila Munroe, previously of the National Resources Defense Council, wrote:

> *First, we need to incentivize companies to reduce the use of wasteful, difficult-to-recycle plastic packaging in favor of reusable, easily recyclable and compostable options. One way to incentivize this innovation is to require the companies to internalize the costs that their products create for society and the environment. This means asking them to help cover the costs of recycling infrastructure, street and beach cleanup, and storm-drain maintenance, often as part of 'extended producer responsibility'.*[29]

[26] Product Stewardship Institute, "Extended Producer Responsibility for Packaging and Paper Products (PPP): New York Briefing Summary – March 2019" (March 2019) at 2, online: <http://nypsc.org/wp-content/uploads/2019/04/2019.03.12_Packaging-EPR-Briefing-Paper_Final.pdf> ["*PSI EPR Statement*"]. [Emphasis added]

[27] *SPI Vision document*, see note 11, at 18.

[28] *PSI EPR Statement*, see note 24, at 2.

[29] Leila Monroe, "The Oceans, and Job Hunters, Can Benefit from Recycling Boom" (Op-Ed) (14 March 2014) online: <http://www.livescience.com/44098-recycling-boom-benefits.html>. Note, however, that EPR requires careful design for optimal results. Lifset and Lindhqvist take the view that the EPR schemes that have been rolled out focus on producer responsibility organizations (PROs), comprised of member of companies, and haven't realized some of the main goals of EPR – they have just shifted the cost of product end-of-life from taxpayers to industry. However, there is opportunity to stimulate greater innovation, as originally envisioned.

EPR's Potential to Address Barriers to a Circular Economy

According to Smart Prosperity Institute, EPR programs can provide for a powerful policy mechanism that addresses five categories of barriers to a Circular Economy for Plastics:

1. EPR induces the creation of a reverse supply chain for the collection and recycling of plastics, and by doing so at volume and scale, it creates a large sustained supply of quality recycled resins for the production of products and packaging. As such it will address, in part, the supply side price disparity between fossil and recycled plastic resin feedstock;

2. It will address, in part, un-priced externalities by mitigating the discharge of plastics to the environment, emissions associated with burning plastics for energy from waste, and energy use and emissions associated with virgin resin production;

3. It will overcome key information asymmetries between:

    a. Producers and plastic recyclers. In working with plastic recyclers to build a reverse supply chain, producers will become more aware of the implications of packaging design choices on system cost, recyclability and end-markets for recovered materials;

    b. Regulators and producers; and regulators and recycling markets used by producers. Where regulators seek data on the composition and quantity of products being supplied into end-markets they are better able to establish performance targets, measure outcomes, and enforce performance standards. Clarity on the final disposition of recycled plastics allows for the assessment of progress towards a circular economy;

    c. Producers and consumers. As producers operate reverse distribution systems, they will be able to standardize the list of materials collected across jurisdictions to coordinate education, behavioural nudges, and economic instruments within and across jurisdictions (where EPR requirements are harmonized across jurisdictions) to drive behavioural change in citizens/consumers to increase participation and lower material contamination.

4. It will drive effort to overcome technological barriers. Increasingly stringent recycling targets drive innovation both in terms of informing design of products and packaging for increased reuse and recyclability, but also in terms of recycling systems design to more effectively sort and process materials for use in manufacturing; and

5. For residential printed paper and packaging it will overcome the inertia of status quo municipal recycling practices in Canadian jurisdictions. Applied in a uniform and principled manner, EPR will transform existing practices and norms around recycling. It will result in a common set of materials that are collected province and territory wide, contribute to provincial and territorial education towards increasing participation and reducing contamination, and streamline the collection, transfer and processing of materials (thus overcoming the fragmentation associated with municipal recycling).[30]

[30] *SPI Vision document*, see note 11, at 20-21.

The OECD, Ellen MacArthur Foundation, the European Commission, and many others have also recognized the need for EPR as a foundational pillar of the Circular Economy for Plastics.[31] The Canadian Council of Ministers of the Environment ("CCME") endorses the nation-wide use of EPR, stating that such EPR programs will require producers and distributors to take responsibility for proper disposal and recycling of their products after consumer use.[32]

Reloop Platform (a not-for-profit that advocates for the circular economy), ReZero (an initiative of Zero Waste Europe) and Zero Waste Europe all endorse the need for EPR and understand the complex interactions of many different complementary tools that will make up an effective EPR scheme. In a 2017 report, under a heading "EPR is not a single instrument but a set of instruments," they state:

> *A good EPR implementation, allocates full physical and economic responsibilities to manufacturers and this, in turn, encourages a shift towards providing the functions of the products in a more efficient way. This approach relies on regulation to send proper economic signals to producers to introduce up-stream measures –including redesign and changes in production– that make their products more suitable for reuse and recycling. The expected outcomes include the reduction of the use of toxic and hazardous substances, and designing products for easy disassembly and recycling. Within a zero waste circular economy the ultimate aspiration of EPR would be to design waste out of the economy. When properly implemented, EPR can also be the necessary push for a shift towards service-based systems.*[33]

The report goes on to say that governments should not consider EPR as just a collection system that requires voluntary participation by consumers, but rather "[t]o achieve a circular economy, EPR implementation needs to be designed as the bridge between waste

[31] See *OECD Improving Markets*, see note 12, at 149; see also United Nations Environment Programme, "Legal Limits on Single-Use Plastics and Microplastics: A Global Review of National Laws and Regulations" (no date: accessed 21 May 2020) at 41-43, online: <https://wedocs.unep.org/bitstream/handle/20.500.11822/27113/plastics_limits.pdf> ["*UNEP Legal Limits*"]; see also *SPI Vision document*, see note 11, at 17; see also Canadian Council of Ministers of the Environment, "A Canada-Wide Strategy for Sustainable Packaging" (October 2009), online: <https://www.ccme.ca/files/Resources/waste/packaging/pn_1501_epr_sp_strategy_e.pdf> ["*CCME Strategy Report*"].

[32] Canadian Council of Ministers of the Environment, "Canada-Wide Action Plan for Extended Producer Responsibility" (October 2009), at 6 online: <http://www.ccme.ca.vsd46.korax.net/files/current_priorities/waste/pn_1499_epr_cap_e.pdf> ["*CCME Action Plan*"].

[33] ReZero, "Rethinking economic incentives for separate collection" (Zero Waste Europe: July 2017) at 3-4, online: <https://zerowasteeurope.eu/wp-content/uploads/2017/07/Rethinking-economic-incentives2.pdf> ["*ReZero Report*"]. [Emphasis added]

and products policies" and "only work done at the front-end of the production process can design waste out of the system."[34]

The Institute for European Environmental Policy ("IEEP") makes the same point. It states that varying fees charged to producers to participate in EPR schemes incentivizes better design of products.[35]

Note that successful EPR will require complementary initiatives to increase demand for the increased volumes of recycled plastic that EPR will produce. Such complementary initiatives are discussed below at the "Recycled Content Standards" and "Green Government Procurement" headings.

Case Study: Success of EPR in British Columbia

British Columbia's EPR regime is widely respected. Smart Prosperity Institute has described BC's successful approach:

> To date, EPR has been most effectively applied in British Columbia. As a result, the province achieves some of the highest rates of recycling in Canada. In 2017, 73.9% of plastic beverage containers supplied into BC were collected and managed by Encorp Pacific (the producer responsibility organization operating a deposit-refund system on behalf of beverage producers) and 82.5% of plastic used oil and antifreeze containers supplied into BC were recovered for recycling by the BC Used Oil Management Association (BCUOMA).
>
> Since May 2014, producers in British Columbia (via RecycleBC – their producer responsibility organization) have established a province-wide curbside, depot and multi-family reverse supply chain to address producers' regulatory obligations to collect and manage printed paper and packaging (PPP) generated by the residential sector in British Columbia. This supply chain is comprised of commercial agreements with third parties (e.g. municipalities, collection depots and private waste management companies) who deliver the services necessary to collect materials from over 4.5 million residents, sort and recycle those materials, and sell them to end-markets.
>
> The RecycleBC PPP program has induced $20 million in capital investments in the recycling of PPP (a significant portion of which is plastic recycling related), expanded the types of plastics collected, and lowered contamination of collected materials, while concurrently insulating both producers and BC municipalities from commodity risks posed by the closure of Asian secondary plastics markets.[36]

[34] *ReZero Report*, see note 31, at 4.

[35] Institute for European Environmental Policy, "EPR in the EU Plastics Strategy and the Circular Economy: A focus on plastic packaging" (November 2017) at 6, online: <https://ieep.eu/uploads/articles/attachments/95369718-a733-473b-aa6b-153c1341f581/EPR%20and%20plastics%20report%20IEEP%209%20Nov%202017%20final.pdf?v=63677462324> ["*IEEP ERP Report*"].

[36] *SPI Vision document*, see note 11, at 20.

Other Relevant Links and Resources

CANADA:

- Environment and Climate Change Canada, "Overview of extended producer responsibility in Canada" (modified 14 August 2017): <https://www.ec.gc.ca/gdd-mw/default.asp?lang=En&n=FB8E9973-1>
- Council of Canadian Minsters of Environment, "Extended Producer Responsibility" (accessed 23 April 2020): <http://www.ccme.ca/en/current_priorities/waste/epr.html>
- Smart Prosperity Institute, "Extended Producer Responsibility in Canada" (October 2019) online: <https://institute.smartprosperity.ca/sites/default/files/eprprogramsincanadaresearchpaper.pdf>.
- RecycleBC, "Packaging and Paper Product Extended Producer Responsibility Plan" (June 2019) online: <http://recyclebc.ca/wp-content/uploads/2019/07/RecycleBCStewardshipPlan_16July2019.pdf>.

USA:

- Product Stewardship Institute, "Summary of Elements of Packaging and Paper Products (PPP) EPR Legislation" (March 2019) online: <https://cdn.ymaws.com/www.productstewardship.us/resource/resmgr/packaging_toolkit/psi_packaging_epr_elements_s.pdf>
- Product Stewardship Institute, "Extended Producer Responsibility for Packaging and Paper Products (PPP): National Briefing Summary" (March 2019) online: <http://nypsc.org/wp-content/uploads/2019/04/2019.03.12_Packaging-EPR-Briefing-Paper_Final.pdf>.

Organization for Economic Co-operation and Development:

- OECD, "Extended Producer Responsibility – Updated Guidance for Efficient Waste Management" (September 2016), online: <https://www.oecd.org/development/extended-producer-responsibility-9789264256385-en.htm>.
- OECD, "Extended Producer Responsibility – A Guidance Manual for Governments" (2001), online: <https://www.oecd-ilibrary.org/environment/extended-producer-responsibility_9789264189867-en>.
- OECD, "Extended Producer Responsibility (EPR) and the Impact of Online Sales" (January 2019), online: <https://www.oecd-ilibrary.org/environment/extended-producer-responsibility-epr-and-the-impact-of-online-sales_cde28569-en>.

EU:

- Institute for European Environmental Policy, "EPR in the EU Plastics Strategy and the Circular Economy: A focus on plastic packaging" (November 2017) online: <https://ieep.eu/uploads/articles/attachments/95369718-a733-473b-aa6b-153c1341f581/EPR%20and%20plastics%20report%20IEEP%209%20Nov%202017%20final.pdf?v=63677462324>.
- European Commission, "Development of Guidance on Extended Producer Responsibility (EPR)" (2014), online: <https://ec.europa.eu/environment/waste/pdf/target_review/Guidance%20on%20EPR%20-%20Final%20Report.pdf>.

Industry or Think Tank:

- Extended Producer Responsibility Alliance, "Best Practices for Successful EPR for Packaging" (April 2013) online: <http://www.expra.eu/uploads/downloads/Best_practices_for_successful_EPR_for_packaging.pdf>.
- Product Stewardship Institute website, which offers extensive EPR resources: <https://www.productstewardship.us/>.

2. DISPOSAL BANS AND WASTE LEVIES

There are two main ways to restrict disposal of plastic products – disposal bans and waste levies.

Disposal bans

Disposal bans prohibit the disposal of specific products or types of materials. These bans are typically implemented at the "facility level" – at disposal sites located within the jurisdiction, and at transfer facilities where waste is aggregated for transport to a final disposal facility.[37] Bans on landfilling or incinerating recyclable plastics are designed to divert the flow of materials that have value for recycling from the waste stream into the recycling stream.[38] Bans on disposal of recyclable materials have been found to be effective at increasing the

[37] CleanBC, "Plastics Action Plan Policy Consultation Paper," British Columbia Ministry of Environment and Climate Change Strategy, (accessed 22 April 2020) at 5, online: <https://engage.gov.bc.ca/app/uploads/sites/121/2019/07/CleanBC_PlasticsActionPlan_ConsultationPaper.pdf> ["*CleanBC Paper*"].

[38] *SPI Vision document*, see note 11, at 29-30.

recycling of materials. For example, six of the 11 countries with the highest post-consumer recycling rates in Europe employ disposal bans.[39]

Waste Levies

Waste levies apply a fee, usually by weight, to waste being sent to a solid waste site or facility. Waste levies can be applied either to all materials being placed in the waste stream, or more specifically placed on certain items or types of material in order to encourage recycling. Further, levies can apply to both industry and commercial actors, and/or through residential waste streams. In the case of commercial and industry waste generators, who directly pay the fee, there is an immediate financial incentive to reduce the amount of waste sent to disposal. In the case of residential streams under the management of a municipality, waste levies can encourage municipalities to create programs and increase education so that residents divert more waste for recycling.[40]

Benefits

One of the current barriers to a Circular Economy is that most Canadian jurisdictions do not adequately price solid waste disposal of plastics to dis-incentivize disposal – which results in local governments, businesses and others having no incentive to collect and manage plastics.[41] This is especially critical in the current system, because recycling plastics still requires high collection and sorting costs, and low market demand for recycled plastics. Allowing waste to be disposed of at minimal cost fails to encourage industry and commercial waste contributors to separate plastics and appropriately dispose of them.[42] As stated in the Environment Canada Report, "whether [landfill taxes or bans] selectively target a specific product/sector or are broader, landfill restrictions or bans send a strong signal along the value chain…"[43]

Disposal bans and waste levies on recyclable plastics might help to address barriers to a Circular Economy for Plastics in the following ways, as the University of Ottawa's Smart Prosperity Institute has stated:

- In concert they help overcome the overall economic disparity between the linear and circular economies for plastics by preventing disposal (ban) or increasing the costs of disposal (levy);
- They address (in part) un-priced externalities by mitigating the discharge of plastics to the environment; avoiding emissions associated with burning plastics for energy from waste; and reducing energy use and emissions associated with virgin resin production;

[39] See *SPI Vision document*, see note 11, at footnote 52.
[40] *SPI Vision document*, see note 11, at 29-30.
[41] *SPI Vision document*, see note 11, at 34.
[42] *SPI Vision document*, see note 11, at 34.
[43] *ECCC Report*, see note 4, at 23.

- They incentivize industry and commercial generators to divert plastics away from disposal and into recycling systems; and
- They incentivize municipalities to encourage residents to use recycling, especially where recycling programs are operated and financed by producers under EPR.[44]

Disposal bans have been found to be most effective when applied in concert with waste levies applied on each tonne of material sent to landfill.[45] Further, the ban instrument must be initiated after recycling systems are in place to deal with these newly banned materials (this includes the use of EPR programs for this purpose).[46] Lastly, these mechanisms are most effective when non-compliance leads to enforceable consequences and sufficiently punitive sanctions.[47]

This initiative is specifically recommended in the SPI Circular Economy Report,[48] the OECD's book on improving recycling, CleanBC's Plastics Action Plan, and the Environment Canada Report.[49]

One risk of disposal bans and levies is that they can result in increased illegal dumping;[50] however, as noted in the next section, this can be mitigated by taxes on virgin materials.

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[44] *SPI Vision document*, see note 11, at 30.

[45] *SPI Vision document*, see note 11, at 29.

[46] *CleanBC Paper*, see note 35, at 5. See also *SPI Vision document*, see note 11, at footnote 50:
Prior to the implementation of a landfill disposal ban, careful consideration should be given to the timing of implementation and the need for complementary policies and standards. As shown through the desktop review, the introduction of a levy, in the early stages of the policy (*i.e*. to transition to a landfill disposal ban), has proved to be integral to providing the necessary economic signals to encourage additional investment in processing and recycling capacity. In the absence of a [disposal] levy, it is important the complementary policy settings (e.g. phase-in implementation periods, and producer responsibility measures) are appropriate, so as to ensure any adverse unintended consequences are minimised and industry is provided with sufficient time to invest and to develop a good understanding of the future policy settings, including anticipated feedstock levels.
See also *IEEP ERP Report*, see note 33, at 6: "The effectiveness of EPR schemes in meeting reuse and recycling targets also tends to increase when EPR is coupled with economic instruments such as landfill and incineration taxes, disposal bans for certain products or materials, packaging taxes and pay-as-you-throw schemes."

[47] *SPI Vision document*, see note 11, at 29.

[48] Smart Prosperity Institute specifically endorses "waste disposal levies discouraging disposal to landfill." See *SPI Vision document*, see note 11, at 18.

[49] One of the OECD's recommendations to improve recycling is to "charge waste producers for collection and disposal of non-recyclable waste." It suggests banning plastics from landfill to drive supply of material and increase economies of scale, reduce costs and increase resilience. See *OECD Improving Markets*, see note 12, at 149 (PDF p 151); the ECCC Report recommends "restricting disposal" as a measure to collect plastics:
Whether [landfill taxes or bans] selectively target a specific product/sector or are broader, landfill restrictions or bans send a strong signal along the value chain, and require collective efforts. Providing significant lead-time between announcement and enforcement is necessary to ensure industry/governments have sufficient time to adapt and develop new infrastructure.
See *ECCC Report*, see note 4, at 23.

[50] Patrik Soderholm, "Taxing Virgin Natural Resources: Lessons from Aggregate Taxation in Europe" (2011) 55:11 J Resources Conservation and Recycling 911-922 at 915, available online (cited material at p 10): <http://www.sustainablewaste.info/download/18.7df4c4e812d2da6a41680004968/NaturalResourcesTax.pdf> ["*Soderholm article*"], citing Dinan, T. M. (1993). "Economic Efficiency Effects of Alternative Policies for Reducing Waste Disposal," *Journal of Environmental Economics and Management*, Vol. 25, pp. 242-256.

Other Relevant Links and Resources

USA:

- Northeast Recycling Council, "Disposal Bans & Mandatory Recycling in the United States" (May 2017) online: <https://nerc.org/documents/disposal_bans_mandatory_recycling_united_states.pdf>.
- North Carolina's Solid Waste Disposal Tax:
    - online: <https://www.ncleg.net/EnactedLegislation/Statutes/HTML/ByArticle/Chapter_105/Article_5G.html>.
    - online: <https://deq.nc.gov/about/divisions/waste-management/scrap-tires>.

Canada:

- Metro Vancouver, "Metro Vancouver Disposal Program Manual" (August 2019) online: <http://www.metrovancouver.org/services/solid-waste/SolidWastePublications/DisposalBanProgramManual.pdf>.
- Capital Regional District's General Refuse Restrictions website: <https://www.crd.bc.ca/service/waste-recycling/hartland-landfill-facility/banned-items>.

EU:

- European Commission, "Clear Targets and Tools for Better Waste Management" (accessed November 2019) online: <https://ec.europa.eu/commission/sites/beta-political/files/circular-economy-factsheet-waste-management_en.pdf>.
    - The Revised Waste Proposal includes a binding landfill reduction target of 10% by 2030. The European Commission is recommending Member States use economic instruments such as landfill taxes and bans to meet the target
- EU Directive on Landfill of Waste (1999/31/EC)

New Zealand:

- Circular Economy Accelerator, "New-Zealand's Plastic Packaging System: An Initial Circular Economy Diagnosis" (November 2018) online: <https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/6/414/files/2019/02/New-Zealands-Plastic-Packaging-System_SBN_2018-14iwliy.pdf>.

3. FINANCIAL INSTRUMENTS

According to the United Nations, financial instruments – whether taxes or levies – are one of two main mechanisms used by national governments for limiting single-use plastics.[51] However, there are many different potential instruments within this category that might be used as part of a Circular Economy for plastics. Those consistently endorsed include: (i) a tax or fee on virgin resins, which can make recycled plastics more economically attractive to manufacturers;[52] (ii) adjusting the value-added tax ("VAT") rate on non-recycled versus recyclable plastic products, which can "level the playing field" and make recycled products more economically attractive to consumers;[53] and (iii) deposit refund schemes, which can be coupled easily with EPR schemes.

When considering any financial instrument, one must consider consumers' willingness to pay for a certain good or service. This can ensure that the instrument chosen will succeed in influencing consumer behaviour. For example, when setting a deterrent tax, it is important to set it high enough to discourage consumers from requesting the product in question. For example, before imposing a plastic bag tax, the Irish Government commissioned a survey to estimate the price that citizens were willing to pay for a plastic bag. It then set the tax at a value more than six times higher, which effectively influenced consumers' behaviour.[54]

Tax on Virgin Resin

One of the main challenges of creating a secondary market for plastics – an essential aspect in creating the Circular Economy for Plastics – is the fact that it is often cheaper for a manufacturer to use virgin plastic instead of recycled plastic. Where virgin resin is less expensive than secondary resin, there is no incentive for manufacturers to choose secondary plastics. A tax on virgin resins can create a financial impetus for producers to choose recycled resin, thus stimulating the secondary market.[55] Further, taxes on virgin materials can change the relative price between virgin and recycled resins, and thus ultimately influence waste disposal behavior. Another benefit to a tax on virgin resin is that it mitigates the risk of increased illegal dumping that can result from disposal bans or waste levies.[56]

Though the Environment Canada Report points out that a tax on virgin resin faces the challenge of not being able to adjust in times of market shocks (due to oil prices being highly

[51] *UNEP Legal Limits*, see note 29, at 47.
[52] *ECCC Report*, see note 4, at 22.
[53] *ECCC Report*, see note 4, at 24.
[54] *UNEP Roadmap*, see note 11, at 66, citing Convery, Frank, Simon McDonnell, and Susana Ferreira (2007). The most popular tax in Europe? Lessons from the Irish plastic bags levy. Environmental Resource Economy, Vol. 38, pp 1-11.
[55] *ECCC Report*, see note 4, at 22.
[56] *Soderholm article*, see note 48, at 10.

volatile and the significant investment in virgin resin production) – which it says could lead to increased consumer prices[57] – the OECD lists a number of interventions to address this:

- Drive supply to increase economies of scale and resilience by:
    - Setting targets for recycling;
    - Banning plastics from landfill;
    - Implementing [EPR] regulation;
    - Standardizing waste collection systems.
- Use financial market mechanisms to increase the resilience of the market to fluctuations in prices (e.g. futures markets or centrally managed risk funds);
- Improve access to data on quality, price and quantity of materials available to reduce uncertainty for investors and potential market entrants.[58]

Complementary initiatives have been recommended to accompany a tax on virgin resins. It has been suggested that government simultaneously implement a virgin resin tax along with a disposal tax.[59] [A tax on virgin material can only correct for the external costs resulting from extracting or harvesting virgin materials, but not for external costs resulting from waste disposal.] Additional policy instruments may be advisable. For instance, a complementary *subsidy* on recycled materials would encourage the use of secondary materials in production by reducing their cost relative to virgin materials.[60]

Finally, it is imperative that existing subsidies to fossil fuel production cease if secondary materials are to be cost-competitive with virgin materials. Canada still directly and indirectly subsidizes the Canadian fossil fuel industry in an amount of $43 billion USD per year,[61] so this recommendation specifically applies to Canada:[62] The OECD states:

Governments of G7 countries could address these challenges [of virgin plastics being priced too low] through policy interventions that aim to level the playing field between virgin and recycled plastics or support the market for recycled plastics. They include:

• Taxes on the use of virgin plastics or differentiated value added taxes for recycled plastics or plastic products;

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[57] *ECCC Report*, see note 4, at 22.
[58] *OECD Improving Markets*, see note 12, at 98.
[59] *UNEP Roadmap*, see note 11, at 68.
[60] *Soderholm article*, see note 48, at p 11 of cited link.
[61] Sydney Hamilton *et al*., "Federal Government Action and Climate Change" (Environmental Law Centre, April 2019), online: <http://www.elc.uvic.ca/wordpress/wp-content/uploads/2019/06/Federal-Government-Action-and-Climate-Change-2019April.pdf>, citing International Monetary Fund, "Energy Subsidy Reform: Lessons and Implications" (2013) at 57, online (opens as PDF download): <http://www.imf.org/external/np/pp/eng/2013/012813.pdf>.
[62] *SPI Vision document*, see note 11, at 33.

> • ***Reform of support for fossil fuel production and consumption****;*
>
> • *Introduction of recycled content standards, targeted public procurement requirements, or recycled content labelling.*[63] *[Emphasis added]*

It is important to note that the OECD, University of Ottawa's Smart Prosperity Institute,[64] and Environment Canada[65] all endorse the use of a tax on virgin resin as part of their plan for a Circular Economy for Plastics.

Alternative Financial Instruments

In addition to a tax on virgin resins, there are a number of other financial instruments that can contribute to creating a Circular Economy for Plastics. A variety of such environmentally motivated taxes aim to "influence behavior in ways that reduce specific environmental damages in the most cost-effective way."[66]

For example, to deal with plastic bags, the United Nations describes three distinct levy options:

- **Levy on suppliers:** A levy paid by suppliers of plastic bags (domestic producers or importers). For such a tax to be effective in inducing behavioural change, it should be fully passed on from suppliers to retailers, enticing the latter to either charge consumers for plastic bags, or offer a rebate/reward to consumers who do not ask for plastic bags – thereby promoting the use of reusable ones;
- **Levy on retailers**: A levy to be paid by the retailer when purchasing plastic bags. The retailers are not obligated to convey the tax to the consumers; and
- **Levy on consumers:** A charge on each bag sold at the point of sale with a standard price defined by law.[67]

Note that the Smart Prosperity Institute specifically endorsed a single-use plastics tax, such as a plastic bag tax.[68]

[63] *OECD Improving Markets*, see note 12, at 13.
[64] *SPI Vision document*, see note 11, at 22.
[65] In its *ECCC Report*, see note 4, at 22.
[66] *Soderholm article*, see note 48, at p 5 of cited link.
[67] *UNEP Roadmap*, see note 11, at 23.
[68] *SPI Vision document*, see note 11, at 18.

Case Study: China's Value-Added Tax

China has a VAT Policy on the Comprehensive Use of Resources. This policy implements "tax incentives that promote the circular economy by easing financial burdens on enterprises that recycle resources during production. Started back in 2009, the Chinese government has introduced various forms of value-added tax (VAT) incentives for the circular use of materials, such as agricultural, industrial and domestic waste. The 2015 'Notice of the Ministry of Finance and the State Administration of Taxation on Issuing the Catalogue of Value-Added Tax Preferences for Products and Labour Services Involving the Comprehensive Use of Resources' is the latest version of such a policy, providing a comprehensive list of commodities and products that support reuse and recycle regimes for industries. The government introduced [VAT] refunds of 50% to 100% for specialized products such as recycled tires, sand produced from construction waste, cardboard and fibreboard." This VAT Tax has also created incentives for companies to change their business practices so that they can produce tax-exempt products.[69]

Adjusted VAT Rate or Similar Instrument

One of the most commonly endorsed alternative financial instruments for use in the Circular Economy for Plastics is an Adjusted VAT (value-added tax). There are a number of ways to effectively adjust a VAT in order to contribute to the transition to a Circular Economy for Plastics. Two methods are: (i) to adjust the VAT so that it is higher on undesirable products and/or does not apply to desirable options; and (ii) to adjust the VAT so that it decreases as the product's recycled content increases.

One of the benefits of offering a lower VAT rate on recycled material is that such a tax can bolster the recycled plastics market (because it helps to reduce the current cost advantage of virgin plastics). Such a tax can also be justified because the feedstock for recycled material was already taxed when it was first put on the market.[70]

The Smart Prosperity Institute has argued that taxes imposed on single-use plastic bags can have effects comparable to bans on the same products. The Institute argues that "taxing or pricing single-use plastic items to discourage their wasteful use and mitigate the externalities associated with their production, discharge to the environment and the challenges they pose to recycling systems is generally a more economically efficient approach than bans."[71]

[69] World Business Council for Sustainable Development, "Policy Enablers to Accelerate the Circular Economy: scaling up actions across regions and stakeholders" (August 2019) at 6 and 9, online: <https://circulareconomy.europa.eu/platform/sites/default/files/wbcsd_policy_enablers_to_accelerate_the_circular_economy.pdf>.

[70] *OECD Improving Markets*, see note 12, at 105.

[71] *SPI Vision document*, see note 11, at 27.

Case Study

A number of countries have already implemented financial instruments to stimulate the secondary plastics market and aid their transition to a Circular Economy for Plastics. **France** is planning to implement a tax so that products with recycled plastic packaging could cost up to 10 per cent less, while those containing non-recycled plastic up to 10 per cent more. This will result in the price of an item made from recycled plastic being less than a similar item made from virgin plastic.[72] **The United Kingdom** intends to place a tax on packaging that has less than 30% recycled content, beginning in April 2022.[73] **Antigua and Barbados** prohibited the importation, manufacturing and trading of plastic shopping bags. The relevant legislation also includes a list of materials that will remain tax free, such as sugar cane, bamboo, paper, and potato starch – in order to encourage the manufacturing and use of alternatives to plastic bags.[74]

Deposit-Refund System

Another financial instrument that can be used to support a Circular Economy for Plastics is the deposit-refund system – "a system that combines a tax on product consumption with a rebate when the product or its packaging is returned for recycling."[75] Deposit-refund systems establish a simple and effective incentive to return products promptly for proper recycling. Some experts view deposit-refund systems as a superior mechanisms for eliminating improper disposal of waste – even ranking it above such measures as virgin materials taxes, advance disposal fees, recycled content standards, and recycling subsidies.[76] Deposit-refund systems have been broadly deployed around the world.

One of the great environmental success stories is the deposit-refund system for beverage containers. As an Australian parliamentary committee has concluded, container deposit schemes are a "simple and cost effective way to change consumer behavior, and to reduce the number of beverage containers found in the marine environment."[77] Pioneered by British Columbia in 1970, such systems have been extraordinarily effective for ensuring

[72] The Telegraph, "France to set penalties on goods packaged with non-recycled plastic in 2019" (12 August 2018) online: <https://www.telegraph.co.uk/news/2018/08/12/france-set-penalities-goods-packaged-non-recycled-plastic-2019/>.

[73] UK HM Revenue & Customs, "Policy paper: Plastic packaging tax" (11 March 2020), online: <https://www.gov.uk/government/publications/introduction-of-plastic-packaging-tax/plastic-packaging-tax>.

[74] *UNEP Roadmap*, see note 11, at 59-60.

[75] *UNEP Legal Limits*, see note 29 at 4.

[76] Margaret Walls, "Deposit-Refund Systems in Practice and Theory", Abstract, online: <https://media.rff.org/documents/RFF-DP-11-47.pdf> ["*Walls article*"].

[77] The Australian Parliamentary Committee examining marine plastics recognized that the financial incentive offered by these schemes encourages consumer participation in recycling: Parliament of Australia, The Threat of Marine Plastic Pollution in Australia (20 April 2016), Chapter 8 Conclusion and Recommendations, at s. 8.71, online: <http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/Marine_plastics/Report>. Container deposit schemes are effective at regulating plastic beverage litter and operate through "internalising the costs of littering and creating community incentives to recycle more:" Submission from Environmental Defenders Offices (EDOs) of Australia to the Committee Secretary regarding Inquiry into the threat of marine plastic pollution in Australia and Australian waters (9 October 2015), at 4, online: <http://www.edonsw.org.au/marine_plastic_pollution>.

circular treatment of beverage containers – leading to product return rates running from over 75% in BC to 98% in Germany.[78] Such systems are now commonplace across North America and Europe.[79] In fact, all Canadian provinces and territories, with the exception of Nunavut, already have container deposit schemes in place.[80]

In creating a Circular Economy for Plastics, the deposit-refund approach needs to be broadened to apply to far more products. Many jurisdictions already have implemented successful deposit-refund systems to ensure the return of a wide spectrum of products – including lead-acid batteries, motor oil, tires, various hazardous materials, and electronics.[81] There is now great potential for applying such an instrument to more plastics. For example, Swedish authorities have launched a pilot project establishing a deposit-refund system for plastic shopping bags.[82] Highly successful (non-legislated) deposit-refund systems for coffee mugs and re-usable plates have already demonstrated proof of concept at University cafeterias and other restaurants.[83]

It is clear that a circular economy will require the expanded use of deposit-refund systems, to ensure recycling of products.

In Norway, a tax on single use bottles prompted a highly effective deposit/refund system. According to Smart Prosperity Institute, "Norway's single-use bottle tax has generated the same waste reduction outcome as a ban. In **Norway**, beverage producers are subject to an environmental tax on plastic bottles that is suspended once producers collectively exceed a 95% recycling target."[84] As a result of these stringent EPR policies, as well as how the country's VAT was implemented, industry initiated a deposit-refund system. It results in the recycling of 97% of containers sold, with 92% of containers sold recycled into new bottles.[85] As further explained by the United Nations, "under tax regulations, an environmental tax is imposed on plastic PET [polyethylene terephthalate] bottles, set at NOK 3.44 [$0.46 CDN] for recyclable bottles. The environmental tax lessens in line with the return rate, starting with a 25 percent return rate. At a 95 percent return rate, the environmental tax cease completely."[86] Additionally, the Norwegian deposit-refund system incorporates certain design requirements for plastic bottles to be accepted – including types of plastics, inks and glues. In this way, deposit-refund systems, coupled with eco-design requirements (discussed in the next section of this Report), can enhance EPR results by improving the recyclability of products.

[78] *ELC Case for Reform*, see note 2, at 48. Also see: Solid Waste & Recycling, "Return-It bumps bottle deposit rates in B.C." (24 October 2019), online: <https://www.solidwastemag.com/deposit-return-systems/return-it-bumps-bottle-deposit-rates-in-b-c/1003283002/>.

[79] See the Container Recycling Institute online at <http://www.container-recycling.org/?tmpl=unsupported> for information on US deposit laws.

[80] Bottle Bill Resource Guide, "Recycling Legislation in Canada: All Canada Bottle Bills," online: <http://www.bottlebill.org/legislation/canada/allprovs.htm>.

[81] For example, see *Walls article*, see note 73, at 3-4.

[82] "Deposit System Cuts Plastic Bag Use, Study Shows", *Environment Journal* (27 January 2017), online: <http://environmentjournal.online/articles/deposit-system-cuts-plastic-bag-use-study-shows/>.

[83] *ELC Case for Reform*, see note 2, at 44 for a discussion of the Ozzi cups and food container system, the UBC Mugshare program, and vessel works.

[84] *SPI Vision document*, see note 11, at 27.

[85] *SPI Vision document*, see note 11, at 27.

[86] *UNEP Legal Limits*, see note 29, at 66.

Other Relevant Links and Resources

Financial Instruments - generally:

- World Business Council for Sustainable Development, "Policy Enablers to Accelerate the Circular Economy: scaling up actions across regions and stakeholders" (August 2019), online: EU <https://circulareconomy.europa.eu/platform/sites/default/files/wbcsd_policy_enablers_to_accelerate_the_circular_economy.pdf>.
- Rezero, "Rethinking economic incentives for separate collection" (July 2017) online: Zero Waste Europe <https://zerowasteeurope.eu/wp-content/uploads/2017/07/Rethinking-economic-incentives2.pdf>.
- N Voulvoulis & R Kirkman, "Shaping the Circular Economy: Taxing the Use of Virgin Resources: The case for a plastic packaging tax in the UK" (Imperial London College: accessed 29 March 2020) online: <https://www.imperial.ac.uk/media/imperial-college/faculty-of-natural-sciences/centre-for-environmental-policy/public/Plastic-packaging-tax-in-the-UK-Whitepaper.pdf>.

Deposit-Refund System:

- CM Consulting Inc. & Reloop Platform, "Deposit Systems for One-Way Beverage Containers: Global Overview" (2018), online: <https://reloopplatform.eu/wp-content/uploads/2018/05/BOOK-Deposit-Global-27-APR2018.pdf>.
- The Container Recycling Institute: <http://www.container-recycling.org>
- The Container Recycling Institute's "Bottle Bill Resource Guide": <http://www.bottlebill.org>
- United Nations Environment Programme, "Legal Limits on Single-Use Plastics and Microplastics: A Global Review of National Laws and Regulations" (accessed 29 March 2020) online: <https://wedocs.unep.org/bitstream/handle/20.500.11822/27113/plastics_limits.pdf> at Table 28: Countries with Mandated Deposit-Refund Schemes.
- Resource Recycling Systems, "Container Redemption System Optimization Study" (Executive Summary) (14 January 2014) online: <http://www.gpi.org/sites/default/files/OBB%20Executive%20Summary%20FINAL%201-14-14%20-%20FOR%20RELEASE_0.pdf>.
- Reloop Platform, "Policy Instruments to Promote Refillable Beverage Containers" (accessed 29 March 2020) online: <https://reloopplatform.eu/wp-content/uploads/2017/10/Refillables-policy-Final-Fact-sheet-June30.pdf>.
- James M Jeffords Center's Vermont Legislative Research Service, "Bottle Bills" (The University of Vermont: accessed 29 March 2020) online: University of Verrmont <https://www.uvm.edu/~vlrs/Environment/Bottle%20Bills.pdf>.

4. ECO-DESIGN REQUIREMENTS

An important element of a truly Circular Economy for Plastics is designing products so that they can easily be recirculated back into the system – ideally as a reused/upcycled product or in the secondary market as recycled resin. However, if manufacturing is carried out without circularity in mind, the linear industrial system persists. In order to facilitate circular product design, there must be a transition away from products that are:

- made of unrecyclable materials; or
- designed in a way that undermines reuse or recycling.

Industry experts estimate that up to 15% of collected plastic packaging is subsequently discarded during sorting and recycling – as a direct result of format design issues.[87] Still other ill-conceived and unrecyclable designs never even make it into the recycling system. One potential solution is to mandate eco-design requirements both generally, and more specifically as a required component of an EPR scheme.

Benefits

The benefits of eco-design to improve recycling have also been highlighted by the OECD,[88] in the Environment Canada Report,[89] and by the United Nations Environment Programme.[90] The OECD states:

> *Changes in product design, such as through the use of alternative materials in the place of plastics, could reduce the production, use, and disposal of plastics in the first instance. Changes in design practices, such as through product light-weighting [making the product lighter so that it takes less energy to move it or using fewer resources], could also help to prevent the generation of plastics waste."*
>
> *… Where plastic cannot be eliminated, plastic products can be designed to allow for reuse (i.e. multiple uses instead of single use, possibly in the*

[87] *Ellen MacArthur, New Plastics Economy*, see note 7, at 51.
[88] OECD, "Improving Plastics Management: Trends, policy responses, and the role of international co-operation and trade", OECD Environment Policy Paper no. 12 (September 2018) at 13, online: <https://www.oecd.org/environment/waste/policy-highlights-improving-plastics-management.pdf> ["*OECD Improving Plastics Management*"].
[89] *ECCC Report*, see note 4, at 25.
[90] *UNEP Roadmap*, see note 11, at 18.

context of deposit-refund systems) and recycling, in order to minimise the amount of waste that is generated.[91]

The *New Plastics Economy* report advocates eco-design as a necessary element of the Circular Economy for Plastics.[92] Fundamental redesign can open up otherwise non-recyclable plastic products to reuse opportunities. Additionally, by mandating designs that render a product easy to disassemble or reuse, there is an increased potential for recyclability and thus more plastic can be recirculated back into the manufacturing process as secondary materials. For example, format design improvements are posited to lead to an economic benefit of $50-70 USD per tonne of mixed plastic packaging collected and could reduce material losses by 7.5% of plastic packaging collected (half of the estimated losses).[93]

Case Studies: Eco-design Requirements and Targets

France, disruptive packaging penalty – An example of a simple but effective eco-design requirement system highlighted by the United Nations involves an industry initiative called CITEO[94] that charges a penalty fee to producers who use "disruptive" packaging. This disruptive packaging includes use of Carbon Black, a common pigment to colour plastic black. Carbon black is problematic for recycling systems because the colour is not easily detected by sorting machines. Additionally, to incentivize the use of "non-disruptive plastics," an 8% bonus is available to producers who remove black carbon dye from their products.[95]

Plastics Pacts – the Ellen MacArthur Foundation has partnered with organizations and governments in multiple countries to develop ambitious plastic waste reduction targets, including eco-design targets.
For instance:

- The UK Plastics Pact, between the Ellen MacArthur Foundation, the Waste and Resources Action Programme (WRAP), and the Department for Food and Rural Affairs, aims to ensure that 100% of plastic packaging in the UK is reusable, recyclable or compostable by 2025.[96]
- The European Plastics Pact, the first regional pact to join the global Plastics Pact network, is headed by the French Ministry of Ecological and Solidarity Transition, the Dutch Ministry of Infrastructure and Water Management, and the Danish Ministry of Environment and

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[91] *OECD Improving Plastics Management*, see note 85, at 6 and 13.
[92] *Ellen MacArthur, New Plastics Economy*, see note 7.
[93] *Ellen MacArthur, New Plastics Economy*, see note 7, at 51.
[94] EurosAgency, "CITEO" (accessed 29 March 2020), online: <https://eurosagency.eu/reference/citeo/?lang=en#:~:targetText=Born%20from%20the%20combination%20of,packaging%20and%20paper%20in%20France>: "Citeo was created by private companies in order to reduce the environmental impact of packaging and paper. Recognized by the State, in charge of a public service mission, it supervises and supports the recycling of household packaging and paper in France. It counts more than 50,000 companies as members and contributors."
[95] *IEEP ERP Report*, see note 33, at 25, citing Eco-Emballages (2015c) Tarif Eco-emballages 2016. Eco-Emballages, Paris.
[96] Among other aims, including to eliminate unnecessary single-use packaging through redesign, innovation or alternative delivery models, to effectively recycle or compost 70% of plastic packaging, and to maintain an average of 30% recycled content in all plastic packaging, all by 20205. Ellen MacArthur Foundation "Plastics Pact", online: <https://www.ellenmacarthurfoundation.org/our-work/activities/new-plastics-economy/plastics-pact> ["*Plastics Pact*"].

Food. This Pact aims to make all plastic packaging and single-use plastic products recyclable, and reusable where possible, by 2025.[97]

- The Chilean Plastics Pact, the first Latin American pact, is led by the Ministry of the Environment and the non-profit Fundación Chile, and has virtually identical aims as the two pacts mentioned above.[98]
- The South African Plastics Pact, the first in Africa, is led by the World Wide Fund for Nature and supported by the Department of Environment, Forestry and Fisheries. This pact also aims to ensure that 100% of plastic packaging is reusable, recyclable or compostable by 2025.[99]

In a similar vein, the **Australian Packaging Covenant** between federal, state, and territory governments and industry, is working to achieve Australia's 2025 National Packaging Targets. These targets include having 100% reusable, recyclable or compostable packaging, with an average of 50% recycled content, by 2025.[100]

Zimbabwe – regulation[101] mandates the Environmental Management Agency to require manufacturers and retailers of plastic packaging and plastic bottles to set waste prevention targets to provide for the recyclability of these products by design.[102]

Additional Benefits When Mandatory Eco-Design is Linked to an EPR Scheme

Although a transition to eco-design of plastics can result naturally when stringent EPR programs are implemented, evidence shows that eco-design changes have come in response to mandatory requirements and economic instruments implemented *alongside* EPR schemes, rather than just the EPR schemes themselves. This suggests that in order for a transition to a Circular Economy for Plastics to be successful, it is essential to incorporate complementary mechanisms to strengthen the impact of EPR schemes and to ensure the transition to eco-design.[103] Eco-design requirements should be integrated with waste

[97] *Plastics Pact*, see note 96. This is only one aim of the European Plastics Pact. The other aims are to, by 2025, reduce the need for virgin plastic products and packaging by at least 20%, to increase the collection, sorting and recycling capacity of all plastics used in packaging and single-use products by at least 25%, and to have a minimum of 30% recycled content in single-use plastics and plastic packaging.

[98] *Plastics Pact,* see note 96.

[99] Again, among other aims that are nearly identical to the ones of the other pacts: *Plastics Pact,* see note 96.

[100] Australian Packaging Covenant Organization (APCO), "Australia's 2025 National Packaging Targets", online: <https://www.packagingcovenant.org.au/who-we-are/australias-2025-national-packaging-targets>. These are two of the four targets. The other two are that 70% of plastic packaging be recycled or composted, and the phase out of problematic or unnecessary singe-use plastics packaging.

[101] *Plastic Packaging and Plastic Bottles Regulation* (SI No 98 of 2010), online (unofficial version): <https://www.ecolex.org/details/legislation/plastic-packaging-and-plastic-bottles-regulation-2010-si-no-98-of-2010-lex-faoc171720/> ["*Zimbabwe Regulation*"].

[102] *Zimbabwe Regulation,* see note 101, at ss. 2 & 4.

[103] *IEEP ERP Report*, see note 33, at 6 and 20.

management objectives and EPR scheme expectations[104] – with varying fees paid by participating producers based on how well their products are designed or other factors.[105] As explained by the IEEP, eco-design tied to an EPR scheme can offer added clout and effectiveness to both instruments:

> *EPR is intended to achieve environmental improvements throughout the product life cycle and has two primary environmental goals. The first is to* ***provide incentives for manufacturers to design resource efficient and low impact products*** *(referred to in this report as 'eco-design'). The second is to* ***ensure effective end-of-life collection, environmentally-sound treatment of collected products and improved reuse and recycling****. At the core of the EPR approach is therefore to establish feedback loops, so that improvements in products' design help optimise their environmental performance and minimise the costs of end-of-life management. In this way, EPR is linked to both product design and mandatory policy targets, providing a link between product design and after-use treatment, and between policy and implementation. If used well, EPR can be one of the cornerstones of the transition towards a circular economy.[106] [emphasis in original]*

Tying EPR to mandatory eco-design requirements is also specifically endorsed by University of Ottawa's Smart Prosperity Institute[107] and by the Canadian Council of Ministers of Environment in a 2009 publication.[108]

One of the most universally endorsed design requirements is to mandate for a minimum recycled content standard. As this is its own important policy, it will be discussed below under the "Recycled Content Standards" section.

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[104] *IEEP ERP Report*, see note 33, at 26; see also *ReZero Report*, see note 31, at 4: "… only work done at the front-end of the production process can design waste out of the system. To achieve a circular economy, EPR implementation needs to be designed as the bridge between waste and products policies."

[105] *IEEP ERP Report*, see note 33, at 6.

[106] *IEEP ERP Report*, see note 33, at 4, citing Zero Waste Europe, *Extended Producer Responsibility - Creating the frame for circular products* (Zero Waste Europe, Brussels: 2017), at 1, online: <https://zerowasteeurope.eu/wp-content/uploads/edd/2017/12/ZWE-EPR-policypaper.pdf>.

[107] *SPI Vision document*, see note 11, at 21:
[Applying EPR] will overcome key information asymmetries between:
a. Producers and plastic recyclers. In working with plastic recyclers to build a reverse supply chain, producers will become more aware of the implications of packaging design choices on system cost, recyclability and end-markets for recovered materials…

[108] *CCME Strategy Report*, see note 29, at 10: "CCME's goals with respect to packaging are to: …Optimize packaging design to reduce negative effects throughout the packaging's life cycle (including production, use, transportation and end-of-life management."

Case Studies: EPRs with Eco-design Outcomes and/or Incentives

Germany, Packaging Act (VerpackG)[109] – this new law came into effect in January 2019, although Germany has had an EPR system administered by a packaging law since 1991.[110] In addition to setting a target of recycling 63% of all plastics packaging by 2022, the new law incentivizes producers to "promote the use of materials and material combinations that allow for the highest possible percentage to be recycled, taking into account the practice of sorting and recovery".[111]

Japan, EPR for packaging and waste – a 1995 Packaging Recycling Act[112] made producers financially responsible for recycling the waste of PET bottles and other plastic packaging, among other things.[113] As a result, soft drink makers and plastic bottle manufacturers stopped producing coloured plastic bottles in order to reduce the cost of recycling, since coloured bottles had to be sorted separately.[114]

Korea – the Korean EPR applies to number of items including packaging materials, and requires producers to, among other things produce or import easier-to-recycle products.[115]

Associated Labelling System

The recommendation to incorporate an associated labelling system for packaging recyclability into eco-design requirements has also been discussed and endorsed extensively.[116] The need for an associated labelling system is explained by the CCME as follows:

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[109] Germany, Packaging Act (VerpackG), Federal Law Gazette Year 2017 Part I No. 45, issued in Bonn on July 12, 2017, online (in German): <https://www.bgbl.de/xaver/bgbl/start.xav?start=//*%5b@attr_id=%27%27%5d#__bgbl__%2F%2F*%5B%40attr_id%3D%27bgbl117s2234.pdf%27%5D__1589475628160> ["*German Act*"]. See also VerpackG, "Information Platform for Manufacturers and Distributors regarding the Packaging Act", online: <https://verpackungsgesetz-info.de/en/>. The Act applies to all types of packaging, not only plastics.

[110] Elisabeth Skoda, "Getting ready for the German Packaging Law" (12 December 2018), online: *Packaging Europe* <https://packagingeurope.com/getting-ready-for-the-german-packaging-law/>.

[111] Section 21(1) of the Act, see *German Act*, note 109 for the German text. For an English excerpt and explanation, see "Minimum standard for determining the recyclability of packaging pursuant to section 21 (3) VerpackG (Verpackungsgesetz – Packaging Act) (last updated: 2 October 2019), at 3, online: <https://www.verpackungsregister.org/fileadmin/files/Mindeststandard/2019-10-07_Mindeststandard____21_VerpackG_EN.pdf>.

[112] The *Act on the Promotion of Sorted Collection and Recycling of Containers and Packaging* (in force December 1995).

[113] Dr Hajime Yamakawa, Annex 1 – The EPR for packaging waste in Japan in OECD, *Extended Producer Responsibility: Updated Guidance for Efficient Waste Management*, (Paris: OECD Publishing, 2016), online: <https://www.oecd-ilibrary.org/sites/9789264256385-18-en/index.html?itemId=/content/component/9789264256385-18-en#note-e-0000124> ["*Japan EPR*"].

[114] *Japan EPR*, see note 113. Also see The Japan times, "Makers to can colored plastic bottles" (3 April 2001), online: <https://www.japantimes.co.jp/news/2001/04/03/national/makers-to-can-colored-plastic-bottles/>.

[115] OECD, *Case study for OECD project on extended producer responsibility: Republic of Korea* (22 May 2014) at 1-2, online: <https://www.oecd.org/environment/waste/OECD_EPR_case_study_Korea_revised_140522.pdf>.

[116] A labelling system is tied to a "key finding and recommendation" in the United Nations Environment Programme, "Single-Use Plastics: A Roadmap for Sustainability" report*:* "[Governments] must finance more research and development of alternative materials, raise awareness among consumers, fund innovation, **ensure**

The symbol currently used to identify the recyclability of packaging – the Mobius loop – is one of the most recognized labels in North America. However, this symbol can be misleading, particularly when applied to plastic packaging. A number of marked products, although technically recyclable, are not accepted in many recycling systems. For example, of the seven resin codes for plastics, only #1 and #2 are accepted in most Canadian recycling programs. A more meaningful designation of "recyclability" relies on a number of factors – not just the type of materials used, but also the construction of the packaging (e.g., composite packaging is difficult to recycle), the cost and availability of recycling technology, consumer access to a recovery system, and the end-market demand for the recovered materials.[117]

Standardized, clear, consistent, and easily understandable product labelling that identifies recyclability can provide the following benefits:

- Fostering cross-chain collaboration between governments and public sector entities through established standards, including proper labelling in order to ensure proper treatment of the product when circulating it back into the resource loop;[118]
- Enhancing consumer disposal choices by providing appropriate and standardized information to consumers about the correct stream for the product;[119]

plastic products are properly labelled and carefully weigh possible solutions to the current crisis." [emphasis added] *UNEP Roadmap*, see note 11, at vii; Product labelling has been embraced as part of the move to ban or severely limit the use of microbeads in products. See *UNEP Legal Limits*, see note 29, at 79-83; Eco-labelling is also a main aspect of the Ellen MacArthur Foundation's actions towards a Circular Economy: it has presented "a Global Plastics Protocol which seeks to establish a globally agreed approach to reducing the complexity of polymers, additives, products and after-use systems. This… includes efforts to: …**define global labelling and material marketing standards**… [emphasis added] *OECD Improving Markets*, see note 12, at 106.

[117] *CCME Strategy Report*, see note 29, at 14.

[118] *Ellen MacArthur, Towards the Circular Economy*, see note 8, at 81. See also the *ECCC Report*, note 4, at 24, which suggests the following measure "ensuring consistent and clear standards and labelling to help establish further integrated North American recycling/reprocessing capacity."

[119] See Circular Economy Accelerator: Sustainable Business Network, "New Zealand's Plastic Packaging System: An Initial Circular Economy Diagnosis" (November 2018) at 28, online: <https://cdn2.hubspot.net/hubfs/3320613/New%20Zealand%20Plastic%20Packaging%20System%20Report/SBN_New%20Zealand%20Plastic%20Packaging%20System%20Report_FINAL_For%20general%20release.pdf>:

Of significance is the lack of standards in New Zealand, including labelling. This has led to 'greenwash' claims and significant consumer confusion around the terms of compostable, biodegradable and especially oxo-biodegradable.

This confusion impacts consumer disposal at end of life. Certain bio-based materials (e.g. PLA and compostable packaging) can contaminate conventional plastic streams. False expectations on the speed of degradation can 'encourage' littering. Most compostable packaging, in reality, needs specific compost conditions to enable effective degradation.

CCME Strategy Report, see note 29, at 14-15:

- Educating consumers about the products on the market, which allows them to make more ecologically conscious decisions when making purchase decisions;[120] and
- Driving manufacturers and producers to shift towards more recyclable packaging in order to maintain a greener public image.[121]

Austria, Japan, China, Sweden and Germany all have national level policy concerning eco-labelling. In contrast, Canada does not have comprehensive policy regarding eco-labelling, at either the national level or municipal/regional level.[122]

One recommendation for Canada, suggested by the CCME, is that "recyclable" in the context of a labelling system should be based on whether it is actually recyclable in existing facilities, as opposed to whether the material can theoretically be recycled. It recommends the implementation of a packaging specific Canada-wide mandatory labelling requirement system, in which all packaging, including non-recyclable packaging, is clearly labelled.[123]

Case Study: The EU's Eco-Design and Eco-Labelling Requirements

The European Union - Directive 94/62/EC[124] Annex II stipulates three different requirements relating to packaging that must be implemented into member states' domestic laws: (i) requirements specific to the manufacturing and composition of packaging; (ii) requirements specific to the reusable nature of packaging; and (iii) requirements specific to the recoverable nature of packaging.[125] Specific to the requirements for manufacturing and composition:

- Packaging shall be so manufactured that the packaging volume and weight [is] limited to the minimum adequate amount to maintain the necessary safety, hygiene and acceptance for the packed product and for the consumer;
- Packaging shall be designed, produced and commercialized in such a way as to permit its reuse or recovery, including recycling, and to minimize its impact on the environment when packaging waste or residues from packaging waste management operations are disposed of; and
- Packaging shall be so manufactured that the presence of noxious and other hazardous substances and materials as constituents of the packaging material or of any of the packaging components is minimized with regard to their presence in emissions, ash or leachate when packaging or residues from management operations or packaging waste are

A clear and easily understandable labelling system that identifies recyclability could… [h]elp consumers and waste managers identify how to properly place the packaging into the appropriate waste streams at the end of its life. This can help to both increase diversion rates of recyclable packaging and reduce contamination of the recycling stream, which can, in turn, help reduce operational costs and improve the quality of recovered materials.

[120] *OECD Improving Markets*, see note 12, at 103; *CCME Strategy Report*, see note 29, at 14.

[121] *CCME Strategy Report*, see note 29, at 15.

[122] *OECD Improving Markets*, see note 12, at 148.

[123] *CCME Strategy Report*, see note 29, at 15.

[124] European Commission, *European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste,* [1994] OJ, No L 365/10, available online: <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:31994L0062&from=EN> ["*EU Directive on Packaging*"].

[125] *EU Directive on Packaging,* see note 121, at Annex II.

incinerated or landfilled.[126]

Article 8 of the Directive also stipulates that "To facilitate collection, reuse and recovery including recycling, packaging shall indicate for purposes of its identification and classification by the industry concerned the nature of the packaging material(s) used… packaging shall bear the appropriate marking either on the packaging itself or on the label. It shall be clearly visible and easily legible. The marking shall be appropriately durable and lasting, including when the packaging is opened."[127] The criteria for the "marking" of packaging is expected to be standardized across the EU, as mentioned in Article 10.[128]

In addition to the overarching Directive on Packaging and Packaging Waste, the European Commission has created an *Eco-Design Working Plan 2016-2019,*[129] as well as initiated the *Environmental Technology Verification [ETV] pilot programme*.[130] The *Eco-Design Working Plan 2016-2019*, has resulted in 28 eco-design regulations, as well as 16 energy labelling delegated regulations in support of efficiency requirements, including requirements such as availability of spare parts, ease of repair, and difficulty of facilitating end-of-life treatment.[131]

Other Relevant Links and Resources

Canada:

- Canadian Council of Ministers of the Environment, "A Canada-Wide Strategy for Sustainable Packaging" (October 2009), online: <https://www.ccme.ca/files/Resources/waste/packaging/pn_1501_epr_sp_strategy_e.pdf>.

EU:

- European Commission, *European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste,* [1994] OJ, No L 365/10, available online: <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:31994L0062&from=EN>.
- European Commission, Eco-Innovation Action Plan – Environmental Technology Verification" (last updated 30 March 2020) online: <https://ec.europa.eu/environment/ecoap/etv/about-etv_en>.
- European Commission, "Communication from the Commission: Eco-Design Working Plan 2016-2019" (2016) online:

[126] *EU Directive on Packaging,* see note 121, at Annex II.
[127] *EU Directive on Packaging,* see note 121, at Article 8.
[128] *EU Directive on Packaging,* see note 121, at Article 10.
[129] European Commission, "Communication from the Commission: Eco-Design Working Plan 2016-2019" (2016) online: <https://ec.europa.eu/energy/sites/ener/files/documents/com_2016_773.en_.pdf>.
[130] European Commission, "Eco-Innovation Action Plan – Environmental Technology Verification, About ETV" (last updated 30 March 2020) online: <https://ec.europa.eu/environment/ecoap/etv/about-etv_en>.
[131] *WBCSD Report*, see note 19, at 13.

<https://ec.europa.eu/energy/sites/ener/files/documents/com_2016_773.en_.pdf>.

Industry-led:

- European PET Bottle Platform's website for 'Design for Recycling Guidelines for PET Bottles' (accessed 30 March 2020), online: <https://www.epbp.org/design-guidelines>.
- Tesco (UK Grocer)'s website for "Materials and Design" (accessed 30 March 2020), online: <https://www.tescoplc.com/sustainability/packaging/topics/materials-and-design/>.
- Tesco's "Preferred Materials" [for packaging] (8 April 2019), online: <https://www.tescoplc.com/media/475835/tesco-preferred-materials-list-april-2019.pdf>.
- Ellen MacArthur Foundation, "The New Plastics Economy: Rethinking the Future of Plastics & Catalysing Action" (20 January 2017), online: <https://www.ellenmacarthurfoundation.org/assets/downloads/publications/NPEC-Hybrid_English_22-11-17_Digital.pdf>.
- Australian Packaging Covenant Organisation's website (accessed 30 March 2020), online: <https://www.packagingcovenant.org.au/who-we-are/packaging-recycling-label-program>.

5. USE OR PRODUCT BANS

A very popular and widely used instrument is a ban on one or more of the following: usage, production or import; on specific material composition types (such as polystyrene or "Styrofoam"); and/or on specific product types.[132] The Environment Canada Report acknowledges that a directive or restriction on specific products can "…prevent the generation of problematic wastes in the first place. Although not always an option (e.g. automobiles), certain single-use plastics can be replaced with reusable alternatives and taking action against certain single-use products could reduce the volume of plastic waste that must be managed."[133]

The University of Victoria Environmental Law Centre has written extensively on banning certain single-use plastics (such as single-use plastic shopping bags, straws, stirrers, plastic utensils, and polystyrene foam cups and take out food and beverage containers) as a necessary move in the transition to a Circular Economy for Plastics. Please refer to the links and resources below for additional information on the proposals to ban the above single-use plastic products.

Other Relevant Links and Resources

For more information on the use of restrictions or bans in creating a Circular Economy for Plastics refer to the following resources:

- Meaghan Partridge, "Seven Reforms to Address Marine Plastic Pollution (Environmental Law Centre: August 2017), online: <http://www.elc.uvic.ca/wordpress/wp-content/uploads/2017/08/2017-01-11-MarinePlastics_2017Oct23.pdf>.
- Meaghan Partridge, Nick Acker & Renata Colwell, "A National Strategy to Combat Marine Plastic Pollution: A Blueprint for Federal Action" (Environmental Law Centre: April 2018), online: <http://www.elc.uvic.ca/wordpress/wp-content/uploads/2018/04/2017-01-11_National-Marine-Plastics-Strategy-FINAL.pdf>.
- Kiran Gill & Alex McArdle, "The Case for Reform: British Columbia Must Regulate Single-Use Plastics" (Environmental Law Centre: October 2019), online: <http://www.elc.uvic.ca/wordpress/wp-content/uploads/2019/10/The-Case-for-Reform-BC-Must-Regulate-Single-Use-Plastics.pdf>.

[132] *CleanBC Paper*, see note 35, at 5; eighty-three countries have legislation that bans the free retail distribution of plastic bags, and 27 countries have some type of ban on single-use plastics. See *UNEP Legal Limits*, see note 29, at 10.
[133] *ECCC Report*, see note 4, at 23.

- United Nations Environment Programme, “Legal Limits on Single-Use Plastics and Microplastics: A Global Review of National Laws and Regulations” (2018) online: <https://wedocs.unep.org/bitstream/handle/20.500.11822/27113/plastics_limits.pdf>.

6. RECYCLED CONTENT STANDARDS

As described above, EPR is one of the most consistently recommended initiatives in creating a Circular Economy for Plastics. It results in increased collection of plastics – and increase the *supply* of recycled plastic. However, without a complementary initiative that creates a market *demand* for this recycled plastic, circularity will fail. Without such demand, an economically sound, self-sustaining recycling system will not function. .

The problem is that the market price for virgin plastic excludes the true environmental costs imposed by oil and gas extraction, etc. As a result, virgin plastic is so cheap that it regularly outcompetes recycled plastics. Many experts have recognized the pressing need to uncouple the market from primary resin prices.[134] Indeed, Environment Canada has stated:

> *One of the most important actions that can be taken to encourage recycling is to create a reliable domestic market for collectors/processors/recyclers that is uncoupled from primary resin prices.*[135]

Laws requiring products to contain a certain amount of recycled content can redress the market failure created when cheap, environmentally-destructive resins outcompete greener recycled plastics.

Although there are other initiatives that can help stimulate a recycled plastic market, two specific initiatives – recycled content standards and green government procurement policies (discussed in the next section) – have been identified as having a significant impact on this market failure. Although each of these initiatives is distinct, since they share the goal of stimulating a market for secondary plastics, they are often recommended as complementary initiatives.[136]

Recycled content standards, sometime called minimum recycled content regulations, require that a particular product sold contains a certain percentage of recycled material or post-consumer materials. A recycled content standard is a government policy that recognizes the need to stimulate demand for recycled materials.

University of Ottawa's Smart Prosperity Institute explains how recycled content standards function in a Circular Economy for Plastics:

> *Recycled content performance standards create a market for recycled materials that moves in step with the demand for plastic products regardless of input prices from other feedstocks. Such an approach will*

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[134] According to the Ellen MacArthur Foundation, the "Use of Plastics is Fully Decoupled from the Consumption of Finite Resources" is one of six main characteristics of the Circular Economy: *Ellen MacArthur, June 2019 Report*, see note 18, at 5; see also *SPI Vision document*, see note 11, at 10.

[135] *ECCC Report*, see note 4, at 22.

[136] Recommended by Smart Prosperity Institute, OECD, United Nations, CCME. See remainder of this section for more specific details.

> *overcome the economic barrier posed by fluctuating virgin commodity prices even as demand for plastic products continues to grow.*[137]

The Institute further explains recycled content standards' complementary role in an EPR scheme:

> *Recycled content performance standards are a demand side policy that complements EPR as a supply side measure. Where producers are working to establish reverse supply chains for the collection and recycling of plastics, recycled content performance standards help create demand (backstopping capital investments in recycling) and shape the processes and technologies employed in the supply chain.*[138]

If the EPR program is built in harmony with these policies, there will be no need to "find markets" for secondary recycled plastic resin.[139] The complementary nature of recycled content standards and EPR schemes is also recognized and endorsed by the Canadian Council of Ministers of Environment;[140] Smart Prosperity Institute;[141] and the Environment Canada Report.[142] As the CCME explains:

> *… while EPR requirements can be expected to result in increased use of secondary (i.e., recovered) materials by producers, targets for recycled content could be effective at driving higher demand and better markets for secondary materials, thereby reducing reliance on virgin materials and potentially decreasing lifecycle energy use and greenhouse gas emissions.*[143]

[137] *SPI Vision document*, see note 11, at 22.
[138] *SPI Vision document*, see note 11, at 22.
[139] *SPI Vision document*, see note 11, at 22.
[140] *CCME Strategy Report*, see note 29, at 24:
The environmental objectives of EPR may therefore need to be supported and reinforced by other measures, such as: eco-labelling; restrictions on toxic substances; recycled content standards and regulations; green procurement policies; environmental performance/voluntary agreements and a variety of other potential standards, bans, guidelines and educational tools.
[141] *SPI Vision document*, see note 11, at 23: "While EPR is not a prerequisite for introducing recycled content standards, the most efficient and effective approach would be to coordinate these two policies to drive both supply and demand for recycled plastics higher concurrently."
[142] *ECCC Report*, see note 4, at 23: "To ensure effectiveness, EPR programs should target specific products, and include standardization requirements, **secondary material use requirements**, and set trackable **recycling targets**…"
[143] *CCME Strategy Report*, see note 29, at 6.

Direct Benefits of Recycled Content Standards

The Smart Prosperity Institute lists how recycled content standards help to address barriers to a Circular Economy for Plastics:

> 1. They create a market for recycled plastics that is differentiated from virgin plastics by specific demand for recycled plastics;
>
> 2. They help to match the increasing supply of recycled plastics generated through EPR and other policy measures to increase recycling with demand in the production of plastic products and packaging;
>
> 3. They address the unpriced externalities of plastic waste by creating demand for recycled plastics, making the disposal and discharge of plastics to the environment less economically attractive;
>
> 4. They help overcome key information asymmetries between producers and plastic recyclers;[144] and
>
> 5. They help drive effort to overcome technological barriers. Increasingly stringent recycled content standards will drive demand for high quality recycled plastics and in turn speed up innovation in material separation and mechanical recycling. At the same time, it will offer chemical recycling of plastics the opportunity to achieve commercial scale.[145]

The Ellen MacArthur Foundation partners with large corporations like Google and Unilever, and recognizes recycled content standards as one of the foundational initiatives of a Circular Economy for Plastics. One of its specific recommendations is for packaged goods company signatories to set explicit targets to reduce their virgin plastics consumption. It suggests that explicitly creating targets sends out a clear signal that there must be reduction of – and ultimately a full decoupling from – finite fossil resources in order to create circularity in the plastics economy.[146] Other industry actors have also made global commitments to increase recycled content standards. For instance, affiliated with the Ellen MacArthur Foundation, but focused specifically on plastic packaging, is the UK Plastics Pact. The Pact asks signatories to make four main pledges: (i) by 2025 make 100% of plastic packaging reusable, recyclable or compostable; (ii) by 2025 eliminate single-use plastics; (iii) by 2025 ensure 70% of plastic packaging is effectively recycled or composted; and (iv) **by 2025 have an average of 30% recycled content across all plastic packaging.**[147] Since its launch in April 2018 over 140 companies have signed-on.[148]

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[144] Producers working with plastic recyclers, resin manufacturers and product and packaging manufacturers will become more aware of the opportunities to capitalize on the recycled plastics generated by their EPR supply chains.

[145] *SPI Vision document*, see note 11, at 23.

[146] *Ellen MacArthur, June 2019 Report*, see note 18, at 5 and 25.

[147] WRAP, "What is The UK Plastics Pact?" webpage (accessed 30 March 2020) online: <http://www.wrap.org.uk/content/what-uk-plastics-pact> ["*WRAP webpage*"].

[148] *WRAP webpage*, see note 144.

[Note that an Organization of Economic Co-Operation and Development report has recommended introducing product labels showing recycled content to help create consumer-driven demand for recycled plastics.[149]]

Case Study: Why Minimum Recycled Content Must be Legislated

In 2013 United Kingdom-based plastic processor "Closed Loop Recycling" announced that it would expand its high-density polyethylene ("HDPE") recycling infrastructure to meet growing demand due to a voluntary commitment by major milk retailers and processors to use 30 percent recycled content in HDPE milk containers. However, by 2015 the price of virgin material had dropped significantly below the price of recycled resin and Closed Loop Recycling could not offer recycled resin at a competitive price. As a result, the recycled content commitments from the dairy industry were quickly dropped – and Closed Loop had to adjust its business model accordingly. A commentator points out, "this case study goes to show that when it comes to the bottom line, voluntary agreements are usually the first thing to go. The EU can no longer rely on voluntary procurement agreements to promote consistent long-term demand. These so-called 'soft policies' from the past have only been moderately effective."[150]

Case Studies: Legislated Minimum Recycled Content Standards

California, Rigid Plastic Containers – Since 1991 California has had a Rigid Plastic Packaging Container Act.[151] The law mandates that product manufacturers generally use a minimum of 25 percent post-consumer recycled content in rigid plastic containers.[152]

California, Plastic Trash Bags – California requires post-consumer content in plastic trash bags. Manufacturers and wholesalers selling plastic trash bags in California must meet specific mandates on an annual basis, although these requirements are not tied to a specific percentage target. These requirements dictate that manufacturers of regulated trash bags must use at least 10% Actual Postconsumer Material in bags or 30% in their other plastic products.[153]

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[149] OECD, "Governments need to act to encourage plastic recycling markets" (24 May 2018), online: <https://www.oecd.org/newsroom/governments-need-to-act-to-encourage-plastic-recycling-markets.htm>.

[150] Clarissa Morawski, "In My Opinion: It's time for recycled-content mandates" (28 November 2017), online, Resource Recycling: <https://resource-recycling.com/recycling/2017/11/28/opinion-time-recycled-content-mandates/>.

[151] Rigid Plastic Packaging Container Program, 14 CCR § 17942. See also California PRC, Div 30, c 5.5. Plastic Packaging Containers, online: <http://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=PRC&division=30.&title=&part=3.&chapter=5.5.&article=>; see also CCR, Title 14, div 7, c 4, art 3. Rigid Plastic Packaging Container Program, online: <https://govt.westlaw.com/calregs/Document/I5CD6298DD0A8468080F1A366C82AEFA7?viewType=FullText&originationContext=documenttoc&transitionType=StatuteNavigator&contextData=%28sc.Default%29&bhcp=1>.

[152] CalReycle, "Container Compliance Options: Rigid Plastic Packaging Container (RPPC) Program" (modified 10 October 2018), online: <https://www.calrecycle.ca.gov/Plastics/RPPC/Enforcement/Compliance/>.

[153] *Requirements for Manufacturers of Regulated Trash Bags*, 14 CCR §17979, online: <https://govt.westlaw.com/calregs/Document/I326B778C795746D3A970DCA09323BA37?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default)>. See also California PRC, div 30, part 3, c 5.4, online:

Oregon, Rigid Plastic Containers – Enacted in 1994, Oregon's *Minimum Reuse, Recycled Materials or Recycled Content for Rigid Plastic Containers* Law mandates that any rigid containers sold in Oregon shall: (i) contain 25% post-consumer recycled content in rigid plastic containers; (ii) be made of plastic that is being recycled at a 25% recycling rate in Oregon; or (iii) be a package that is used five or more times for the same, or substantially similar use.[154]

European Union, PET Beverage Bottles – Article 6 of the EU Single Use Plastics Directive[155] mandates that each Member State ensure that beverage bottles which contain polyethylene terephthalate (PET) as a major component contain at least 25% recycled plastic from 2025, and that all plastic beverage bottles contain at least 30% recycled plastic from 2030.[156]

Andorra Plastic Bags – Andorra requires plastic bags 50 microns or greater to have 80% minimum recycled content[157]

Newfoundland and Labrador – Newfoundland and Labrador's *Environmental Protection Act*[158] states that the Minister may: "(a) establish restrictions and prohibitions on waste management systems; (b) determine minimum content requirements for recycled and recyclable materials in specific substances or products and establish restrictions on the production or sale of products that cannot be reused or recycled; (c) develop codes and guidelines for the use and content of recyclable materials in the manufacture of new substances or products; and (d) require that waste management plans be submitted to the department."[159] However, as of the date of this Report, this has not been done.[160]

Progressive lawmaker are seeing the wisdom of minimum recycled content requirements. In the United States, US Senator Tom Udall and Representative Alan Lowenthal are leading the reform of plastics policy. They have developed comprehensive draft legislation pursuant to an extensive public consultation. Their draft US federal legislation includes two key provisions for setting minimum recycled content in plastic products:

- Plastic beverage containers would be required to include an increasing percentage of recycled content in their manufacture before entering the market.

<http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=30.&title=&part=3.&chapter=5.4.&article>.

[154] *Minimum reuse, recycled material or recycled content for rigid plastic containers*, 2017 ORS §459A.655, online: <https://www.oregonlaws.org/ors/459A.655>. See also OAR, 340-090-0350, 340-090-0360, 340-090-0400, 340-090-0410, online: <https://secure.sos.state.or.us/oard/viewSingleRule.action?ruleVrsnRsn=71026>.

[155] Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment, OJ L 155, 12.6.2019, p. 1–19, online: *EUR-Lex* <data.europa.eu/eli/dir/2019/904/oj> ["*EU Single Use Plastics Directive*"].

[156] This European directive applies to PET beverage bottles with a capacity of up to three litres, except for beverage bottles intended and used for food or special medical purposes: *EU Single Use Plastics Directive*, see note 155, Article 6-5 and Part F.

[157] *UNEP Legal Limits*, see note at 29, at p. 21.

[158] *Environmental Protection Act*, SNL 2002 cE-14.2 ["*Newfoundland EPA*"].

[159] *Newfoundland EPA*, see note 155, at s.13.

[160] Office of the Legislative Council Newfoundland and Labrador, "Table of Regulations" (accessed 30 March 2020) online: <https://www.assembly.nl.ca/Legislation/sr/Tableregulations/tableofregulations_e14-2.htm>.

- The EPA would be required to implement post-consumer minimum recycled content for other covered products and material types – after a National Institute of Standards and Technology technical feasibility review.[161]

Case Study: California's Proposed Recycled Content Standards for Plastic Beverage Containers

Mandating minimum recycled content standards, specifically for plastics, as part of a legal framework is a relatively new concept. The California state legislature is moving forward on this front. They have taken bold steps towards mandating a minimum recycled content for certain plastic products.[162]

In January 2017 **Senate Bill 168** was introduced. This Bill would have mandated 20% post-consumer recycled plastic by 2020 in all PET beverage containers. It failed on August 31, 2018 during 3rd reading – quite early in the process.[163] Then, in February 2019 Assembly Bill 792 was proposed. Bill 792 would have required beverage containers to be made with 50% recycled content by 2030. Unlike the first bill, however, Bill 792 made it all the way to the Governor for his signature – which is the final step. It was, however, vetoed by the Governor on October 12, 2019. Despite the Bill's ultimate failure, the Governor's accompanying message to the Members of the California State Assembly makes clear that he supported the intent, but that more planning must be done to develop accompanying instruments to support a recycled plastics market:

> …while I support strong minimum recycled content standards, late amendments to this bill would result in a costly, burdensome process that undermines the worthy intent of this legislation… As we work together on next steps to evolve the California Beverage Container Recycling Program to meet the realities of recycling today, minimum recycled content standards should be established to support markets and expand remanufacturing. However, they must be established in a meaningful way that ensures the standards can be achieved. I look forward to working with the Legislature and stakeholders to accomplish our shared goals.[164]

It is significant to note that under the G7 *Oceans Plastic Charter,* Canada has committed to working with industry towards increasing recycled content by at least 50% in plastic products where applicable by 2030[165] It is time for the federal and provincial governments to work together to establish broad minimum recycled content requirements.

[161] Update on Udall/Lowenthal Plastic Pollution bill, statement issued by Senator Tom Udall and Representative Alan Lowenthal, US Congress.

[162] California Legislative Information, "SB-168 Recycling: beverage containers" (27 August 2018), online: <http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB168> ["*California SB-168*"]; see also California Legislative Information, "AB-792 Recycling: plastic containers: minimum recycled content and labeling" (20 September 2019), online: <https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201920200AB792> ["*California AB-792*"].

[163] *California SB-168*, see note 159.

[164] *California AB-792*, see note 159, at "Status" tab, "Governor's Veto Message."

[165] Government of Canada, Ocean Plastics Charter (6 May 2020), online: <https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/international-commitments/ocean-plastics-charter.html>.

7. GREEN GOVERNMENT PROCUREMENT

Legislating minimum recycled content and other eco-design requirements is an important "stick" to move industry from the *status quo*. However, the "stick" should be accompanied by an incentivizing "carrot." Industry may resist legislated content requirements, due to lack of knowledge about the cascading benefits of closed-loop recycled plastics.[166] This is why creating incentives with green government procurement policies is so important.[167]

Public procurement is the purchase by governments of goods and services."[168] And procurement policies can drive important change. A generation ago, government procurement policies mandated purchase of recycled paper – and were key in creating the demand for recycled paper that shifted the paper industry to mass recycling. Similarly, government procurement can now encourage the circular plastic economy.

As University of Ottawa's Smart Prosperity Institute notes:

> *The public sector – municipalities and their subsidiary operations, provincial and territorial ministries and their agencies, boards and corporations and the whole of the federal government – in aggregate is the largest purchaser of goods and services in Canada. Government procurement can reshape markets."*[169]

The New Plastics Economy: Catalysing Action cites green public procurement policies as a key measure to support demand for recycled plastics – and to provide a critical incentive for product circularity.[170] Similarly, the United Nations suggests that leveraging government purchasing power to promote sustainable practices is key to achieving Responsible Consumption and Production – number 12 of its Sustainable Development Goals.[171]

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[166] European Commission, "A European Strategy for Plastics in a Circular Economy" (2018) at 12, online: <https://ec.europa.eu/environment/circular-economy/pdf/plastics-strategy-brochure.pdf>.

[167] See *CCME Strategy Report*, see note 29, at 16: "in the longer-term, CCME will continue to explore with industry potential applications of the sustainability indicators and metrics that require government action, such as the potential development of government procurement guidelines that consider packaging;" see also *SPI Vision document*, see note 11, at 24: "One of the fastest ways to jump start demand using recycled content performance standards is to embed the requirements in government procurement."

[168] OECD, "Public Procurement" (accessed 30 March 2020), online: <https://www.oecd.org/gov/public-procurement/>.

[169] *SPI Vision document*, see note 11, at 24.

[170] Ellen MacArthur Foundation, "The New Plastics Economy: Catalysing Action" (20 January 2017) at 53, online: <https://www.ellenmacarthurfoundation.org/assets/downloads/publications/NPEC-Hybrid_English_22-11-17_Digital.pdf>.

[171] United Nations Environment Programme, "Sustainable Public Procurement" (accessed 30 March 2020), online: <https://www.unenvironment.org/explore-topics/resource-efficiency/what-we-do/sustainable-public-procurement>; see also United Nations, "Sustainable Development Goals, Goal 12: Ensure sustainable consumption and production patterns" (accessed 30 March 2020), at 159, online: <https://www.un.org/sustainabledevelopment/sustainable-consumption-production/>.

Green government procurement policies are essential to help make recycled content and other eco-design standards effective.[172]

Benefits

Green Public Procurement ("GPP") policies offer many benefit:

- **GPP facilitates public authorities achieving environmental targets**. This can involve embedding recycled content standards – and other eco-design standards – in the criteria of what qualifies as GPP. In addition, GPP can also raise awareness of environmental issues.[173]
- **GPP can effectively demonstrate the public sector's commitment to environmental protection and to sustainable consumption and production**, and its seriousness in transitioning to a Circular Economy for Plastics.[174] As the European Commission has explained: "Establishing a GPP policy, and communicating initiatives and their results, demonstrates that action in this area is possible and that it leads to positive outcomes. It can also encourage private sector organisations to use green criteria for their own procurement."[175]
- **GPP can create demand for innovative green products.** Targeted Government procurement purchases incentivize industry to innovate and develop "green" technologies and products (such as innovative products containing recycled plastic).[176] As Smart Prosperity Institute notes:

  > Where governments implement such standards there may be a limited number of competitors (perhaps even only one) that meet those standards initially. In fact, a key purpose of green procurement standards is to create markets and drive competition for the government's business against those standards. This then drives market norms with the attendant positive externality that green products and services are adopted widely as their costs decrease due to market competition and scale.[177]

- **GPP can reduce prices for environmental technologies.** See above. *Towards a Circular Economy* points out that "there are also many opportunities for governments to use their own procurement and material handling to accelerate the spread of circular setups… In its convenor or 'matchmaking' role, a government can initiate concerted efforts among different companies in the value loops that are large enough to overcome diseconomies of scale."[178]

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[172] See this Report's section on Recycled Content Standards for more details.
[173] European Commission, "Benefits of GPP" (7 August 2019), online: <https://ec.europa.eu/environment/gpp/benefits_en.htm> ["*European Commission GPP Benefits*"].
[174] *European Commission GPP Benefits*, see note 170.
[175] *European Commission GPP Benefits*, see note 170.
[176] *European Commission GPP Benefits*, see note 170.
[177] *SPI Vision document*, see note 11, at 24.
[178] *Ellen MacArthur, Towards the Circular Economy*, see note 8, at 81.

- **GPP can accelerate the diffusion of new environmental standards.** For example, one study of California municipal green government procurement policies found that government procurement policies result in "spillover effects that stimulate both private-sector adoption of the LEED standard [a green building standard] and investments in green building expertise by local suppliers. These findings suggest that government procurement policies can accelerate the diffusion of new environmental standards that require coordinated complementary investments by various types of private adopter."[179]

Canada's Stated Commitment to Sustainable Procurement

The Government of Canada has already made a commitment that when it procures products containing plastics, it will promote the procurement of sustainable plastic products and the reduction of associated plastic packaging waste.[180]

Canada's 2018 "Policy on Green Procurement"[181] stated that government would aid the transition to a low-carbon economy through green procurement by promoting the procurement of sustainable plastic products and the reduction of associated plastic packaging waste.[182]

Canada has gone on to make a commitment to the global community to implement green procurement. As the host of the G7 summit in 2018, Canada led the ratification of the "Charlevoix Blueprint for Healthy Oceans, Seas and Resilient Coastal Communities."[183] In the Ocean Plastics Charter, annexed to this document, Canada commited to two goals specific to government procurement and minimum recycled content:

- Using green public procurement to reduce waste and support secondary plastics markets and alternatives to plastics; and
- Working with industry towards increasing recycled content by at least 50% in plastic products where applicable by 2030.[184]

The government of Canada has already committed to procure sustainable plastics products. A government website states: "public procurement can be used to support markets for more sustainable plastics products, such as those that can be reused or repaired, are remanufactured or refurbished, are made with recycled plastic content, or can be readily recycled or composted at their

[179] *SPI Vision document*, see note 11, at footnote 37, citing T Simcoe and MW Toffel, "Government green procurement spillovers: Evidence from municipal building policies in California" (2014) 68:3 Journal of Environmental Economics and Management 411–434.

[180] Government of Canada, "Government of Canada actions on plastic waste in federal operations"(modified 30 January 2019), online: <https://www.canada.ca/en/treasury-board-secretariat/services/innovation/greening-government/government-canada-actions-plastic-waste-federal-operations.html>.

[181] Government of Canada, "Policy on Green Procurement", (13 June 2018), online: <https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573> ["*Canada GPP*"].

[182] Treasury Board of Canada Secretariat, Greening Government Strategy (modified 2 August 2019), online: <https://www.canada.ca/en/treasury-board-secretariat/services/innovation/greening-government/strategy.html>.

[183] G7 2018, "Charlevoix Blueprint for Healthy Oceans, Seas and Resilient Coastal Communities" (accessed 30 March 2020) online: <https://www.mofa.go.jp/files/000373849.pdf> ["*G7 2018 Blueprint*"].

[184] *G7 2018 Blueprint*, see note 180, at 5.

end of life."[185]

In June 2019, the Government of Canada claimed to be "…strengthening policies, requirements, and guidelines that promote sustainable procurement practices, and has committed to divert at least 75 per cent of plastic waste from federal operations by 2030. These changes will promote the purchase of goods and services that use reusable, recyclable, or compostable plastics or contain renewable or recycled plastic content."[186]

Though there are several examples of the federal government supporting GPP, it is crucial that government move beyond aspirational statements and implement the tangible and specific measures necessary to comprehensively achieve these goals.

Case Study: Green Public Procurement in the European Union

The European Commission explains GPP:

> Europe's public authorities are major consumers. By using their purchasing power to choose environmentally friendly goods, services and works, they can make an important contribution to sustainable consumption and production - what [they] call Green Public Procurement (GPP) or green purchasing. Although GPP is a voluntary instrument, it has a key role to play in the EU's efforts to become a more resource-efficient economy. It can help stimulate a critical mass of demand for more sustainable goods and services which otherwise would be difficult to get onto the market. GPP is therefore a strong stimulus for eco-innovation.[187]

As part of the strategy to increase the uptake of green public procurement, the European Commission has published a guide, "*Public Procurement for a Circular Economy.*"[188] The concept of Circular Procurement contained within sets out an approach to GPP which pays special attention to "the purchase of works, goods or services that seek to contribute to the closed energy and material loops within supply chains, whilst minimising, and in the best case avoiding, negative environmental impacts and waste creation across the whole life-cycle."[189] Since January 2017 the European Commission has released individual sets of GPP criteria specifically tailored to a wide range of different industries.[190]

See the "Other Relevant Links and Resources" section below for more information.

[185] Government of Canada, "Government of Canada actions on plastic waste in federal operations" (modified 30 January 2019), online: <https://www.canada.ca/en/treasury-board-secretariat/services/innovation/greening-government/government-canada-actions-plastic-waste-federal-operations.html>.

[186] Justin Trudeau, Prime Minister of Canada, "Backgrounder: Government of Canada taking action to reduce plastic pollution" (10 June 2019), online: <https://pm.gc.ca/en/news/backgrounders/2019/06/10/government-canada-taking-action-reduce-plastic-pollution>.

[187] European Commission, "Green Public Procurement" (20 November 2019), online: <https://ec.europa.eu/environment/gpp/index_en.htm> ["*European Commission GPP*"].

[188] European Commission, "Public Procurement for a Circular Economy: Good practice and guidance" (2017), online: <https://ec.europa.eu/environment/gpp/pdf/Public_procurement_circular_economy_brochure.pdf>.

[189] European Commission, "Circular Procurement" (7 August 2019), online: <https://ec.europa.eu/environment/gpp/circular_procurement_en.htm>.

[190] For example, these GPP criteria include: road design, construction and maintenance GPP criteria; textile products and services GPP criteria; paints, vanishes and road markings GPP criteria; and indoor cleaning services GPP criteria. *European Commission GPP*, see note 184.

The OECD explicitly recommends using public sector procurement policies to create demand for recycled content.[191] It further explains this recommendation as follows:

> *Due to the scale of its purchasing power, public sector procurement policies could create strong demand for recycled content. Many countries have introduced public procurement requirements to increase the purchase of recycled-content products (e.g. UK, Italy, France, Norway, the Netherlands, Spain, Belgium, Latvia, Japan, USA). This has the potential to increase economies of scale and demand for recycled content. Initial review indicates that there is limited clear evidence of success for driving demand for recycled plastics but it is thought that, it were if [sic] implemented widely and explicitly targeted plastics (among other materials), this could have a high impact.*[192]

Case Study: Peru's Public Sector Procurement Policy

Peru requires public sector entities to use plastics with a minimum of 80% recycled content.[193]

The Link between Government Procurement and Minimum Recycled Content

Jurisdictions have begun to encourage recycled content mandates through government procurement policies. In effect, this forces any producer or manufacturer seeking government supply contracts to create products that comply with the government's procurement policy standards. Though not mandatory, this method can be effective – because government supply contracts are large and lucrative. To be successful in the marketplace, producers and manufacturers cannot afford to ignore such green standards.

Other Relevant Links and Resources

United Nations:

- United Nations Environment Programme, "Global Review of Sustainable Public Procurement" (2017), online:

[191] *OECD Improving Markets*, see note 12, at 17.
[192] *OECD Improving Markets*, see note 12, at 102.
[193] *UNEP Legal Limits*, see note 29 at 68.

<https://wedocs.unep.org/bitstream/handle/20.500.11822/20919/GlobalReview_Sust_Procurement.pdf?sequence=1&isAllowed=y>.

- United Nations Environment Programme, "Sustainable Public Procurement Implementation Guidelines: Introducing UNEP's Approach" (2012), online: <http://www.unep.fr/scp/procurement/docsres/ProjectInfo/UNEPImplementationGuidelines.pdf>.
- United Nations Environment Programme's Principles of Sustainable Public Procurement: <https://www.oneplanetnetwork.org/sites/default/files/10yfp_spp_programme_principles_of_sustainable_public_procurement.pdf>.

European Union:

- European Commission, "Public Procurement for a Circular Economy: Good practice and guidance" (2017), online: <https://ec.europa.eu/environment/gpp/pdf/Public_procurement_circular_economy_brochure.pdf>;
- European Commission Green Public Procurement Training Toolkit website: <https://ec.europa.eu/environment/gpp/toolkit_en.htm>.

Canada:

- Government of Canada, "Policy on Green Procurement" (13 June 2018), online: <https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573>
- The Department of Public Services and Procurement Canada website: <https://www.tpsgc-pwgsc.gc.ca/app-acq/ae-gp/index-eng.html>.
- Public Works and Government Services Canada,"Annex: Green Procurement: Environmental factors and Evaluation Indicators" website: <https://buyandsell.gc.ca/policy-and-guidelines/supply-manual/annex/2/2>.
- Éco Entreprises Québec, "Memorandum on plastic pollution in Canada, presented to the Standing Committee on Environment and Sustainable Development" (6 May 2019) at 5, online: <https://www.ourcommons.ca/Content/Committee/421/ENVI/Brief/BR10453034/br-external/EcoEntreprisesQuebec-e.PDF>.

OECD:

- OECD, "Recommendations of the Council on Public Procurement" (accessed 18 December 2019), online: <https://www.oecd.org/gov/ethics/OECD-Recommendation-on-Public-Procurement.pdf>
- OECD, "The Environmental Performance of Public Procurement: Issues of Policy Coherence" (2003), online: <https://www.oecd-ilibrary.org/environment/the-environmental-performance-of-public-procurement_9789264101562-en>
- OECD, "Going Green: Best Practices for Sustainable Procurement" (2015), online: <https://www.oecd.org/governance/ethics/Going_Green_Best_Practices_for_Sustainable_Procurement.pdf>.

THE TIME TO ACT IS NOW

It is essential that we transition from a linear plastic economy to a circular one. It is time that Canada fully embrace the Circular Economy for Plastics. Canadian governments need to act to implement a complete suite of the instruments described above – including:

- Extended producer responsibility (EPR) schemes;
- Disposal bans and waste levies;
- Financial instruments, including a tax on virgin plastic resin and deposit refund systems;
- Eco-design requirements (including a requirement that plastic products be truly recyclable) with an associated labelling system;
- Bans of specific products, including key single-use plastics;
- Mandating minimum recycled content; and
- Government procurement.

Though there is no "one size fits all" approach,[194] the well-established instruments, initiatives, and policies outlined above can each contribute a piece to the overall shift to a circular economy. However, the suite of instruments need to be implemented in a concerted, systemic way to optimize effectiveness. Part II lays out the Key Implementation Principles that must be followed, in order to successfully create the New Plastics Economy.

[194] *ECCC Report*, see note 4, at 26.

Part II – How to Implement the Recommended Instruments – Key Principles

The recommendations below identify overarching principles to guide the implementation of the seven sets of instruments outlined in Part I. These key principles flow from the complex structure of Canada's plastics economy, as well as the challenges of the country's federal structure and division of powers. Experts have identified the following principles as essential to the long-term success of creating a shift to a Circular Economy for Plastics.

1. A CONCERTED, SYSTEMIC APPROACH IS NECESSARY – UNDERSTAND THE CASCADING SUCCESS/FAILURE MODEL

It is tempting to think simplistically about the plastic problem, and seize on individual *ad hoc* "instruments" to solve the problem (*e.g.*, a ban here or a levy there). But the world of plastics is a complex ecosystem – and reform requires a concerted, systemic, concurrent approach. Policy instruments interact with each other, and can either undermine or bolster each other. That interaction must be taken into account.

For example, a *ban* on single-use plastics works best when other policy measures make the ban practical and publicly acceptable. As pointed out in the ELC report *The Case for Reform: British Columbia Must Regulate Single-Use Plastics*, a ban on select single-use plastics needs to be accompanied by appropriate financial incentives, setting of provincial standards defining "compostable", and education/research/innovation initiatives.[195]

Similarly, experts at University of Ottawa's Smart Prosperity Institute exhort:

> *Disposal bans for recyclable materials and disposal levies should be introduced concurrent to their being recycling capacity available to generators of those materials.*[196]

In other words, policy makers must ensure that adequate recycling capacity is created when they ban throwing away recyclables or impose a new disposal levy. If a disposal ban is

[195] *ELC Case for Reform*, see note 2, at 506.
[196] *SPI Vision document*, see note 11, at 30.

implemented *ad hoc* – without simultaneous development of facilities to recycle what now cannot be landfilled – illegal dumping will likely increase. The root cause of this failure would not be the disposal ban, it would be the fact that necessary recycling capacity was not put in place. The failure would arise from policy makers' failure to take a concerted, systemic approach to the issues.

Thus, the first principle that Canada must consider when creating a Circular Economy for Plastics is that this new economic model is a collection of complex systems that are linked to, and dependent on, each other.[197] Intelligent reform of these systems can lead to cascading success – but *ad hoc* actions can lead to cascading failures (like an unexpected rise in illegal dumping).[198]

Each individual instrument chosen to support the transition to a Circular Economy must be designed in light of that instrument's impact on the entire plastic ecosystem. For example, the disposal bans implemented at a landfill and the complementary waste levy on undesirable plastics are each nodes that will interact and impact a complex network of activities. Similarly, each specific rule associated with an EPR scheme is a node that will dictate how this separate complex network functions. The structure of each of these unique complex networks will dictate what dependency links form between each. These dependency links can be considered vulnerabilities of this specific "interdependent network system" – if one link fails, a domino-effect can undermine the full system.

Thus, when we implement the above policy instruments, we must recognize that they become part of a larger interdependent network system. Individually, each initiative might function properly, but once interdependence is introduced, each needs to be implemented in a concerted and systematic way in order to ensure the success of the whole system.

Many leading thinkers on Circular Economies have emphasized the care that must be taken in creating an interconnected and complex Circular Economy. For instance, the Environment Canada Report recognizes that its recommended approaches "should be implemented in a

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[197] There is a "complex network theory" that refers to these systems as "interdependent network systems." Complex network theory characterizes components of a complex system as nodes and their interactions as links. When more than one complex network interacts or is "coupled" with another complex network, it is called a system of "interdependent networks", with connectivity links *within* each network and dependency links *between* networks. These macro systems are even more complex and vulnerable than an individual and isolated complex network. "Interdependent networks" behave very differently from single isolated networks and are significantly more fragile. In a system of "interdependent networks" a tiny fraction of node failures can cause cascading failure and system collapse. See Dong Zhou et al., "Simultaneous first- and second-order percolation transitions in interdependent networks" (July 2014) 90:1 Phys Rev E 90 at 90, available online (citation at PDF p 1): <http://u.math.biu.ac.il/~reuven/publications/simultaneous.pdf> ["*Zhou et al article*"].

[198] See *Zhou et al article*, see note 194, at p 1 of cited link:
Interdependent network systems… represent real world systems composed of different types of interrelations, connectivity links between entities (nodes) of the same network to share supply or information and dependency links which represent a dependency of one node on the function of another node in another network. Consequently, failure of nodes may lead to two different effects: removal of other nodes from the same network which become disconnected from the giant component and failure of dependent nodes in other networks. The synergy between these two effects leads to an iterative chain cascading of failures.

concerted and systematic way, acting in several areas concurrently."[199] Environment Canada offers this concept as overarching guidance for each recommendation set:

- "As plastic waste treatment capacity grows, it will require stable flows of materials to reach economic viability. **Policy makers must concurrently implement approaches** that will increase the amount of plastic waste diversion (upstream) while ensuring that secondary plastics markets exist (downstream)."[200]
- "…a systemic approach is needed, acting in several areas concurrently. A wide range of policies and approaches can be used to achieve these objectives… The creation of a reliable domestic market for collectors/processors/recyclers that is uncoupled from primary resin prices cannot be rolled out alone and should be accompanied with [complementary] policies…"[201]
- "To trigger the systemic engagement of all parties, policy makers must consider several measures at different levels…"[202]

Similarly, the OECD recognizes that "[g]iven the diversity and scale of the challenge that markets for recycled plastics face, a range of measures and interventions will be needed. This will require close partnership amongst all stakeholders, including policy-makers, regulators, municipalities, industry and communities."[203]

While endorsing EPR schemes as a foundational pillar of a Circular Economy for Plastics, the CCME recognizes that sustainable packaging is not an easy goal, due in part to the fact that there are many interacting elements, which can require difficult trade-offs.[204] For example, efforts to increase the recyclability of a package may result in greater overall energy use. This can domino and be further complicated by other non-environmental factors, such as the need to meet health and safety standards.[205] Further, it recognizes that Canadian EPR programs will likely require the simultaneous and coordinated introduction of other measures (such as minimum recycled content standards, green procurement policies, product bans) to offset the effects of being a relatively small part of a complex and competitive global business market.[206] For this reason, the CCME's "Canada-Wide Strategy for Sustainable Packaging" report (the "CCME SSP Report"), which builds on its larger EPR

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[199] *ECCC Report*, see note 4, at 26.
[200] *ECCC Report*, see note 4, at 24. [Emphasis added]
[201] *ECCC Report*, see note 4, at 22.
[202] *ECCC Report,* see note 4, at 23.
[203] *OECD Improving Markets*, see note 12, at 97.
[204] *CCME Strategy Report*, see note 29, at 8.
[205] *CCME Strategy Report*, see note 29, at 8-9.
[206] *CCME Strategy Report*, see note 29, at 23:
…signals to producers from a relatively small market like Canada may not be strong enough alone to influence new environmentally conscious product design and supply chain management. The environmental objectives of EPR may therefore need to be supported and reinforced by other measures, such as: eco-labelling; restrictions on toxic substances; recycled content standards and regulations; green procurement policies; environmental performance/voluntary agreements and a variety of other potential standards, bans, guidelines and educational tools.

Strategy,[207] recommends nine supporting measures aimed to bolster the effectivity of EPR schemes in Canada by focusing specifically on packaging.[208]

The Institute for European Environmental Policy and Reloop both acknowledge that EPR schemes are strengthened and rendered more effective when complementary measures are added.[209]

Principle One: Plan and implement the Circular Economy for Plastics with concerted, systemic and concurrent reforms that recognize the dynamic interplay among policy instruments chosen.

[207] See *CCME Action Plan*, see note 30.

[208] *CCME Strategy Report*, see note 29, at iii.

[209] *ReZero Report*, see note 31, at 5: "Notes that depending on the purpose and nuances of an EPR scheme, economic incentives and other policy mechanisms will need to be implemented in order to ensure success;" see also *IEEP ERP Report*, see note 33, at 6:

The effectiveness of EPR schemes in meeting reuse and recycling targets also tends to increase when EPR is coupled with economic instruments such as landfill and incineration taxes, disposal bans for certain products or materials, packaging taxes and pay-as-you-throw schemes. Instruments of this kind allow EPR systems to provide sound incentives for industries to improve their products and process and encourage behavioural change of all actors in the product value chain. [additional references omitted]

2. ALL ACTORS MUST PARTICIPATE

In keeping with the above, it is essential that all the actors and stakeholders in the plastics industry actively participate, collaboratively and cooperatively. Just as each measure chosen constitutes a complex network, the role that each actor plays in each measure is an additional connectivity/dependency link in an interdependent network system. Therefore, we recommend that Canadian governments strive to incorporate in each initiative roles, opportunities and obligations for all relevant actors.

Each actor will have their own unique role within each initiative. This is heavily dependent on the existing framework as well as federal/provincial/local division of power considerations. However, regardless of the eventual configuration chosen to form the Circular Economy for Plastics, creating this new system cannot be solved by any one actor alone.[210] Without systematic, cooperative and concurrent action by *all* actors, there may be a cascading failure of the system.

For example, the Canadian Council of Ministers of Environment has recognized that cooperative action from all actors and stakeholders is prerequisite for success of the overall systemic shift.[211] The CCME *Strategy for Sustainable Packaging* states:

> *CCME recognizes that, while producers bear the primary responsibility for managing packaging, there continues to be a role for CCME and its member governments to support industry as they transition to full EPR, as well as to assist all packaging actors in achieving greater packaging sustainability. Therefore, the Strategy sets out roles for both government and industry in implementing each of the supporting measures.*[212]

The CCME further notes that "…in the interim years as provinces and territories transition towards full EPR, collaborative efforts by industry, government and other stakeholders to implement the supporting measures set out in this Strategy can mutually benefit all actors."[213]

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[210] *ECCC Report*, see note 4, at 22.

[211] *CCME Strategy Report*, see note 29, at 15:
To support the implementation of new recyclability labels, CCME would work with industry, non-governmental organizations and other stakeholders in the development of an education and awareness campaign to help ensure that consumers have a clear understanding of the new recycling labels and how they apply to their local recycling systems.
Further, three of the nine supporting measures recommended in the CCME Strategy Report specifically focus on industry engagement or industry-led initiatives that foster cooperation between industry, consumers and government: industry-government working group; industry agreements; and development and implementation of industry-led educational initiatives, best practices and industry recognition programs: *CCME Strategy Report*, see note 29, at iii.

[212] *CCME Strategy Report*, see note 29, at iii. [Emphasis added]

[213] *CCME Strategy Report*, see note 29, at 11.[Emphasis added]

Similarly, Ontario's *Strategy for a Waste-Free Ontario: Building the Circular Economy* emphasizes that all actors must participate. The Strategy states that "[c]lear responsibilities will ensure everyone knows their role"[214] – and repeatedly emphasizes consultation with stakeholders and collaboration among relevant parties.[215]

Canadian Environment Ministers' Recommended Roles for Packaging Actors

The CCME describes the roles for multiple actors in the CCME *Strategy for Sustainable Packaging*:

> "While EPR shifts the primary responsibility for packaging onto the producers, the Strategy recognizes that there are a number of other actors in the packaging life cycle that play an important role in reducing packaging waste and achieving greater packaging sustainability. Participation from all actors is necessary to achieve the goals of this Strategy. For example:
>
> - *Federal Government* – can regulate federal requirements (e.g., labelling), facilitate research and analysis, implement national standards where appropriate
> - *Provinces and Territories* – can introduce EPR and other supporting requirements for managing packaging waste (such as landfill bans and surcharges), enforce EPR and other regulatory requirements, and set policy direction
> - *Municipalities* – in the interim, can establish their own initiatives to divert packaging waste from disposal, and later, as full EPR is implemented, can assist producers through participation in EPR programs where desired by both parties
> - *Waste Managers* – can support businesses and consumers in efforts to reuse and recycle packaging waste
> - *Producers* – can make packaging and design decisions that are more sustainable, improve end-of-life management, and support take-back of packaging
> - *Retailers* – can identify opportunities for improvements, influence suppliers to provide more sustainable packaging through purchasing decisions, and facilitate take-back of packaging
> - *Consumers* – can influence packaging design through purchasing decisions, and improve recovery rates of packaging through participating in diversion programs
> - *Non-Governmental Organizations* – can promote packaging reduction and sustainability through research and education."[216]

This principle of full participation is also endorsed by Smart Prosperity Institute: "governments at all levels have a vital role to play in catalyzing a circular economy for plastics."[217] As an example, the SPI Circular Economy Report discusses jurisdictional concerns that are inherent to Canada because of the Constitutional division of powers.[218] In

[214] See for example Ontario, "Strategy for a Waste-Free Ontario: Building the Circular Economy" (February 2017), at 20, online: <https://files.ontario.ca/finalstrategywastefreeont_eng_aoda1_final-s.pdf> ["*Ontario Strategy*"].
[215] See for example *Ontario Strategy*, see note 211, at 22.
[216] *CCME Strategy Report*, see note 29, at 10.
[217] *SPI Vision document*, see note 11, at 3.
[218] *Constitution Act, 1867* (UK), 30 & 31 Vict, c 3, reprinted in RSC 1985, App II, No 5 at ss. 91 and 92.

this discussion, it recognizes that Canadian provinces and territories have jurisdiction over waste policy, and by extension, EPR policy. However, it also notes that the success of each province's EPR programs could interact with, and require cooperation from, powers held by the federal government. For instance, though provinces and territories set EPR policy, the federal government has jurisdiction over offering Canada-wide guidelines, codes of practice, and overall bans of certain toxins under the *Canadian Environmental Protection Act*.[219]

The Environmental Law Centre has highlighted the role that the federal government can play in *A National Strategy to Combat Marine Plastic Pollution: A Blueprint for Federal Action*.[220]

The Environment Canada Report also recognizes the need for full participation from all actors:

- "There is no single public or private sector action that can shift the system; international benchmarks from ten European jurisdictions, and examples from US and Australian case studies demonstrated that a systemic approach is needed, acting in several areas concurrently. A wide range of policies and approaches can be used to achieve these objectives…"[221]
- One of the sets of interventions that has proven to be successful in achieving zero waste in other jurisdictions is "get everybody onboard to collect plastics."[222] The Report notes:

  > Reaching a zero plastic waste goal will require major concerted efforts from all stakeholders of the value chain, including producers, retailers, consumers, recycling actors, and the public sector… To trigger the systemic engagement of all parties, policy makers must consider several measures at different levels…[223]

- Finally, the Report describes four conditions for the "ambitious scenario" for 2030, which is based on a 90% diversion of plastics wastes from landfills. One of these conditions is that the current diversion rate must improve from 25% to 77%. To do this, the Report suggests a "[m]ulti-stakeholder (consumer, industry, government) push to collect more plastics waste from diversion."[224]

Still others recognize that all actors must participate in the Circular Economy for Plastics in order to ensure success during the transition, as well as long-term. For example, as the *Towards a Circular Economy* report notes, "[e]ffective cross-chain and cross-sector

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[219] *SPI Vision document*, see note 11, at 25. " Note that the Canadian Environmental Protection Act (CEPA) is discussed further in the section that follows on "Standardization and Harmonization"

[220] M Partridge, et al, "A National Strategy to Combat Marine Plastic Pollution: A Blueprint for Federal Action" (Environmental Law Centre: April 2018), online: <http://www.elc.uvic.ca/wordpress/wp-content/uploads/2018/04/2017-01-11_National-Marine-Plastics-Strategy-FINAL.pdf> ["ELC National Strategy"].

[221] *ECCC Report*, see note 4, at 22.

[222] *ECCC Report*, see note 4, at v.

[223] *ECCC Report*, see note 4, at 23.

[224] *ECCC Report*, see note 4, at 19.

collaboration are imperative for the large-scale establishment of a circular system."[225] Further, as the OECD book on improving recycling states: "[g]iven the diversity and scale of the challenge that markets for recycled plastics face, a range of measures and interventions will be needed. This will require close partnership amongst all stakeholders, including policy-makers, regulators, municipalities, industry and communities."[226]

A clear example of the necessity for concurrent and collaborative action is the success of the "PlasTax" in Ireland, discussed further below. In order to "support smooth implementation, the governance functions were clearly defined."[227] And the United Nations comments: "clear division of roles and responsibilities among local authorities were key for good governance and, regular monitoring and review of the tax ensured its continued effectiveness."[228]

Principle Two: All actors – *e.g.* governments, producers, retailers, stakeholders, consumers and non-governmental organizations – must participate in order for the overall system to function as effectively as possible. When implementing policy instruments, governments need to design them to ensure overall collaboration, co-operation and participation.

[225] *Ellen MacArthur, Towards the Circular Economy*, see note 8, at 60. [Emphasis added]
[226] *OECD Improving Markets*, see note 12, at 97. [Emphasis added]
[227] *UNEP Roadmap*, see note 11, at 47. [Emphasis added]
[228] *UNEP Roadmap*, see note 11, at 48.

3. STANDARDIZATION AND HARMONIZATION

The third key principle is that a Circular Economy will require a degree of standardization and harmonization. Common nationwide targets, policies, standards, programs, and definitions need to be set out.

Many experts and international organizations have noted this need for harmonization of policies, definitions and standards. For example, the Institute for European Environmental Policy specifically suggests: "harmonising criteria [in EPR programs] in order to reduce environmental impact and support the waste hierarchy by creating consistency across all jurisdictions."[229]

University of Ottawa's Smart Prosperity Institute raises the critical problem of Canada's "absence of nationally harmonized definitions & policies". The Institute argues that harmonization and standardization are necessary to achieve a Circular Economy for Plastics:

Different jurisdictions have chosen to adopt varying definitions for key elements of policy design (i.e. of materials, reuse, remanufacturing, recycling, circular economy, extended producer responsibility etc.), and varying performance standards and measurement protocols for assessing progress towards a circular economy. ***The effect is to undermine scale and efficiencies that could be derived from a Canada-wide plastics reverse supply-chain for the processing and recycling of collected plastics. A national system can only emerge under a consistent set of regulatory rules and definitions****.*[230]

The Institute describes how the lack of common standards and approaches blocks the Circular Economy:

…[I]nconsistent standards and policies and conflicting regulatory objectives; and [j]urisdictional fragmentation with Canadian provinces, territories and municipalities adopting widely differing regulatory approaches, definitions, performance standards, measurement protocols and administrative requirements. These differences act as barriers to

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[229] *IEEP ERP Report*, see note 33, at 25 [emphasis added]; see also *SPI Vision document*, see note 11, at 20: EPR regulations must… **Be applied consistently across provinces and territories.** …producer markets, recycler markets and consumers across Canada should have a common set of objectives across jurisdictions eliminating duplication and conflicting regulatory standards. Canada should create the opportunity for regional EPR-based systems that consolidate, process and recycle materials efficiently and effectively at scale. [Emphasis in original]

[230] *SPI Vision document*, see note 11, at 36. [Emphasis added]

developing large scale provincial, territorial and even pan-provincial resource recovery infrastructure.[231]

The Institute specifically recommends: "The federal government and the provinces and territories should establish a collaborative approach to national harmonization of definitions, standards, targets and measurement protocols."[232]

The Role of the *Canadian Environmental Protection Act* (CEPA)

The Smart Prosperity Institute has described the role the federal government can play in taking action on plastics using the CEPA:

> Given the jurisdiction afforded to it under CEPA, the federal government can play a vitally important role in increasing the efficiency of provincial waste management policies by collaborating with the provinces and territories to:
>
> - Set **national definitions** of a circular economy for plastics and EPR that capture key characteristics of sound life-cycle principles and policy design that provinces and territories can adopt for circular economy policy implementation;
> - Establish national definitions for classes of products, packaging and materials to be regulated under provincial implementation and administration of EPR. These include relevant definitions of plastics based on composition and recyclability; by extension,
> - Establish a common Canadian set of protocols for producers to register and report the quantity and composition of their supply of plastic products, products containing plastics and plastic packaging;
> - Set national plastics performance standards for recycling and recycled content targets. Such standards would ensure that wherever plastics are recycled they are recycled to a common operating standard, thus preventing past practices of exporting mixed and contaminated plastics to jurisdictions with poor recycling practices;
> - Establish a common Canadian set of targets for measuring progress towards a circular economy for plastics. By extension, establish a national plastics mass balance and national reporting of avoided environmental burdens;
> - Establish rules for government procurement of supplies and services that consume or use plastic products, plastic containing products, and plastic packaging that incorporate the national recycled content target;
> - Establish a national schedule of increasingly stringent plastics recycling targets and recycled content standards; and,
> - Coordinate the identification and tracking of producers, products and packaging designated under EPR as imported into Canadian jurisdictions via e-

[231] *SPI Vision document*, see note 11, at 16.
[232] *SPI Vision document*, see note 11, at 3.

commerce/online sales.[233]

[Note that the Environmental Law Centre has recommended that the federal government commit to creating national standards, criteria and best practices to meet national targets for reducing plastic pollution – and commit to harmonizing legislated Extended Producer Responsibility requirements across the country.][234]

The Environment Canada Report also recognizes the issues that arise from the current patchwork of policies and initiatives in Canada,[235] and thus recommends:

> *[P]policy-makers need to aim for greater harmonization at the national level. The present approach to recycling in Canada (e.g., collection schemes such as EPR, fees and tax on landfilling, provincial legislation and regulation) is fragmented and can lead to confusion. A concerted approach would bring clarity to the various stakeholders.*[236]

The Environment Canada Report also notes that standards and clear labels could be part of the efforts to "expand all value-recovery options… [by ensuring] consistent and clear standards and labelling to help establish further integrated North American recycling/reprocessing capacity."[237]

There are benefits that flow from standardization and harmonization, particularly in the Canadian multi-jurisdictional federal context. The Canadian Council of Ministers of the Environment describes the benefits of a harmonized Canada-wide approach as follows:

- "Canada-wide implementation of many of the supporting measures can help improve the efficacy and consistency of the measures, reduce administrative costs and burdens for industry, and increase the impact of the measures to influence packaging redesign;"[238]
- "A Canada-wide approach to EPR for packaging can help to create a level playing field for industry, ease regulatory burdens on industry, and place provinces and territories in a better position to drive sustainable packaging design and reduction;"[239]

[233] *SPI Vision document*, see note 11, at 25-26. [Emphasis added]
[234] *ELC National Strategy*, see note 217, at 3.
[235] For example, *ECCC Report*, see note 4, at 11: "[t]here is no labelling requirement, standardized chemistry or standardized degradation time for biodegradable plastics, and even certified compostable plastics are not accepted by many composting facilities in Canada due to differences between the certification requirements and their operating conditions."
[236] *ECCC Report*, see note 4, at 26.
[237] *ECCC Report*, see note 4, at 24.
[238] *CCME Strategy Report*, see note 29, at 11.
[239] *CCME Strategy Report*, see note 29, at ii.

- "A consistent set of indicators to measure the performance of EPR programs for packaging in each province/territory would support harmonized requirements and enable Canada-wide assessment of packaging waste;"[240]
- "Through a harmonized approach across the country, an emphasis on resource efficiency and continuous eco-innovation, and a producer- and consumer-driven demand for sustainably packaged products, Canada can become a world leader in sustainable packaging;"[241]
- "…collaborative efforts by industry, government and other stakeholders to implement the supporting measures set out in this Strategy can mutually benefit all actors;"[242]
- "…there is no standard set of packaging sustainability indicators for use across Canada. A uniform, Canada-wide set of sustainability indicators could assist all actors in the packaging life cycle – governments, producers, consumers – in taking consistent actions nationwide;"[243] and
- "A harmonized Canada-wide approach to recyclability labels would facilitate national consistency in labelling claims and minimize confusion among industry and consumers. A Canada-wide recyclability label would also support the Canadian Standards Agency's *Environmental Claims: A Guide for Industry and Advertisers* by providing greater guidance on the appropriate use of self-declared environmental claims (i.e., labels) of recyclability."[244]

Case Study: European Union's Standardization Directive

The European Union has recognized that standardization and harmonization will be necessary elements of achieving success in their transition to a Circular Economy. Article 10 of the European Commission Directive 94/62/EC calls for the creation of European standards in a number of areas. Specifically:

> The Commission shall promote, in particular, the preparation of European standards relating to:
>
> - criteria and methodologies for life-cycle analysis of packaging,
> - the methods for measuring and verifying the presence of heavy metals and other dangerous substances in the packaging and their release into the environment from packaging and packaging waste,
> - criteria for a minimum content of recycled material in packaging for appropriate types of packaging,
> - criteria for recycling methods,
> - criteria for composting methods and produced compost,
> - criteria for the marking of packaging.[245]

[240] *CCME Strategy Report*, see note 29, at 5-6.
[241] *CCME Strategy Report*, see note 29, at 9.
[242] *CCME Strategy Report*, see note 29, at 11.
[243] *CCME Strategy Report*, see note 29, at 17.
[244] *CCME Strategy Report*, see note 29, at 15.
[245] EC, *European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste,* [1994] OJ, No L 365/10 at Article 10 ["*EU Directive 94/62/EC*"].

Additionally, Article 10 also calls for the preparation of European standards relating to: (i) requirements specific to the manufacturing and composition of packaging; (ii) requirements specific to the reusable nature of packaging; and (iii) requirements specific to the recoverable nature of packaging.[246]

In a similar vein, Smart Prosperity Institute's third recommendation is to create:

> *"common definitions, performance standards, measurement and assessment protocols that serve to create administrative efficiency, reduce transaction costs for participants in the plastics life-cycle and facilitate the scaling up of reverse supply chains to pan-provincial and territorial regional systems that have scale efficiencies."*[247]

That Institute is not alone. The Organization for Economic Co-operation and Development, the Canadian Council of Ministers of Environment, the Institute for European Environmental Policy and the European Commission have made similar arguments. It is clear that standardization and harmonization of the standards, programs, definitions, targets, labeling, criteria and policies is needed. Standardization and harmonization across jurisdictions is necessary for all the individual initiatives and policies to function optimally. A Canada-wide Circular Economy for Plastics cannot be achieved without making the current patchwork of standards and policies consistent.

Principle Three: Governments should collaborate with stakeholders to standardize and harmonize standards, programs, definitions, targets, labeling, criteria and policies.

Ontario's *Strategy for a Waste-Free Ontario: Building the Circular Economy* emphasizes the importance of standardization and harmonization. The Strategy discusses establishing environmental standards to result in "providing greater certainty to markets, leveling the playing field, and supporting producer responsibility, generator responsibility and service provider requirements to increase resource recovery."[248] It contemplates different types of standards, including regulatory requirements, guidelines, best practices and certification programs. The province intended to consult with stakeholders to determine which standards are most appropriate, and to harmonize with other jurisdictions.

[246] *EU Directive 94/62/EC*, see note 242, at Article 10 and Annex II.

[247] *SPI Vision document*, see note 11, at 18.

[248] See for example *Ontario Strategy*, see note 211, at 34.

4. MANDATORY TARGETS, TRACKING OBLIGATIONS AND REPORTING REQUIREMENTS

To reach our Circular Economy goal, we need to know three things: where we are, where we are going, and where we want to end up. Collecting baseline data, creating ongoing monitoring and reporting requirements, and implementing specific measurable targets are all vital. As the World Business Council for Sustainable Development describes:

> *Having consistent and robust data to assess the current status as a baseline is crucial to target setting and action. By monitoring specific targets, policymakers can hold parties responsible for their actions in a given timeframe, while long-term target planning provides stability for circular investment and business planning. Ongoing monitoring allows for review, reflection and adjustment to the changing market, resulting in more effective implementation. Finally, this [policy] enabler provides clear and tangible messages for actions and signals businesses and civil society can readily absorb.*[249]

Measurable Targets

The Smart Prosperity institute has called on Ottawa to establish a common Canadian set of targets for measuring progress towards a circular economy for plastics.[250] Similarly, the Environmental Law Centre has recommended that the federal government work with other Canadian governments to create national targets for reducing plastic pollution.[251]

There are a number of ways to set and use measurable targets:

- As broad nation-wide targets that use performance indicators to measure the overall progress towards a Circular Economy for Plastics;[252]

[249] *WBCSD Report*, see note 19, at 16.

[250] *SPI Vision document*, see note 11, at 25-26.

[251] *ELC National Strategy*, see note 217, at 3.

[252] *SPI Vision document*, see note 11, at 26: "Establish a common Canadian set of targets for **measuring progress towards a circular economy for plastics**. By extension, establish a national plastics mass balance and national reporting of avoided environmental burdens."

- As mandatory recycling targets, either for a specific jurisdiction,[253] or on specific EPR programs or product;[254]
- As combined targets that coordinate increasingly stringent plastics recycling targets with recycled content standards.[255]

There are many benefits that flow from measurable targets. Setting measurable targets can:

- Lead to tangible results and hold stakeholders accountable for their progress;[256]
- Help specify and benchmark measurable progress;[257]
- Display a high level of commitment/dedication to the transition to a Circular Economy;
- Make initiatives, policies and programs more effective by mandating measurable results – particularly EPR;[258]

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[253] See European Commission, "Waste Framework Directive" (7 August 2019), online: <https://ec.europa.eu/environment/waste/framework/targets.htm>:
In order to comply with the objectives of this Directive, and move towards a European recycling society with a high level of resource efficiency, Member States shall take the necessary measures designed to achieve the following targets:
by 2020, the preparing for re-use and the recycling of waste materials such as at least paper, metal, plastic and glass from households and possibly from other origins as far as these waste streams are similar to waste from households, shall be increased to a minimum of overall 50 % by weight;
by 2020, the preparing for re-use, recycling and other material recovery, including backfilling operations using waste to substitute other materials, of non-hazardous construction and demolition waste excluding naturally occurring material defined in category 17 05 04 in the list of waste shall be increased to a minimum of 70 % by weight.
The rules and calculation methods for verifying compliance with the targets set in Article 11(2) are laid down in Commission Decision 2011/753/EU.

[254] *CCME Strategy Report*, see note 29, at 5: "The Action Plan states that EPR programs should include measurable targets by product category to ensure waste reduction, waste diversion and proper end-of-life management;" see also *ECCC* Report, see note 4, at 23: "To ensure effectiveness, EPR programs should target specific products and include standardization requirements, secondary material use requirements, and set trackable targets."

[255] *SPI Vision document*, see note 11, at 26: "Establish a national schedule of increasingly stringent plastics recycling targets and recycled content standards."

[256] *WBCSD Report*, see note 19, at 15.

[257] *WBCSD Report*, see note 19, at 15.

[258] *SPI Vision document*, see note 11, at 19:
To be effective, EPR regulations must: **Assign individual producers the regulatory responsibility for achieving performance outcomes.** While producers will almost certainly collectivize their recycling efforts, the individual liability for meeting targets will provide them with a strong incentive to ensure their collective actions towards regulatory compliance are effective. **Require Stringency** (*i.e*. set high plastics recycling targets). Stringency incentivizes producers to undertake meaningful plastics collection and recycling efforts. Low stringency entrenches low performing collection and recycling systems, limits scale efficiencies, thwarts new collection and recycling practices, and discourages investment in innovative technologies that would otherwise arise to meet more aggressive environmental targets" [Emphasis in original, additional references omitted]
See also *WBCSD Report*, see note 19, at 20: "[Mandated] clear targets can aid, prioritize and encourage strong action and implementation."
See also *ECCC Report*, see note 4, at 23:
Create sector requirements and mechanisms to support compliance. Approaches such as [EPR] or performance agreements have the capacity to engage the entire value chain to rethink plastic usage. The most effective

- Help support the expansion of all value-recovery options by creating consistency in terms of the amount of recycled resin that will be on the market;[259] and
- Foster industry-wide cooperation and innovation through uniform and measurable performance standards. Consistent measurable targets can drive producers and manufacturers to transition to supply chains that involve commercial collaborations amongst themselves, private collection and processing companies and local governments.[260]

Some International Examples of Targets

The European Union has set a target for 55% of all plastic to be recycled by 2030 and a target to reduce the use of bags per person from 90 a year to 40 by 2026."[261]

A United Nations report describes the prevalence of recycling requirements and targets around the world:

> Fifty-one (51) countries were found to have explicit regulatory mandates regarding recycling beyond general policy objectives. The regulations vary, with most countries' regulations limited to general requirements and/or targets for plastics recycling, while other countries require recycling as a component of EPR. Of the 51 countries with some type of recycling mandate, 26 countries include specific recycling targets.[262]

Tracking and Monitoring

In order for targets to be meaningful and effective, there must be a way to track progress along the way. This tracking information must be transparent and accessible, so that the public can see if promised change is occurring. Both targets and standard requirements must be accompanied by tracking/monitoring obligations – and by requirements for systematic public reporting. This concept has been recognized by international organizations and leading thinkers on the Circular Economy.[263] It has also been strongly endorsed by the Canadian Council of Ministers of the Environment – in the Council's *Strategy for Sustainable*

programs would target specific products and include standardization **requirements**, secondary material use **requirements**, and **set trackable recycling targets**. [Emphasis added]

[259] *ECCC Report*, see note 4, at 24; see also *OECD Improving Markets*, see note 12, at 149: "[Recycling targets can] drive supply of [recycled] material, increase economies of scale, reduce costs and increase resilience."

[260] *SPI Vision document*, see note 11, at 21: "Increasingly stringent recycling targets drive innovation both in terms of informing design of products and packaging for increased reuse and recyclability, but also in terms of recycling systems design to more effectively sort and process materials for use in manufacturing;" see also at 27, which describes Norway's "stringent recycling target [which] has driven the standardization of bottle and cap plastics to two resin types as well as consistent design for label and glue to increase recycling efficiency."

[261] *UNEP Legal Limits*, see note 29, at 44.

[262] *UNEP Legal Limits*, see note 29, at 63.

[263] See for example, *WBCSD Report*, see note 19, at 15.

Packaging; two of the nine recommended measures focus on monitoring, tracking, and reporting.[264]

Benefits

- Tracking waste management and value recovery activities can facilitate tracking progress and competitiveness of Canada's broader recycling industry – and its transition to a Circular Economy for Plastics against international benchmarks;[265]
- Tracking the performance of specific EPR programs or specific products under an EPR program allows for measuring their performance – and identifying areas that may need adjustment;[266]
- Tracking and monitoring progress allows for the verification of outcomes. When tracking shows companies falling short of clearly-stated targets, heightened public disapproval and government enforcement is more likely – and can prompt improvement. Publicly verifying outcomes also ensures a level playing field for all industry actors, because the standards and targets apply transparently to all players;[267] and
- Tracking "key performance indicators" – such as collection and diversion rates, as well as packaging reduction, recycled content, recyclability, compostability, product-to-packaging ratio, and avoided greenhouse gas emissions[268] – can allow for more nuanced assessments of what specifically needs to change in individual aspects of the plastics economy. Key performance indicators can help measure progress towards the overall target or goal.[269]

Public Reporting

Measurable targets, and tracking requirements must be combined with mandatory, regular public reporting requirements. If there is not an obligation to report on progress, only those who have achieved progress are likely to report. In contrast, those actors who are falling short are not likely to disclose this information, unless obligated. Public reporting of

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[264] See *CCME Strategy Report*, see note 29, at iii: 1) "Adoption of Canada-wide *sustainability indicators and metrics* that can be used to assess the sustainability of packaging over its entire life cycle;" and 2) "Exploration with industry of the potential development of an *index* used to measure on packaging sustainability across Canada." [Emphasis in original] CCME also specifically recommends, at p 6, that "[e]ach EPR program should include reporting requirements to establish baselines, track performance and measure progress towards the program targets."

[265] *ECCC Report*, see note 4, at 26.

[266] *CCME Strategy Report*, see note 29, at 5-6: "A consistent set of indicators to measure the performance of EPR programs for packaging in each province/territory would support harmonized requirements and enable Canada-wide assessment of packaging waste."

[267] *SPI Vision document*, see note 11, at 19.

[268] *CCME Strategy Report*, see note 29, at 6.

[269] *CCME Strategy Report*, see note 29, at 20.

progress made creates a powerful incentive for companies to constantly strive to improve their operations. When they must report to the public on their progress in meeting recycling targets, they will do a better job at that task. As US Supreme Court Justice Louis Brandeis once noted, "Sunlight is the best disinfectant. Electric light is the best policeman."

In addition, as a fundamental principle of democracy, matters of public interest should routinely be disclosed to the public, as is already required under numerous laws and legal decisions.[270] Clearly the progress being made to reduce the environmental toll of the plastics industry is a matter of such public interest.

Therefore, we recommend that all actors with targets and tracking obligations also be subject to regular public reporting requirements.

Public reporting by both companies and government is recommended by the Canadian Council of Ministers of Environment.[271] The Council recommends that each province and territory gather and report its own data, while also recommending harmonizing the data collection metrics and the reporting indicators, so that there is Canada-wide standardization.[272] Mandated reporting on the progress of plastics recycling is specifically endorsed by the OECD.[273] Companies and governments alike should report regularly on their progress.

Case Study: Ireland's "PlasTax"

The history of Ireland's tax on plastic bags (Plastax) provides an excellent example of how reporting requirements can advance the Circular Economy:

"[a]fter four years from the introduction of the 'PlasTax', **a regulatory impact assessment** revealed that plastic bag usage had risen to 31 bags per person. As a result, in July 2007 the levy was raised [from €0.15] to €0.22. Again, bag consumption decreased. With the aim of keeping the use of plastic bags to a maximum of 21 bags per person per year, the 2011 legislation passed to allow the levy to be amended once a year, with a ceiling at €0.70 per bag."[274]

[270] For example, see s. 25 of British Columbia's *Freedom of Information and Protection of Privacy Act*, and the BC Commissioner's decisions in "*Clearly in the Public Interest: The Disclosure of Information Related to Water Quality in Spallumcheen",* 2016 BCIPC No. 36.

[271] *CCME Strategy Report*, see note 29, at 12-13, 17 and 20.

[272] *CCME Strategy Report*, see note 29, at 6: "Each province/territory will gather and report its own data. Jurisdictions are encouraged to move towards harmonized data and reporting indicators."

[273] *OECD Improving Markets*, see note 12, at 150: "Introduce mandatory data reporting mechanisms for plastics recycling."

[274] *UNEP Roadmap*, see note 11, at 47.

Reporting on Major EPR Programs Across the Country

Part of the CCME Strategy for Sustainable Packaging is "tracking performance of the priority EPR programs." This involves identifying protocols, responsibilities and timelines which contribute to, and result in, an annual national status report on the performance of the main EPR programs.

As part of this, the CCME has identified several key performance indicators to measure progress in the national annual status report:

- kilograms per capita captured or recovered;
- dollars per kilogram captured or recovered;
- per cent of waste captured, per cent of waste recovered; and
- avoided greenhouse gas emissions.[275]

Case Study: The Ontario Strategy on Targets, Tracking and Reporting

Mandatory Targets, Tracking Obligations and Reporting Requirements: Ontario's Strategy for a Waste-Free Ontario: Building the Circular Economy The Strategy includes three "interim goals": 30% diversion rate by 2020; 50% diversion rate by 2030; and 80% diversion rate by 2050.[276] It also establishes a Resource Productivity and Recovery Authority, which is a not-for-profit organization that oversees producers' performance under the EPR regime and the operation of existing waste diversion programs until they are transitioned to the new system. The Authority collects data from producers to effectively monitor and assess producers' performance and to help the government make policy decisions. It will make this data available to the public through a public-facing registry. It also conducts compliance and enforcement activities with inspection powers, the power to issue compliance and administrative penalty orders and the ability to conduct investigations.[277]

Principle Four: Governments must ensure collection of baseline data and set mandatory, measurable targets. Regular and transparent monitoring and reporting should be mandatory for both governments and companies.

[275] *CCME Strategy Report*, see note 29, at 24.

[276] See for example *Ontario Strategy*, see note 211, at 10.

[277] See for example *Ontario Strategy*, see note 211, at 14.

5. EDUCATION UNDERPINS ALL THE INITIATIVES

Education and awareness programs, campaigns and guides are necessary for the success of individual initiatives, and for success of the overall transition to a Circular Economy for Plastics. This important principle must be incorporated into all aspects of Canada's Circular Economy for Plastics. The reason for this is simple: no program or policy will be successful if consumers and industry-actors are not aware of it, do not understand how it can benefit them and society, or do not understand how to participate positively. This is particularly true in the case of the Circular Economy for Plastics, because it requires the participation of all actors in concert.

As the United Nations Environment Programme points out, "[p]ublic awareness is a common denominator for the success of any of the above-mentioned initiatives aiming at having a broader social impact (whether dictated by law or engaged in voluntarily). Similarly, awareness raising, monitoring and continued communication of progress to the public will help to build confidence and strengthen commitment to the cause."[278]

Towards a Circular Economy calls for integrating Circular Economy concepts "into university curricula and outreach programs to increase awareness in the general public and business, science and engineering communities."[279] It highlights how important higher education is for training people in the skills necessary for a Circular Economy. For instance, sophisticated technological innovation is absolutely essential if we are to constantly improve eco-designs. It will also be necessary to increase the capacity of our current recycling methods and facilities. Training the best possible scientists, engineers and designers in these areas will be essential.

Educating the public will be equally critical – one of the three aims of the Council of Canadian Ministers of Environment SSP Report is "to increase awareness and information about packaging reduction and sustainable packaging choices."[280] The CCME acknowledges that even if every initiative in its initial EPR Strategy were implemented, if people do not participate in the programs or know how to properly return deposit items, the programs will fail.

This view is echoed in the Environment Canada Report: one of the measures to increase efficiency throughout the recycling value chain is "educating and engaging actors and consumers throughout the value chain to increase awareness of recycling."[281]

There are two distinct groups that education and awareness campaigns must reach in particular: (i) consumers/ the public; and (ii) industry-actors (producers, manufacturers and retailers).

[278] *UNEP Roadmap*, see note 11, at 66.
[279] *Ellen MacArthur, Towards the Circular Economy*, see note 8, at 60.
[280] *CCME Strategy Report*, see note 29, at 2.
[281] *ECCC Report*, see note 4, at 25.

Public Awareness

At present, much of the public does not yet fully understand the severity of the plastic pollution crisis. This limited public awareness contributes to the problem. Public education programs can help prepare citizens for the changes involved in the transition to and implementation of the Circular Economy for Plastics. Fortunately, in the past, education campaigns directed at plastic users have proven effective in driving significant changes in consumer behavior.[282]

Education and awareness campaigns aimed at the public can:

- Increase awareness of the general issue of plastic pollution and our current recycling framework;[283]
- Encourage the correct recycling and proper disposal of plastics, which reduces overall waste and recycling stream contamination;[284]
- Drive behavioural change by educating consumers so they can make green purchasing choices, and begin to shift to a reuse and repair society;[285]
- Increase participation in programs and initiatives by improving public information;[286] and
- Educate the public on, and garner support for, policies and laws aimed at solving the plastics problem.

As Smart Prosperity Institute recognizes, transition to a Circular Economy for Plastics will happen through evolution not revolution: "It also involves shifting consumer cultural norms to change patterns in the consumption and use of plastics, increase participation in circular resource recovery systems, and to prevent plastic pollution."[287]

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[282] Parliament of Australia, The Threat of Marine Plastic Pollution in Australia (20 April 2016), Chapter 8 Conclusion and Recommendations, at s. 8.63 (p 150), online: <http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/Marine_plastics/Report>.

[283] *Ellen MacArthur, Towards the Circular Economy*, see note 8, at 9.

[284] *CCME Strategy Report*, see note 29, at 15: "To support the implementation of new recyclability labels, CCME would work with industry, non-governmental organizations and other stakeholders in the development of an education and awareness campaign to help ensure that consumers have a clear understanding of the new recycling labels and how they apply to their local recycling systems." *ECCC Report*, see note 4, at 23: "[Measure] Increased public awareness, [Rationale] Promote public awareness to enhance recycling program participation."

[285] *ECCC Report*, see note 4, at 25, describes a measure to extend lifetime in order to delay waste generation: "education: support communication campaigns that encourage repair and reuse, including labels (e.g., similar to energy star, specific labels could be developed to indicate product longevity);" see also *CCME Strategy Report*, see note 29, at 13: "Greater awareness of the certification would allow for better end-of-life management of compostable materials and help to avoid contamination of both composting and recycling systems."

[286] *ECCC Report*, see note 4, at v: "improve public information on collection and recyclability" is a key measure of the intervention labelled "get everybody onboard to collect all plastics."

[287] *SPI Vision document*, see note 11, at 3.

Case Study: Antigua and Barbados' Awareness-Raising Campaign

An interesting example of a behavioural change and public awareness initiative is found in Antigua and Barbados. The country initiated an awareness-raising campaign titled "I'm making a difference one bag at a time." This campaign included television short clips by the Minister of Health and the Environment, which provided progress information on the ban, as well as feedback from stakeholders. Additionally, a jingle that promoted the use of reusable bags accompanied the campaign.[288]

Education of Industry Actors

As noted by the European Union, "resistance to change among product manufacturers and a lack of knowledge of the additional benefits of closed-loop recycled plastics have also emerged as barriers to the higher uptake of recycled content."[289] Sometimes the biggest obstacle to industry change is simply a lack of knowledge of exactly how to redesign the industrial activity and the inertia of "We have always done it this way!" Many experts have identified information barriers and attitude barriers as major obstacles to change.[290] Education can show industry actors how to make positive changes, and why a new approach may be better.

Educational campaigns aimed at industry-actors can:

- Provide them with information and technical know-how, enabling them to shift to eco-design and more recyclable resin types;[291]
- Garner support for the transition to a Circular Economy by showing the economic benefits for industry;[292]
- Support industry stakeholders in their transition to a Circular Economy;[293]
- Shift producers towards more recyclable packaging and products to maintain a "greener" image;[294] and
- Create the skills base to drive innovation and development of the Circular Economy.[295]

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[288] *UNEP Roadmap*, see note 11, at 59-60.

[289] *SPI Vision document*, see note 11, at 34.

[290] See the authorities discussed in Calvin Sandborn, *Preventing Toxic Pollution: Toward a British Columbia Strategy* (1991), pp. 71-72, online: West Coast Environmental Law <https://www.wcel.org/sites/default/files/publications/Preventing%20Toxic%20Pollution%20-%20Toward%20a%20British%20Columbia%20Strategy.pdf>.

[291] *CCME Strategy Report*, see note 29, at 14: "A number of marked products, although technically recyclable, are not accepted in many recycling systems. For example, of the seven resin codes for plastics, only #1 and #2 are accepted in most Canadian recycling programs."

[292] See for example; *Ellen MacArthur, Towards the Circular Economy*, see note 8.

[293] *CCME Strategy Report*, see note 29, at 17: "encourages the development of industry-led educational initiatives, best practices guidance and industry recognition programs that promote sustainable packaging design, and will work with industry to identify roles for government cooperation."

[294] *CCME Strategy Report*, see note 29, at 15.

[295] *Ellen MacArthur, Towards the Circular Economy*, see note 8, at 9.

According to the CCME, "educational programs for product and packaging designers can include:

- Guidelines, such as the Sustainable Packaging Coalition's Design Guidelines for Sustainable Packaging;
- Sector-based educational materials, including examples of packaging best practices for individual sectors;
- Websites for industry with online access to educational resources on sustainable packaging design; [and]
- Educational courses, such as the Packaging Association of Canada 'Essentials of Sustainable Packaging' one-day course and Wal-Mart's 'Sustainable Packaging' tradeshow."[296]

Principle Five: Education programs for the public, businesses, universities, designers, engineers, scientists and industry, are necessary. Innovative technologies and systems, pilot programs and civil society collaborations should be encouraged.

[296] *CCME Strategy Report*, see note 29, at 17-18.

6. RESEARCH AND DEVELOPMENT MUST BE AN ASPECT OF ALL CHOSEN INITIATIVES

Innovative research and development will be a necessary part of almost all aspects of transitioning to a Circular Economy for Plastics. As the Smart Prosperity Institute has argued: "There are technological barriers to circularity: existing products and packaging and reuse and recycling systems do not receive enough focused effort on innovation because in concert, the other barriers discussed here provide innovators with little incentive to do so."[297]

The recognition that innovation – both technological and otherwise – is a prerequisite to a full transition to a Circular Economy for Plastics is pervasive throughout the leading reports on this subject. Thus, the final recommendation of this report is to embrace the need for research, development and innovation as a part of every stage and aspect of Canada's Circular Economy for Plastics.

Towards a Circular Economy notes that "all parties need access to financing and risk management tools to support capital investment and R&D."[298] It further suggests that fostering research and development activities that are specific to circular production will advance support for the adoption of circularity in business practices.[299] It also describes innovation's role in speeding the transition:

> *Material and technological innovation is a core enabler for fast-tracking transformation from a linear into a circular economy. While many of the proposed alterations on the journey to a circular economy will be gradual, innovation could likely lead to a more disruptive and accelerated arrival. Also, while the analysis provided in this report is based on materials and processes known today, a focusing of innovative forces on the restorative circular economy model may lead to opportunities that are currently unknown to the economy.*[300]

Likewise, the Environment Canada Report notes the need to support innovation and development in product design, as well as in the potential uses for secondary plastics.[301] Similarly, the CCME report, *A Canada-Wide Strategy for Sustainable Packaging,* recommends extensive investment into research and development. Indeed, one of the

[297] *SPI Vision document*, see note 11, at 16.
[298] *Ellen MacArthur, Towards the Circular Economy*, see note 8, at 60.
[299] *Ellen MacArthur, Towards the Circular Economy*, see note 8, at 46.
[300] *Ellen MacArthur, Towards the Circular Economy*, see note 8, at 56.
[301] *ECCC Report*, see note 4, at 22.

three main aims of the report is to "support the development of better systems to optimally recover packaging materials."[302]

Principle Six: Research, development and innovation to overcome technological barriers to circularity should be encouraged.

[302] *CCME Strategy Report*, see note 29, at 2.

Appendix A: Additional Resource and Useful Links

Circular Economy 'Plans'

Canada:

- Smart Prosperity Institute, "A Vision for a Circular Economy for Plastics in Canada: The Benefits of Plastics Without the Waste and How We Get it Right" (February 2019) online: <https://institute.smartprosperity.ca/sites/default/files/report-circulareconomy-february14-final.pdf>
- Deloitte & Cheminfo Services Inc., "Economic Study of the Canadian Plastic Industry, Markets and Waste" (Environment and Climate Change Canada: 2019) online: <http://publications.gc.ca/collections/collection_2019/eccc/En4-366-1-2019-eng.pdf>

European Union:

- European Commission's webpage on the Circular Economy: <https://ec.europa.eu/environment/circular-economy/>
- Links to all documents related to European Commission's Circular Economy for Plastics: <https://ec.europa.eu/commission/publications/documents-strategy-plastics-circular-economy_en>
- European Commission, "A European Strategy for Plastics in a Circular Economy" (2018) online: <https://ec.europa.eu/environment/circular-economy/pdf/plastics-strategy-brochure.pdf>
- Emma Watkins & Jean-Pierre Schweitzer, "Moving towards a circular economy for plastics in the EU by 2030" (Institute for European Environmental Policy: October 2018), online: <https://ieep.eu/uploads/articles/attachments/9bfa01ed-ee47-4a3e-bab8-3768db822734/Think%202030%20A%20circular%20economy%20for%20plastics%20by%202030.pdf?v=63721498544>

International:

- Ellen MacArthur Foundation website that lists all Publications: online: <https://www.ellenmacarthurfoundation.org/publications>
    - *Towards the Circular Economy Volumes 1-3*, published 2012-2014, are excellent foundational publications for understanding a circular economy
    - *Delivering the Circular Economy: A Toolkit for Policymakers*, published in 2015, provides a methodology, as well as offering a case study of Denmark

    - *Reuse: Rethinking packaging*, published in June 2019, endorses reuse as an important aspect of the waste hierarchy
- United Nations Industrial Development Organization, "Circular Economy" (accessed November 2019) online: <https://www.unido.org/sites/default/files/2017-07/Circular_Economy_UNIDO_0.pdf>
- United Nations Environment Programme, "Single-Use Plastics: A Roadmap for Sustainability" (2018) online: <https://www.unenvironment.org/resources/report/single-use-plastics-roadmap-sustainability>
- Organization for Economic Co-operation and Development, "RE-CIRCLE: resource efficiency and circular economy" (April 2018) online: <https://www.oecd.org/environment/indicators-modelling-outlooks/brochure-recircle-resource-efficiency-and-circular-economy.pdf>
- Organization for Economic Co-operation and Development, "Improving Markets for Recycled Plastics: Trends, Prospects and Policy Responses" (2018) online: <https://www.oecd-ilibrary.org/docserver/9789264301016-en.pdf?expires=1574982245&id=id&accname=ocid177125&checksum=B5BC086589D38852116A340E88DB2C65>

Tracking, Monitoring and Public Reporting Resources

- European Commission, "Report on Critical raw Materials and the Circular Economy" (2018), online (pdfs): <https://ec.europa.eu/docsroom/documents/27327>
- European Commission, "Communication from the commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on a monitoring framework for the circular economy" (2018) online: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018DC0029&from=EN>
- European Commission, "Clear targets and tools for better waste management" (2015), online: <https://ec.europa.eu/commission/sites/beta-political/files/circular-economy-factsheet-waste-management_en.pdf>

Education, Awareness and Behavioural Change Resources

- Jan Maskell, "The Psychology of Cutting Plastic Pollution" (2 July 2019) responsible Science Journal no. 1, online: <https://www.sgr.org.uk/sites/default/files/2019-07/SGR-RS01_Psychology_of_plastic_pollution.pdf>
- Keep America Beautiful website: <https://kab.org/>
- Keep America Beautiful, "Recycle-Bowl: Competition Fosters School Recycling" (June 2013), online: <https://kab.org/wp-content/uploads/2019/11/Recycle-Bowl_Behavior-Change-Effectiveness-Study.pdf>
- European Commission, "Behavioural Study on Consumers' Engagement in the Circular Economy" (October 2018), online: <https://ec.europa.eu/info/sites/info/files/ec_circular_economy_final_report_0.pdf>