

This document has been prepared as part of the implementation project of Legal Pathways to Deep Decarbonization (Michael B. Gerrard and John C. Dernbach, eds. Environmental Law Institute [2019]) (LPDD). For background information on the project, see <https://lpdd.org>.

## **Memorandum to Accompany Model Circular Economy Local Resolution<sup>1</sup>**

### **I. Introduction**

As governments look to revitalize pandemic-damaged economies, there is no better time to begin the transition to a system that is more efficient, saves money, promotes opportunity, and protects our communities from pollution and toxic contaminants. Our current economy extracts resources from nature, manufactures products for brief use, and generates staggering amounts of garbage and pollution.<sup>2</sup> Cities, towns, and counties can support economic recovery and long-term sustainability by passing resolutions that get them started on the path to a circular economy -- an economic system that minimizes resource extraction and waste, while providing better jobs, and reducing pollution. This memo explores how local governments such as cities and counties can support the transition to a circular economy, detailing benefits, the roles and opportunities for local government, and how a resolution can identify specific commitments to set this transition in motion.

### **II. What Is a Circular Economy?**

A circular economy is an economic system that minimizes resource extraction and reduces resource use and waste by ensuring that all resources cycle indefinitely. In a circular economy, products and services are reused or converted into new forms; biological materials return to natural systems while non-biological materials experience long term use and reuse in production.<sup>3</sup> Circular economies encourage companies to design their products for reuse, recycling, or upcycling, while also necessitating reduced consumption and key steps by governmental and private actors.<sup>4</sup> While sometimes conflated with recycling itself, a circular economy requires far more significant steps to reduce resource use and eliminate waste. Circular economies are different than traditional linear economies, in which materials are extracted to build products with short lifespans that are then thrown away. A circular economy takes into account the finite limits of resources available as well as the societal and environmental

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<sup>1</sup> The preparation of this Memorandum and Resolution was led by Sara Zimmerman of the Climate Equity Policy Center, [www.climateequitycenter.org](http://www.climateequitycenter.org), an initiative focused on supporting the adoption and implementation of climate policies that advance fair, healthy, and equitable communities. Also contributing to its preparation was Scott W. Badenoch, Jr. (Visiting Attorney, Environmental Law Institute), Moira O'Neill (Associate Research Scholar, Sabin Center for Climate Change Law), and Noble Smith (Student, Howard University School Of Law). Peer review was provided by Scott Reichle, P.E., Esquire, of Patten, Wornom, Hatten & Diamonstein, L.C., Newport News, Virginia.

<sup>2</sup>See William McDonough, *Cradle to Cradle* (2013); see also *Story of Stuff* (Free Range Studios 2007).

<sup>3</sup>See Eva Gladek, *The Seven Pillars of the Circular Economy*, <https://www.metabolic.nl/news/the-seven-pillars-of-the-circular-economy/> (last visited Nov. 16, 2020).

<sup>4</sup>"Upcycling" is the process of transforming by-products, waste materials, useless, or unwanted products into new materials or products perceived to be of greater quality, such as artistic value or environmental value. "Recycling vs. Upcycling: What is the difference?" InterCon, February 17, 2010, <https://intercongreen.com/2010/02/17/recycling-vs-upcycling-what-is-the-difference/>.

impacts of the exorbitant amount of waste that a traditional linear economy produces, prioritizing sustainability, while reaping the benefits of a thriving economy.<sup>5</sup>

### **A. History and Definition**

For decades, economists and others have explored economic approaches that support long-term economic growth while helping, rather than harming, environmental and social health. The idea of a circular economy first began to take hold in the 1970's when Walter Stahel and Genevieve Reday described an economy focused on waste prevention and sustainability in a report to the European Commission.<sup>6</sup> Stahel also developed the "closed loop" economic approach, one that emphasizes "product-life extension, long-life goods, reconditioning activities, and waste prevention," which began to play a role in German and Japanese policy in the 1980's and 1990's.<sup>7</sup>

More recently, based on research by the Ellen MacArthur Foundation, the circular economy has been defined as a "restorative or regenerative industrial system."<sup>8</sup> It has also been defined as "a sustainable development initiative with the objective of reducing the societal production-consumption systems' linear material and energy throughput flows."<sup>9</sup> Eva Gladek has set out seven pillars of a circular economy, which focus on the desired end state of a circular economy.<sup>10</sup> Given the various social and industrial perspectives with which to view the circular economy, it is difficult to adopt one universal definition of this concept. We define a circular economy as one in which resource extraction and waste are reduced to a minimum and eventually eliminated, resources are reused efficiently, the value of products, materials, and resources is maintained, and natural systems are regenerated rather than depleted.

Different economic theories describe variations on how to frame the concept of an economic system that avoids waste and environmental injustice, reduces resource extraction through reuse of materials and products, and supports good, clean jobs. The term circular economy emphasizes the virtuous cycles that return biological materials back to natural systems and non-biological materials for long term use and reuse in production. The term regenerative economy is related but places a greater emphasis on a just and sustainable economic system that incorporates circularity, regeneration, and balance. Also relevant is the concept of doughnut economics: the inside ring of the doughnut shows the minimum humans need to survive and thrive, the outside ring depicts the limitations of the planet, and our economy can flourish in between.<sup>11</sup> The content of the transformation from linear to circular is more important than the terminology.

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<sup>5</sup>Ellen MacArthur Foundation, *What is a Circular Economy?*, [www.ellenmacarthurfoundation.org/circular-economy/concept](http://www.ellenmacarthurfoundation.org/circular-economy/concept) (last visited Nov. 15, 2020).

<sup>6</sup>Ellen MacArthur Foundation, *Schools of Thought*, <https://www.ellenmacarthurfoundation.org/circular-economy/concept/schools-of-thought> (last visited Nov. 15, 2020).

<sup>7</sup>Leonidas Milios, *Advancing to a Circular Economy: Three essential ingredients for a comprehensive policy mix*, *Sustain Sci* 13, 861–878 (2018) <https://doi.org/10.1007/s11625-017-0502-9>.

<sup>8</sup>Niero, M., Hauschild, M.Z., Hoffmeyer, S.B. and Olsen, S.I. (2017), *Combining Eco-Efficiency and Eco-Effectiveness for Continuous Loop Beverage Packaging Systems: Lessons from the Carlsberg Circular Community*. *Journal of Industrial Ecology*, 21: 742-753. <https://doi.org/10.1111/jiec.12554>.

<sup>9</sup>Korhonen et al, *Circular economy as an essentially contested concept*, *Journal of Cleaner Production*, Volume 175, Pages 544-552 (2018). <https://doi.org/10.1016/j.jclepro.2017.12.111>.

<sup>10</sup>See Eva Gladek, *The Seven Pillars of the Circular Economy*, <https://www.metabolic.nl/news/the-seven-pillars-of-the-circular-economy/> (last visited Nov. 16, 2020).

<sup>11</sup>Kate Raworth, *Exploring Doughnut Economics*, 2020, <https://www.kateraworth.com/doughnut/>.

## **B. Principles and Characteristics**

Circular economies have three guiding principles: to avoid waste, keep materials and products in use, and regenerate natural systems. Walter Stahel described key components of a circular economy to include continuous material loops that minimize potential waste, functioning secondary markets, as well as goods that retain their quality and performance.<sup>12</sup> The continuous material loops do not only apply to industrial products; they may also involve biological material, such as the reuse of nutrients in regenerative farming or composting, as well as renewable energy forms.<sup>13,14</sup> Research has noted that in order for the transition to a circular economy to be deemed “complete,” it must involve “all actors within the society and their capacity to link and create suitable collaboration and exchange patterns.”<sup>7</sup> Furthermore, in order for a circular economy to be considered “functional,” an economic return on investment for these actors is necessary, so that private companies and investors have an incentive to continue to pursue circular economic objectives.

Creating a circular economy involves alterations in practices by governmental agencies, support for businesses as they design and develop products and services for reuse and without waste, and changes in consumer practices and preferences. Circular use principles can be applied to all resource and material use and production.

The idea of a circular economy has already gained traction all over the world, with the European Union, China, South Africa, and Chile already making efforts to incorporate it into their policies dealing with sustainability.<sup>15</sup>

## **III. Why A Circular Economy?**

A strong economy ensures people have good jobs and can support themselves and their families while living in a healthy environment. But our current linear economy is based upon an ongoing extraction of resources from the natural world, resources that are used for a short period, and then dumped in landfills and incinerators. A circular economy minimizes use of new resources, reuses and recycles products and materials, and protects and regenerates natural systems. The findings of the report *The Circularity Gap 2019* revealed that the circular economy would be a major way of reducing greenhouse gas emissions due to the reduction of waste generated and the extension of product lifespan.<sup>16</sup> The report also found that implementing circular economic policies can “reduce social inequality and foster low-carbon growth.”<sup>17</sup>

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<sup>12</sup>Ellen MacArthur Foundation, *supra* note 4.

<sup>13</sup>Milios, *supra* note 6.

<sup>14</sup>Ellen MacArthur Foundation, *The Circular Economy in Detail*, <https://www.ellenmacarthurfoundation.org/explore/the-circular-economy-in-detail>, (last visited Nov. 15, 2020).

<sup>15</sup>Steven Stone, *Closing The Loop: How a Circular Economy Helps Us #BeatPollution*, UN Environment Programme (Nov. 27, 2017), <https://www.unenvironment.org/news-and-stories/story/closing-loop-how-circular-economy-helps-us-beatpollution>; World Bank Group, “*Circular Economy Promotion Law of the People’s Republic of China*,” 2008 ; See also Ministry of the Environment, Government of Japan, “Creation of a Regional Circular and Ecological Sphere to Address Local Challenges,” *Annual Report on the Environment in Japan 2018*”, 2018, <https://www.env.go.jp/en/wpaper/2018/pdf/04.pdf>; European Commission, “A New Circular Economy Action Plan for a Cleaner and More Competitive Europe,” 2020, <https://ec.europa.eu/environment/circular-economy/>.

<sup>16</sup>UN Climate Change News, Jan. 22, 2019, *Circular Economy Crucial for Paris Climate Goals*, UNFCCC.

<sup>17</sup>*Id.*

Moving toward a circular economy brings benefits, including:

- **Employment & Economic Benefits:** Circular economies support new jobs, save consumers money, and create stable long-term economic development.<sup>18</sup> A circular economy brings economic benefits for individuals, businesses, and government, by reducing costs of resources and waste disposal, generating jobs, supporting efficiency in design, supporting responsible business practices, and decreasing externalized health and climate costs.<sup>19</sup>
- **Sustainable Businesses:** Local and state governments can support and invest in rebuilding our economies to drive change in key local systems and incorporate and strengthen concepts of circularity in the business community, in order to provide for good jobs for residents, thriving markets, healthy communities, and sustainable and regenerative intersections between the natural and human worlds.<sup>20</sup> A key opportunity exists to create and support local and regional supply chains.
- **Climate Change Mitigation:** Circular economies reduce contributions to climate change by reducing and avoiding resource extraction, transportation costs, and waste streams that fill landfills and municipal waste management facilities, significantly increasing carbon emissions.<sup>21</sup>
- **Supports Environmental Justice:** Many low-income communities and communities of color are plagued by toxic air, soil, and water pollution due to incineration, landfills, manufacturing, production, and resource extraction near residential areas.<sup>22</sup> While a circular economy will not end injustice related to race and class by itself, a circular economy first decreases waste, and ultimately will lead to waste becoming obsolete, presenting a more permanent, consistent, and healthier solution to the problem of polluted communities. The first step in environmental remediation is to stop making the problem worse. If a company has adopted circular methods and eliminated the lion's share of their waste, ongoing contamination of environmental justice communities stops, and efforts to clean and invest in communities can be renewed.

#### IV. Policy Approaches

Local governments can support and advance circular economies through a variety of policy approaches. This memo accompanies a local resolution, which is, as described in further detail below, intended as a starting point to support local jurisdictions as they embark on the journey to developing a more circular economy through a supportive policy statement, an internal assessment of emissions, resource, and

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<sup>18</sup>McKinsey Quarterly, "Mapping the benefits of a circular economy," June 1, 2017, <https://www.mckinsey.com/business-functions/sustainability/our-insights/mapping-the-benefits-of-a-circular-economy#>; see also Hans Stegeman, "The potential of the circular economy: From circular materials cycles to a circular macroeconomy with scenarios for the Netherlands," RaboResearch - Economic Research, 2015, <https://economics.rabobank.com/publications/2015/july/the-potential-of-the-circular-economy/>.

<sup>19</sup>Ellen MacArthur Foundation, "Completing the Picture: How the Circular Economy Tackles Climate Change," 2019, [https://www.ellenmacarthurfoundation.org/assets/downloads/Completing\\_The\\_Picture\\_How\\_The\\_Circular\\_Economy\\_Tackles\\_Climate\\_Change\\_V3\\_26\\_September.pdf](https://www.ellenmacarthurfoundation.org/assets/downloads/Completing_The_Picture_How_The_Circular_Economy_Tackles_Climate_Change_V3_26_September.pdf).

<sup>20</sup>Ellen MacArthur Foundation, "Completing the Picture: How the Circular Economy Tackles Climate Change," 2019, [www.ellenmacarthurfoundation.org/publications/completing-the-picture-climate-change](http://www.ellenmacarthurfoundation.org/publications/completing-the-picture-climate-change); World Economic Forum, "Towards the Circular Economy: Accelerating the Scale-up across Global Supply Chains," 2014, [http://www3.weforum.org/docs/WEF\\_ENV\\_TowardsCircularEconomy\\_Report\\_2014.pdf](http://www3.weforum.org/docs/WEF_ENV_TowardsCircularEconomy_Report_2014.pdf).

<sup>21</sup>*Id.*

<sup>22</sup>Karen Bell, *The Causes of Environmental Injustice*, in *Achieving Environmental Justice: A Cross-National Analysis*, 2014, DOI: 10.1332/policypress/9781447305941.001.0001.

waste flows, and identification of key opportunities. Down the road, depending upon state law and local interest, local governments can take additional steps, such as:

- Plastic bag, plastic food packaging, and utensil bans.
- Food waste restrictions that encourage or require composting and other measures to keep food waste out of waste streams.
- Extended producer responsibility laws that require producers to take responsibility for disposing of consumer waste across various products.
- Municipal procurement policies focused on ensuring that local governmental purchases encourage or require circular processes.
- Incentives to encourage adoption of circular practices for existing businesses or establishment of new circular businesses.

Such steps would provide an excellent follow up to adoption of an introductory resolution. See Appendix A for examples of such policies that have been adopted in different locations.

### ***Model Resolution***

This model resolution is intended to assist local governments in initiating deliberate steps along the path to a fully achieved circular economy. Most cities and towns already engage in one or more practices that are considered circular – actions such as composting yard waste, recovering electronic waste products, banning or imposing fees on single use plastic bags, considering product lifespan in procurement decisions, and so on. This model resolution helps local jurisdictions commit to exploring and moving toward a circular economy. It is intended for local jurisdictions that are at the early stages of their circular economy journey.

As noted above, different economic theories use different terminology as they describe an economic system that avoids waste, prevents environmental injustice, reduces resource extraction through reuse of materials and products, and supports local jobs. This resolution primarily uses the term circular economy, but that term is not itself the key element. The policy steps described in this resolution will have applicability regardless of the term used; a jurisdiction may substitute their preferred term.

The resolution contains a number of different provisions. First, it sets out a general commitment to a transition to a circular economy. The power of a resolution like this comes from the act of committing to a circular economy and the opportunity for future actors to use the commitment rhetorically to advocate for further steps.

The resolution also designates a lead department or official in charge of implementing the resolution and ensuring transparency in that process. Communities have noted the benefits of having the designated department be one that has broader authority and responsibilities within the local jurisdiction, since otherwise the scope of the circular economic analysis and considerations are more likely to be limited to matters under the authority of the relevant department.

Additionally, the resolution calls for an initial assessment of resource and waste in-flow and out-flow, as well as for a more comprehensive emissions analysis. The initial assessment is intended to identify low-hanging fruit whereby the jurisdiction can easily take steps to improve its circularity and reduce waste. The assessment also requires consideration of whether there are particular neighbors or areas that experience additional burdens in terms of exposures to pollutants. In addition, the resolution calls for measurements of resource use and carbon emissions on a consumption basis, to ensure that embodied carbon and other waste related to production and transportation of products are accounted for.

Although these measurements do not create goals and accountability in and of themselves, they provide a foundation for more rigorous accountability and ambitious goal setting.

The resolution requires the lead to assess additional opportunities for policy and procedural improvements with regard to some of the areas most likely to be ripe for improvement: city construction, procurement, and contracting; food waste; zoning and building codes, and water management.

In addition, the resolution calls for the jurisdiction to determine approaches to reduce exposure to waste or pollution in low-income neighborhoods and census tracts, as well as in those with particular exposure to waste or pollution. Through this process, the jurisdiction can identify opportunities within new circular practices to reduce such exposure, and identify and mitigate any potential increase in such exposure.

The resolution also encourages support for and exploration of business and job creation opportunities. These provisions are aimed at supporting local businesses, invigorating the local economy, and developing the secondary markets that are necessary for circularity. Moreover, by focusing on job creation possibilities for local residents and encouraging exploration of pilot job training programs or incentives, the resolution supports steps towards an economy that works for low-income people, while recognizing that some local governments will have limited internal capacity for these types of programs and will need to move slowly.

## **V. Conclusion**

The United States is on the cusp of a wave of policies that support a transition to a circular economy. This trend will be accelerated by local resolutions supporting the general concept of circularity, along with more advanced local, state, and federal laws on related aspects of a circular economy. Ultimately, the transition to a fully achieved circular economy will support climate action and local economies, while creating healthier and more economically and environmentally just communities.

As a practical matter, movement towards a circular economy requires partnership between various interest groups. An effective circular economy brings together industry producers, community advocates, political officials, waste management officials, and secondary producers as critical stakeholders. Each of these groups has unique interests that may not always align, requiring a focus on the shared benefits that circular economies provide. Coalitions can enable stakeholders to build and harness power as they support development and implementation of circular economy policy. Coalitions function to promote the shared interests of members despite whatever differing secondary interests exist within the group. These relationships can result in beneficial partnerships within the circular economy model. Industry and community advocates can create coalitions that support community hiring practices while taking on specific opportunities, such as making subsidies available to construct a new waste repurposing center in partnership with a local university. Particularly for community advocates, coalition building can be used to integrate equity as a fundamental principle in the development of circular economies. Local officials need community support and a strong workforce is important to both industry producers and waste management operators. When advocates leverage community interest and build strong coalitions, communities can be the primary beneficiaries of circular economies, experiencing strong economic activity, less contamination, and reduced inequities.

This local resolution is a first step for cities and counties towards creating a circular economy. Local communities are the best place to start when building a national coalition of supporters for circular economy principles and a network of local laws to advocate for and build upon them. This resolution provides an essential approach to galvanize local forces around the concept of a circular economy and push them to create real change towards that end.

## Appendix A: National & International Policy Examples

Area	Policy	Examples	Links to Research
Increasing Product Lifespan	Establishing, promoting, and/or subsidizing refurbishing/repair workshops	<p>Paris, France</p> <p>Copenhagen, Denmark (for electric &amp; electronic waste)</p> <p>Lisbon, Portugal (repair shops run by students and unemployed)</p> <p>Ljubljana, Slovenia</p> <p>Vienna, Austria (commissioning R.U.S.Z.)</p>	<p>Paris:  <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a></p> <p>Copenhagen:  <a href="https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf">https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf</a></p> <p>Lisbon:  <a href="https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf">https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf</a></p> <p>Ljubljana:  <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a></p> <p>Vienna:  <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a></p>
Increasing Product Lifespan	Developing relationships with private companies for reusing furniture	Paris, France	Paris: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a>
Increasing Product Lifespan	Creating “bulk sale shops”	Paris, France	Paris: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a>



			<a href="#">circular-economy</a>
Increasing Product Lifespan	Implementing “reuse warehouses” - connecting those with unwanted materials to those who can use them	Houston, Texas, USA	Houston: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a>
Increasing Product Lifespan	Providing trainings on the reuse of building materials	Paris, France	Paris: <a href="https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf">https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf</a>
Increase Product Lifespan	Developing online tools to inform consumers on what to do with broken appliances	Hamburg, Germany (web portal to inform consumers on what to do with broken electronics)	Hamburg: <a href="https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf">https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf</a>
Increase Product Lifespan	Developing online platforms for reusing materials	Austin, USA (enables exchange/sale of construction materials, furniture, decor, office supplies, electronics, etc.)  New York, USA (donateNYC)	Austin: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a>  New York: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a>
Increase Product Lifespan	Reusing byproducts from road and sidewalk renovation/construction	Ljubljana, Slovenia	Ljubljana: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a>
Increase Product Lifespan	Reusing byproducts from construction/deconstruction	Baltimore, USA (as part of the “Waste to Wealth” Initiative)	Baltimore: <a href="https://publicworks.baltimorecity.gov/sites/default/files/LWBBTask5ReportF">https://publicworks.baltimorecity.gov/sites/default/files/LWBBTask5ReportF</a>

			<a href="#">INAL4-15-20.pdf</a>
Green Public Procurement	Passing ecological standards for public purchasers	<p>Berlin, Germany: Berlin Public Procurement Act (requires incorporation of environmental criteria into procurement), 2013 regulation decree</p> <p>Paris, France; Birmingham, England; Amsterdam, Netherlands: incorporating “lifecycle costing”</p> <p>California, USA: “Buy Clean California Act” (incorporating GWP and requiring EPDs from bidders)</p> <p>Toronto, Canada</p>	<p>Berlin: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a></p> <p>Paris, Birmingham, Amsterdam: <a href="https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf">https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf</a></p> <p>California: <a href="https://www.climateworks.org/wp-content/uploads/2019/09/Green-Public-Procurement-Final-28Aug2019.pdf">https://www.climateworks.org/wp-content/uploads/2019/09/Green-Public-Procurement-Final-28Aug2019.pdf</a></p> <p>Toronto: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a></p>
Green Public Procurement	Purchasing office furniture with provider promising refurbishment of old furniture	Amsterdam, Netherlands	Amsterdam: <a href="https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf">https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf</a>
Green Public Procurement	Forming transnational procurement groups	Paris, France	Paris: <a href="https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_">https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_</a>

			<a href="#"><u>the role of municipal policy in the circular economy.pdf</u></a>
Composting	Developing infrastructure for household disposal of bio-waste	Barcelona, Spain  FORCE Project (Hamburg, Germany; Copenhagen, Denmark; Lisbon, Portugal; Genoa, Italy)	Barcelona: <a href="https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf"><u>https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf</u></a>  FORCE Project: <a href="https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf"><u>https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf</u></a>
Recycling & Composting	Campaigning to encourage reduction & separation of food waste	Lisbon, Portugal  Barcelona, Spain (establishing “Green Points” around the city)  Urumqi, China  Baltimore, USA (establishing “Baltimore Food Waste and Recovery Strategy” as part of the “Waste to Wealth Initiative”)	Lisbon: <a href="https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf"><u>https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf</u></a>  Barcelona: <a href="https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf"><u>https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf</u></a>  Urumqi: <a href="https://circulareconomy.europa.eu/platform/sites/"><u>https://circulareconomy.europa.eu/platform/sites/</u></a>

			<a href="https://www.c40.org/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf">default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf</a>  Baltimore: <a href="https://www.baltimoresustainability.org/wp-content/uploads/2018/09/BaltimoreFoodWasteRecoveryStrategy_Sept2018_FINAL.pdf">https://www.baltimoresustainability.org/wp-content/uploads/2018/09/BaltimoreFoodWasteRecoveryStrategy_Sept2018_FINAL.pdf</a>
Recycling & Composting	Reforming waste taxation	Barcelona, Spain	Barcelona: <a href="https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf">https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf</a>
Recycling & Composting	Developing internet technologies to enable services for sharing food with neighbors	Helsinki, Finland	Helsinki: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a>
Recycling & Composting	Creating plants for sorting municipal waste	Maribor, Slovenia  Boulder, USA (Universal Zero Waste Ordinance)	Maribor: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a>  Boulder: <a href="https://bouldercolorado.gov/zero-waste/universal-zero-waste-ordinance">https://bouldercolorado.gov/zero-waste/universal-zero-waste-ordinance</a>
Recycling & Composting	Sorting and distributing products from wood waste	Baltimore, USA (“Camp Small Zero Waste Initiative”)	Baltimore: <a href="https://publicworks.baltimorecity.gov/sites/default/files/LWBBTask5ReportFINAL4-15-20.pdf">https://publicworks.baltimorecity.gov/sites/default/files/LWBBTask5ReportFINAL4-15-20.pdf</a>
Recycling & Composting	Expanding recycling and composting	Boulder, USA (as part of Boulder’s “Zero Waste	Boulder: <a href="https://www-">https://www-</a>

	opportunities	Strategic Plan”)	<a href="http://static.bouldercolorado.gov/docs/Zero-Waste-Strategic-Plan-Action-Plan-Web-1-201604131208.pdf?_ga=2.97216799.1483200070.1605810614-123720360.1605810614">static.bouldercolorado.gov/docs/Zero-Waste-Strategic-Plan-Action-Plan-Web-1-201604131208.pdf?_ga=2.97216799.1483200070.1605810614-123720360.1605810614</a>
Urban Planning	Introducing sustainability standards in regulation related to urban planning	Amsterdam, Netherlands  Boulder, USA (“Green Building and Green Points Program”)	Amsterdam: <a href="https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf">https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf</a>  Boulder, USA <a href="https://www-static.bouldercolorado.gov/docs/green-points-guideline-booklet-1-201306271201.pdf">https://www-static.bouldercolorado.gov/docs/green-points-guideline-booklet-1-201306271201.pdf</a>
Urban Planning	Implementing flexible zoning laws	Amsterdam, Netherlands	Amsterdam: <a href="https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf">https://circulareconomy.europa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf</a>
Urban Planning	Developing/subsidizing parking space rental services	Helsinki, Finland (developing service)  Seoul, South Korea (subsidizing services)	Helsinki: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a>  Seoul: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a>
Energy Efficient Housing	Providing subsidies/loans for	Amsterdam, Netherlands	Amsterdam: <a href="https://circulareconomy.eu">https://circulareconomy.eu</a>

	those investing in energy efficient housing	Samsø, Denmark	<a href="https://uropa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf">uropa.eu/platform/sites/default/files/5d15be02940ad0c394e7a9ff_circle_economy_-_the_role_of_municipal_policy_in_the_circular_economy.pdf</a>  Samsø: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a>
Innovative Products/Technologies	Producing paper using alternative materials	Ljubljana, Slovenia (produces paper using Japanese knotweed at semi-industrial level)	Ljubljana: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a>
Innovative Products/Technologies	Creating gas capture and control technologies in landfills	Phoenix, USA	Phoenix: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a>
Innovative Products/Technologies	Utilizing locally-produced biogas for fuel	Samsø, Denmark (used for fuelling public ferries)	Samsø: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a>
Innovative Products/Technologies	Recovering heat from waste-water networks	Arras, France Helsinki, Finland	Arras: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a>  Helsinki: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a>
Innovative Products/Technologies	Implementing biointensive micro-farming	Lille, France	Lille: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a>
Innovative Products/Technologies	Utilizing “biochar” for carbon sequestration	Stockholm, Sweden	Stockholm: <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a>

Other	Imposing fees on plastic bag use	Quezon, Philippines  Baltimore, USA	<p>Quezon:  <a href="https://www.c40.org/researches/municipality-led-circular-economy">https://www.c40.org/researches/municipality-led-circular-economy</a></p> <p>Baltimore:  <a href="https://baltimore.legistar.com/LegislationDetail.aspx?ID=3987391&amp;GUID=B0F53830-8387-474B-A1C0-09B5524657F1&amp;Options=ID%7CText%7C&amp;Search=plastic&amp;FullText=1">https://baltimore.legistar.com/LegislationDetail.aspx?ID=3987391&amp;GUID=B0F53830-8387-474B-A1C0-09B5524657F1&amp;Options=ID%7CText%7C&amp;Search=plastic&amp;FullText=1</a></p>
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